

Public Works *Digest*

In this issue:

**Energy Management
and Water Conservation**





U.S. Army Installation Management Agency

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On the cover:

Incoming IMA Director Maj. Gen. Ronald L. Johnson, Army Assistant Chief of Staff for Installation Management Maj. Gen. Larry J. Lust, and outgoing IMA Director Maj. Gen. Anders B. Aadland salute during the IMA change of leadership ceremony on the steps of Fort Belvoir's Post Headquarters. Photo Credit: Richard M. Arndt.

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LETTER FROM THE EDITOR



The September/October *Public Works Digest* is traditionally our energy management and water conservation issue. This year we cover a particularly broad spectrum of articles from the Secretary of the Army Energy and Water Conservation awards to installation successes to energy policies to energy websites to energy awareness seminars to water management plans.

An innovative contract that places an energy consultant onsite and full-time at installations deserves special mention. Redstone Arsenal is one of the first to employ a Resource Efficiency Manager (REM) to help reduce energy consumption. Bob Quick explains the program and the many benefits the post has already reaped. In another article, Steve Sain cleverly dubs REMs human performance contracts and attributes over \$2 million in savings to Fort Polk's REM, Nancy Varner. Read how REMs must fund themselves through energy savings.

This energy issue also boasts articles on geothermal heat pumps in Korea, saving through intervention at Fort Knox, waterless urinals at The Presidio, conserving water at Fort Bragg and West Point, wastewater processing at Schofield Barracks, solar-powered cells at White Sands Missile Range, and fuel cell vehicles at Fort Belvoir.

Finally, the Installation Management section is dedicated to the new Units of Action (UAs). In addition to an overview by Sgt. Lorie Jewell, the ACSIM's Bob Sperberg, IMA's Don LaRocque and Fort Campbell's DPW Col. Jim Duttweiler give us a good summary of how Forts Drum and Campbell are preparing for the new UAs and what we can expect in the near future.

This summer provided us with new leadership at the U.S. Army Corps of Engineers and the Installation Management Agency. In July, Lt. Gen. Carl A. Strock, former Director for both Military Programs and Civil Works at the Corps Headquarters, was sworn in as the 51st Chief of Engineers, replacing Lt. Gen. Robert B. Flowers, the 50th Chief of Engineers, who retired. The IMA change of leadership ceremony took place on the steps of Fort Belvoir's Post Headquarters last August. Assistant Chief of Staff for Installation Management Maj. Gen. Larry J. Lust welcomed incoming IMA Director Maj. Gen. Ronald L. Johnson and thanked outgoing IMA Director Maj. Gen. Anders B. Aadland for laying "a solid foundation." Both events are covered in our Who's Who section.

On a sad note, the ACSIM will be losing a few good men. The end of August saw the retirement of Satish K. Sharma, Chief of the Utilities Privatization and Energy Team. Satish had worked in the energy arena for almost a quarter of a century and he will be sorely missed. Also, Larry Black, ACSIM's IDS Program Manager, will be retiring at the end of September; and come October, John Nerger, ACSIM Director of Facilities and Housing, will be taking a new position with TRADOC.

Our next issue will feature the Annual Report and it is your chance to shine by telling us what you have accomplished over the past year. The call for articles will end on 29 October 2004 and I look forward to hearing about your many successes.

Alexandra K. Stakhiv

Alexandra K. Stakhiv, Editor, *Public Works Digest* **PWD**



2004 Energy and Water Management awards

by David Purcell

This year's competition for the various Energy and Water Management awards was lively with over 40 excellent nominations from across the Army. Dedication to energy conservation across the Army was obvious from the nominations and the OACSIM appreciates the results.

The Secretary of the Army Energy and Water Management Awards Program recognizes significant energy and water conservation achievements performed by installations and individuals in the Active Army, Army National Guard, and Army Reserve. Through their dedication, hard work, ingenuity and success, the award winners not only improve the Army's energy future by improving efficiency, they also reduce greenhouse gases; use new, clean renewable technologies; and promote energy awareness.

The winners of the 26th Annual Secretary of the Army Energy and Water Management have been approved and are listed below. An award ceremony is being planned and details will be announced in the near future. Congratulations to all of the awardees and thank you for your efforts to conserve Army energy.

Installation:

Fort Benning, Georgia - Energy Efficiency/Energy Management

6th Area Support Group, Stuttgart, Germany - Energy Efficiency/Energy Management

Rock Island Arsenal, Illinois - Program Effectiveness

Arizona Army National Guard, Phoenix, Arizona - Energy Efficiency/Energy Management

Fort McCoy, Wisconsin - U.S. Army Reserves - Energy Efficiency/Energy Management

Small Group:

Corpus Christi Army Depot, Texas - Alternative Financing Project

Mr. Adan Pena, Energy Conservation Officer (CCAD); Mr. Marciano Gonzalez, Mechanical Engineer (CCAD); Mr. Sidney Stewart, Electrical Engineer (CCAD); and Mr. Ken Ormsbee, Director, Federal Business Unit of Chevron Energy Solutions

415th Base Support Battalion, Kaser-slaughtern, Germany - Energy Efficiency/Energy Management

Mr. Bob Ackley, 415th Base Support Battalion, Chief of Utilities; Mr. Dieter Haertel, 415th Base Support Battalion, Mechanical Engineer; Mr. Paul Lindemer, 415th Base Support Battalion, Chief, Facilities Engineering Division

Individual:

Mr. David Osborn - Rock Island Arsenal, Illinois - Energy Efficiency/Energy Management

Mr. Gary Meredith - Fort Knox, Kentucky - Alternative Financing Project

Mr. James Whitehead - Headquarters, Tennessee ARNG - Energy Efficiency/Energy Management

More information about the 26th Annual Secretary of the Army Energy and Water Management awardees can be viewed at http://hqda-energypolicy.pnl.gov/awards/sec_army.asp

Each year the U.S. Department of Energy, in conjunction with the Federal Interagency Energy Policy Committee, sponsors the Federal Energy and Water Management Awards. These awards honor

individuals and organizations making significant contributions to the efficient use of energy and water resources in the federal government.

The Army winners of this year's Federal Energy and Water Management Awards are:

Small Group:

United States Military Academy - Energy Efficiency/Energy Management

Individual:

Mr. Daniel J. Greene, DPW Area II, Support Activity, Yongsan, Korea - Renewable Energy

A complete list of awardees across the federal government can be viewed at http://www.eere.energy.gov/femp/services/awards_fewm2004.cfm

This year's Federal Awards luncheon ceremony will be held at noon on 28 October 2004 at the Hilton Crystal City Hotel in Arlington, Virginia. A reception to honor award winners will be held on the evening of 27 October, also at the Hilton Crystal City. Attendance at the awards luncheon and reception is by invitation only.

Although the Army submitted several excellent nominations for other FEMP awards (Louis R. Harris, Energy Saver Showcase and Presidential Award for Leadership in Energy Management), no Army submissions were selected for these awards. There was stiff competition across the federal government for these awards and the results can be viewed at <http://www.eere.energy.gov/femp/services/awards.cfm>

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USMA wins award for energy efficiency

The United States Military Academy (USMA), West Point, New York, has won the 2004 Federal Energy Award for its continuing efforts at improving energy efficiency. Using an Energy Savings Performance Contract (ESPC) administered by the Huntsville, Alabama District of the Corps of Engineers, the program has provided for over 25 million dollars of improvement to our utilities, resulting in energy savings of over \$1 million each year.

The ESPC is, as the name implies, performance-based. The contractor puts up the funding for the construction and improvements and receives a portion of the savings realized from the project.

The largest project to date, replacement of large central power plant boilers and a new natural gas fuel pipeline, began generating savings in 2003. The project was to replace two 35-year-old main boilers and associated equipment. Each of the two boilers produces up to 125,000 pounds of steam each hour for heating, hot water, air conditioning and some electrical power for most of the installation.

Currently, the first new boiler is installed, efficiently operating and generating savings. Performance testing for the second boiler is being performed. The new boilers are state of the art, natural gas fired, and offer increased operating efficiency, more reliability, and major environmental improvements. The use of gas as the pri-



Front of the new Boiler #1 commissioned in 2003.

mary fuel eliminates the need for oil barge deliveries on the Hudson River and the associated risk of oil spills.

Additionally, the large fuel storage tanks on the riverside were removed in June 2003, offering a more picturesque view of USMA from the river.

The new boilers were designed from scratch to meet the strictest requirements imposed by the New York State Department of Environmental Conservation (DEC) and the

federal Environmental Protection Agency (EPA). Over 175 tons per year of air emissions are being avoided with the new gas service and boilers.

To supply fuel to the new boilers, a six-mile-long high-pressure gas line was included as a part of the contract. It is expected that the new gas line will not only supply the fuel for the new boilers, but also provide for the future growth of USMA.

Ultimately, the project has ensured providing another 30-40 years of high temperature steam service to the West Point Community.

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The new "Crow's Nest" natural gas regulator station.



Pueblo Chemical Depot wins National EPA Community Involvement Award

by Maureen M. Holland

Nearly 400 representatives from all levels of government, tribal organizations, community groups, academics and other stakeholders gathered in Denver on 15-17 June 2004 for the U.S. Environmental Protection Agency's seventh annual National Community Involvement Conference. The conference theme was "Going the Extra Mile: Meeting Community Needs." Participants explored how community involvement can result in better environmental decisions.

The Pueblo Chemical Depot's Environmental Restoration Program was recognized through a poster competition that demonstrated the Army's public education and community involve-

ment project in Avondale, Colorado. Conference participants voted the depot's poster the best and presented the "People's Choice Award" to Kathryn Cain, Chief, Pueblo Chemical Depot's Environmental Management Office, on 17 June, during EPA's National Community Involvement Conference at the Hyatt Regency Hotel in Denver.

Three posters depicted the history of TNT contamination at the depot, the U.S. Army's response to contaminated groundwater that migrated offsite and affected private businesses and residences in Avondale, and how the Army worked



Installing the water treatment system for the city of Avondale.

closely with state regulators and residents to solve the problem.

Earth Tech, Inc, the USACE environmental contractor, and the Omaha District's Environmental Program Managers, Maureen Holland and Jerome





White House honors outstanding federal environmental stewardship

On 15 July 2004, Federal employees from across the United States gathered at the Department of State in Washington, D.C., to accept White House "Closing the Circle" Awards for their outstanding environmental stewardship work. These awards recognize federal employees and facilities for innovative practices and programs that have improved environmental performance and conditions.

"These winners have heeded President Bush's call for the federal government to lead by example, be a good neighbor, and be a good steward of our natural resources," said Mr. Ed Pinero, Acting Federal Environmental Executive, "Through these awards, we hope to promote sustainable environmental stewardship throughout the federal government by helping tell others about these federal success stories and making it easier for others to adopt these innovative practices."

In the award's tenth year, twelve winners were selected from nearly 200 nominations in the areas of environmental management, pollution prevention, recycling, green product purchasing, and sustainable building.

Created by executive order, the Office of the Federal Environmental Executive (OFEE) works to promote sustainable environmental stewardship throughout the Federal government. The OFEE assists agencies in integrating environmental considerations into the government's operations and planning and improve performance, principally through

implementation of environmental management systems. The OFEE also assists agencies with such sustainable practices as purchasing green products, sustainable building, and electronics stewardship.

The OFEE is funded by the Environmental Protection Agency, consists of representatives from several federal agencies, and reports to the White House Council on Environmental Quality.

2004 White House Closing the Circle Award Winners:

Environmental Management Systems

- **Department of Defense**, Fort Bragg, North Carolina, *The Right Way, The Green Way, All the Way!*
- **Department of Energy**, Battelle Memorial Institute, Lab Ops Group, Ohio, *Corporate Commitment to Environmental Stewardship and Environmental Management Systems*

Waste/Pollution Prevention

- **Department of Defense**, Robins Air Force Base, Georgia, Environmental Management Directorate, *Taking Strides Forward in Pollution & Waste Prevention at Robins AFB*
- **Department of Homeland Security**, Federal Law Enforcement Training Center, Georgia, *Green Ammunition*
- **New Mexico Veterans Affairs Healthcare Systems**, NM, Mr. Mark Boyers, *Hazardous Waste Reduction at the NM VA Healthcare System*

Recycling

- **Department of Defense**, Tinker Air Force Base, Oklahoma, Solid Waste/Recycling Team, *Rejuvenation of Base Recycling Program at Tinker AFB*
- **Department of Defense**, Vandenberg Air Force Base, California, Mr. Patrick Maloy, *Vandenberg AFB QRP Exceeds 90% Diversion Rate*
- **Department of Justice**, Federal Correctional Complex, Coleman, Florida, *Recycling Program at the Federal Correctional Complex, Coleman, Florida*

Sustainable Design/Green Building

- **Department of Defense**, U.S. Army Yuma Proving Ground, Arizona, Ms. Sue Ibrahim, *YPG Energy Efficient Model Home*
- **Department of the Interior**, Chincoteague National Wildlife Refuge, Virginia, *Going Green Over Buildings at Chincoteague NWR*

Green Purchasing

- **Department of Defense**, Homestead Air Reserve Base, Florida, *Environmentally Friendly Products Section at Homestead Air Reserve Base Store*
- **Department of Energy**, Sandia National Laboratories, New Mexico, *Five Keys to Success: Continuous Improvement for Construction Purchases*

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Stolinski, worked closely with the Depot for a successful resolution. This included the continuous delivery of emergency potable water to all residents in the area, numerous public meetings and the design and installation of the final remediation

systems.

The U.S. Army Corps of Engineers, Omaha District, and the public relations firm, Guild Communications, assisted the Environmental Management Office in the competition.

POC is Maureen M. Holland, (719) 549-4841,

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Maureen.M.Holland@nwo02.usace.army.mil

Maureen M. Holland, Maureen is a civil engineer currently serving as a Project Manager (PM) Forward for the Omaha District and stationed onsite at the Pueblo Chemical Depot.

PWD



Satish K. Sharma retires

by Alexandra K. Stakhiv

Farewell to the Chief, Satish K. Sharma, long-time man of energy expertise and Washington guru for the Army's Energy Program. After a quarter of a century, Satish's name has become synonymous with energy management and utilities privatization. He is retiring as the Chief, Utilities Privatization & Energy Team, Facilities Policy Division, Office of the Assistant Chief of Staff for Installation Management (OACSIM).

During his tenure, Satish watched the Army go through an enormous upheaval as it moved away from a program that was highly decentralized with lots of in-house support from organizations like FESA (Facilities Engineering Support Agency), EHSC (Engineering and Housing Support Center), CPW (Center for Public Works), CERL (Construction and Engineering Research Laboratory), CRREL (Cold Regions Research and Engineering Laboratory) and others where a core group of technical experts provided support to installations.

"The Army was meeting its energy goals from 1975 to 1985, but by the late 1980s, the Army realized it no longer had the funds to do what it needed to do," Satish explained. "In the early 1990s, players such as the newly created OACSIM tried a more centralized approach, going from one group (the Corps) to multiple providers. This constituted a major shift from in-house work to partnering with private industry, making utilities privatization a key program of the 1990s."

From 1987 to 1993, as Chief of EHSC's Mechanical and Energy Division, Satish initiated and developed many programs under the energy and utilities umbrella. He supported the much needed improvement of boiler efficiency on Army installations and organized energy engineering workshops for Army energy staffs at installations in the United States and overseas. Other programs receiving a boost from Satish's watchful eye included the Utility Plant Operator Training and Assistance Program; underground heat energy



Satish K. Sharma

distribution systems, and high pressure boiler safety inspection services.

In 1993, as EHSC transitioned into CPW, Satish joined the OACSIM as Chief of the Utilities Branch. "I was to work at improving our partnerships with the private sector in obtaining utility services," Satish said. To that end, he concentrated on executing the Army program to privatize utilities systems on installations.

"We're close to completing the privatization of utility systems," he said proudly. The Army will program and modernize any utility systems that are to remain Army-owned. In the near future, I think that new technologies and renewable/secure energy sources at installations will also help the Army to provide efficient and reliable utility services to installations."

"Besides privatizing, we've also been promoting and expanding the use of Energy Savings Performance Contracts (ESPC) and Utility Energy Services Contracts (UESC) to implement energy saving opportunities," he added.

Thanks to Satish's hard work, the Army benefited from over \$650 million in capital investments from various funding sources from 1990 to 2003. Under his tutelage, hundreds of projects were completed that saved energy, lowered costs, and improved the quality of life for Army Soldiers and their families worldwide. What better proof of his success is there than The Pres-

idential Award for Federal Energy Management Success that his Energy Team won for saving the Army \$31 million in utility costs during 2000.

But Satish refuses to take credit for these successes, saying "The real key to Army success on installations is the technical support providers such as DLA and the labs."

He advises everyone to trust the Army leadership. "If you have a legitimate requirement, the Army leadership will support you," he said. "Lots of people are looking for the same dollars you are. You **can** get the funds to get things done."

"In those early years, we got the funds for 23 installations and reduced the cost of heating fuels by modernizing central heating plants. We learned to trust the private sector through frequent and frank discussions on the requirements and what they could do for the Army. The Army stood behind this and was willing to share the risks."

"Today, the energy program is in good hands—there are lots of good people in the ACSIM, IMA, DOE, DoD, and CERL—and they are all committed to energy efficiency and reliability. The long-term trends are also good, and I feel confident as I leave that they are very capable and will do the work that is necessary."

"To the installation managers, regional managers, I say, work with your energy teams on the IMA/ACSIM staff and you will go a long way and you **will** succeed," concluded Satish.

John Nerger, Director of the Facilities & Housing Directorate, ACSIM, said it best at Satish's retirement luncheon. "I will be paying the price for letting Satish retire early for a very long time. On a very basic level, Satish did work that mattered, serving our Soldiers and others in a cause larger than himself. Never settling for the status quo, he truly made a difference, and he leaves us better off for having known him."

This is not the end of the story. Many of us thought we knew Satish quite well, but we were still surprised by the revelation that he has formed a movie pro- ➤



Avoid paying excessive or unnecessary utility charges!

by Edward J. Gerstner

Installation utility costs are the greatest single expense in DPW operations. Utilities personnel must be proactive in identifying cost reduction opportunities. One big element of the Utilities Contracting Program (aka Army Power Procurement Program) is the close review of the rates paid to the utility providers for electricity, natural gas, and water/wastewater services. Installations can expect increases in utility rates in the near future. There are several reasons for this:

- The 2003 northeast blackout has generated a lot of political pressure on utilities companies to increase reliability of their power grids.
- Upgrade of security protection generation plants, gas distribution systems, and water supplies.
- Expiration of rate caps in electric deregulated states.
- Substantial increases in fuel costs.
- Increases in interest rates.

All provide incentives for utilities companies to file for rate increases.

Power grid upgrades alone are expected to cost as much as \$100 billion over ten years. The utility customer will bear the brunt of utility industry proposes increases, with DoD sharing the burden. While the Army cannot estimate at this time the increase in utility rate filings, we expect new filings to be substantial as a result of the expiration of electric industry rate caps in newly deregulated states and the increase of interest rates.

Recent filings in Pennsylvania, Ken-

tucky, Georgia, New Jersey and California are examples of the surge in rate increase filings. Army installations need to be on alert and take the necessary actions to mitigate/lessen the impacts of these utility rate filings to their utility budgets.

Since 1998, Huntsville's technical support in the Utilities Rate Intervention Program, rate negotiations, and rate analyses has produced more than \$60 million of savings and cost avoidances for Army installations. These savings have ranged from \$40 thousand to as much as \$2.8 million at individual installations.

By Army installations monitoring utility rate changes and taking proactive actions, they could avoid paying for excessive or unnecessary utility charges. Installation energy and utilities officers must review notices received from public utilities for any proposed changes in rates or rate structure. They must also make sure that when the Defense Finance and Accounting Service (DFAS) receives the notifications, they are informed about these notifications.

While traditional forms of public utility rate regulation remain in many States, some have enacted forms of utility deregulation of electric and gas service or are in the process of doing so. In the States that have deregulated the commodity, the transportation and distribution rates remain regulated. State regulators require notice of actions by individual utilities be furnished to customers before any change in regulated rates is implemented.

Most Army contracts also provide for a

notice of any proposed rate changes to be given to the involved Army installation. The notices are often sent with monthly utility billings. (Note: Some billings may go to DFAS!) So it's critical that a continuing dialogue is maintained with DFAS. If your installation receives a notice of proposed action which may affect your billings, send it through your Installation Management Agency regional office, to the U.S. Army Engineering and Support Center, ATTN: CEHNC-IS-SP, 4820 University Square, Huntsville, AL 35816-1822. That office handles Army liaison with State regulatory commissions. (POC is Ed Gerstner, (256)895-1503) e-mail Edward.gerstner@hnd01.usace.army.mil.)

Upon review of the proposed rate increases, Huntsville Center, together with the Army Regulatory Office, will determine the appropriate course of action and advise the IMA Region and installation. In some cases, the Army presents expert witnesses in utility regulatory proceedings. These witnesses testify on a variety of topics ranging from traditional revenue requirements and rate design to industry restructuring to protect the Army's consumer interest.

Army installations need to be proactive and do their part to claim the reward of cost avoidance and savings.

POC is Edward J. Gerstner, (256) 895-1503, e-mail: Edward.Gerstner@hnd01.usace.army.mil.

Edward J. Gerstner, Huntsville Center, provides assistance on utilities contracting and rate intervention/litigation **PWD**



Satish bids friends and co-workers farewell.

(continued from previous page)

duction company and will soon be directing his own original screenplays. As a 12-year-old in his native India, Satish was so enraptured with movies that he took the train from Delhi to Bombay because that was where movies were made. After that escapade met with disapproval from his family, he focused on his studies

and put aside his dreams. But dreams can come true and as we go to press, Satish is already in Hollywood, California, soaking up as much sun and tips on film making as possible.

As they say in show business, "Break a leg, Satish!"

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



Southeast Region energy program conducts energy assessments at its major installations

by Doug Dixon

With a goal to improve energy efficiency, the Installation Management Agency (IMA)/Southeast Region Office (SERO) energy program is conducting comprehensive energy assessments at its sites. These assessments provide estimates of the installation energy savings potential based on audits of representative facilities.

By the end of FY 2004, energy assessments will be completed at fifteen of the Southeast Region's largest installations. The site-wide energy assessments are being conducted as a key SERO strategy to meet the goals of Executive Order (EO) 13123, which seeks to minimize overall energy and water consumption at federal facilities.

A key outcome of this effort is the development of comprehensive Long-Range Energy Management Plans for each of the Southeast Region's major installations. These plans identify activities and projects critical to saving money and reaching the EO 13123 goals by FY 2010. Each installation in the region is responsible for developing a plan that is closely linked with the installation Master Plan.

The Long-Range Energy Management Plan is a roadmap for actions by the installation to:

- 1) Improve energy/water efficiency by executing life-cycle, cost-effective projects.
- 2) Identify funding/financing resources to implement the projects.
- 3) Reduce operating and commodity costs.
- 4) Incorporate renewable energy technologies.
- 5) Design new buildings to SPiRiT standards.

Steve Jackson, Energy Manager, Southeast Region, said that the energy assessments are already paying dividends and resulting in real energy-saving benefits at the various sites. "The energy conservation measures and energy improvements that we are making at our installations as a result of the SE Region energy program is making it possible for some installations to continue meeting energy goals and others to move in that direction," he said. "The



Doug Dixon, PNNL, leads a discussion at the Fort Knox Long-Range Energy Planning Workshop, May 18-19, 2004.

success we've had to date in this program is the direct result of a lot of hard work and planning by many dedicated individuals at the installations," he concluded.

Steve explained that a site's comprehensive energy assessment usually starts with a visit from the energy team to gather relevant information on the site's energy-efficiency and cost-reduction projects. The team is made up of engineers from Pacific Northwest National Laboratory (PNNL), the site energy manager, and various other installation technical staff. The team is typically on-site for one week conducting walk-through audits of representative facilities, interviewing site staff and support contractors, and collecting relevant energy data (for example, utility bills, boiler logs, tariff information).

The team uses the Facility Energy Decision System (FEDS, see www.pnl.gov/feds) to help determine how energy is consumed at the site, identify the most cost-effective energy retrofit measures, and calculate the potential energy and cost savings. Put simply, site data is "plugged into" the FEDS software tool to determine cost-effective energy- and

cost-reducing measures for a site. The financial results from the FEDS analyses can be tailored for different sources of capital funds, for example, appropriated funds (OMA and ECIP) and alternative financing such as UESC or ESPC. In this way, both energy and cost savings can be determined for a site.

Following the site-wide energy assessment, an energy planning workshop is conducted at the

installation to develop the Long-Range Energy Management Plan. These two-day workshops involve public works, master planning, contracting, and resource management staff from the installation, as well as utility representatives and other support contractors.

The goal of the workshop is to take the results of the energy assessment and prioritize key activities and projects for implementation. By including the servicing utilities and/or ESPC contractors in these workshops the sources of funding/financing for the projects can be identified and the project implementation begins



Bill Chvala, PNNL, collects field data during Fort Benning energy assessment.



Resource Efficiency Managers: human performance contracts

by Steve Sain

The Fort Polk Directorate of Public Works is saving more money than ever expected, over \$2 million, through an innovative contract which places an energy consultant on-site, full-time, who, on an annual basis, *must* save more money than his/her contract cost or Fort Polk can elect not to exercise the next contractual option year. Since these Resource Efficiency Managers (REMs), as they are called, must fund themselves through savings, they function like human performance contracts.

Nancy Varner is Fort Polk's REM. She recently entered into the third year of her contract. So far, her benefit-to-cost ratio is over \$8-to-1. Varner has attained these cost savings in several ways, such as aggregation of electric utility accounts, low-no cost efficiency measures, and especially, via review of one of Fort Polk's Energy Savings Performance Contracts (ESPC) discovering almost \$2 million in Army overpayments. All of Fort Polk's savings have been secured without any capital investment.

"As an REM," said Varner, "I have the ability to focus just on cost savings to the government. I don't have to deal with the hassles and distractions an Energy Program Manager faces everyday. I can dedicate my time to breaking through barriers and finding the bottom line. Since my annual cost must be justified, I have plenty of incentive to perform. I have been very fortunate at Fort Polk to have the support of everyone involved. It is gratifying to be able to document and clearly see what I have been able to save our client. It would be nice if we could all receive that kind of return on investment on our money."



Nancy Varner

Peggy Tuck is the Army Contracting Officer who administers Fort Polk's REM contract. "Nancy Varner's REM contract is somewhat unique. In addition to helping us save operating cost, she serves as an independent third-party advisor for our performance contracts. In this role, she has helped us tremendously by explaining just how our energy savings should be measured and verified so we can see if we're actually achieving the cost savings that our contractors have projected." said Tuck. "Without Nancy, it would be a lot more challenging to get this done. She's sharp, a pleasure to work with and extremely customer focused. Her REM contract is the epitome of 'best value for the government.'"

Primarily for her cost saving achieve-

ments, Varner has been named one of this year's Army "Energy Champions" via the Federal Energy Management Program's "You Have the Power" campaign.

Other Army installations utilizing REM services are: Fort Lewis (since '97), Fort Campbell, Fort Benning and Redstone Arsenal. But the Army's not the only federal agency using this valuable service.

Bill Sandusky, program manager for Pacific Northwest National Laboratory in Richland, Washington, has served as a facilitator for the Department of Energy's national involvement with the REM concept since its inception. "At the beginning of FY04, about thirty REM positions were created serving more than thirty federal sites nationwide. The typical annual benefit-to-cost ratio we've seen is approximately 3.5-to-1. This means for every dollar of REM contract cost, that REM has identified and implemented projects that have saved \$3.50 each year. This kind of attractive economics is one of the primary reasons, we believe that the national REM contract renewal rate is as high as 85%. And some REMs have been in place for over 6 years."

REMs capitalize on the theory that people are the key and technology is just a tool. It's no wonder this concept is rapidly gaining popularity within the Army as well as other federal agencies.

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Steve Sain is the President of Sain Engineering Associates in Birmingham, Alabama. PWD

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immediately.

"Using the sites' energy-assessment information to facilitate project execution is a very important aspect of our program," said Steve Jackson. "If we are to reduce operating costs and meet our

energy and water goals, it is important that we partner with the utilities and energy services companies."

Copies of the IMA Southeast Region Energy Program's site-assessment results, final FEDS reports, and related presentations are located at <http://www.pnl.gov/ima-seroenergy/>.

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Energy audit at Army lab shows opportunities to conserve

by David Underwood

A team at the Engineer Research and Development Center (ERDC) pooled expertise from 30+ years of energy research at military installations to audit its own facility. Rising utility bills at ERDC's Construction Engineering Research Laboratory (CERL) prompted researchers to team with their local DPW to analyze energy use at the Champaign, Illinois, site.

A preliminary audit showed that CERL's Energy Use Index (EUI) — energy used per square foot per year—had been increasing since 1998 despite several energy conservation projects. This was followed with a detailed energy use audit to determine where energy was being used and provide insight into potential conservation projects.

Instrumentation was installed to measure electrical use in the three main buildings and the central heating/cooling plant. In addition, lighting loads in the three main buildings were sub-metered. All of this equipment adheres to new Army

Guide Specification 15951, "Direct Digital Control for HVAC and Other Local Building Systems" which is based on LonWorks® technology. Data collection and analysis were automated by connecting the monitoring equipment to CERL's local area network, again according to a new Army Guide Specification, 13801, "Utility Monitoring and Control System (UMCS)."

Currently, average electrical demand is collected every 15 minutes (which coincides with CERL's rate structure) and stored on a web server which e-mails the data once a week to researchers who use an automated spreadsheet to sort and graph selected data sets. The web server also displays the data in real time on a web page named CerlEnergyUse, which is accessible from any computer logged on to an ERDC network. Example energy use plots are shown in the figure.

Data have only been collected since June 2004, but already several patterns

have been found that may lead to cost-saving measures. For instance, the plot of the heating/cooling plant shown in Figure 1 indicates that the chillers and ice storage system are working exactly as intended. One chiller turns on at 6 p.m. when building loads have decreased to a point that a new peak demand will not be reached, and the second starts at 10 p.m. when peak demand period ends.

Another pattern emerged in the energy use for lights in building 3. On weekdays, there is a peak at midnight resulting from cleaning crews who turn on all lights simultaneously as a means of tracking the offices cleaned. If they could be convinced to use an alternate method, savings could be achieved.

Additional data showed the peak demand for each day and the time at which the peak occurred during on-peak periods (10 a.m. to 9 p.m., Monday through Friday). New peaks typically occur prior to 5 p.m. This finding means that any loads which can either be reduced or shifted to after 5 p.m. would likely result in reduced utility bills.

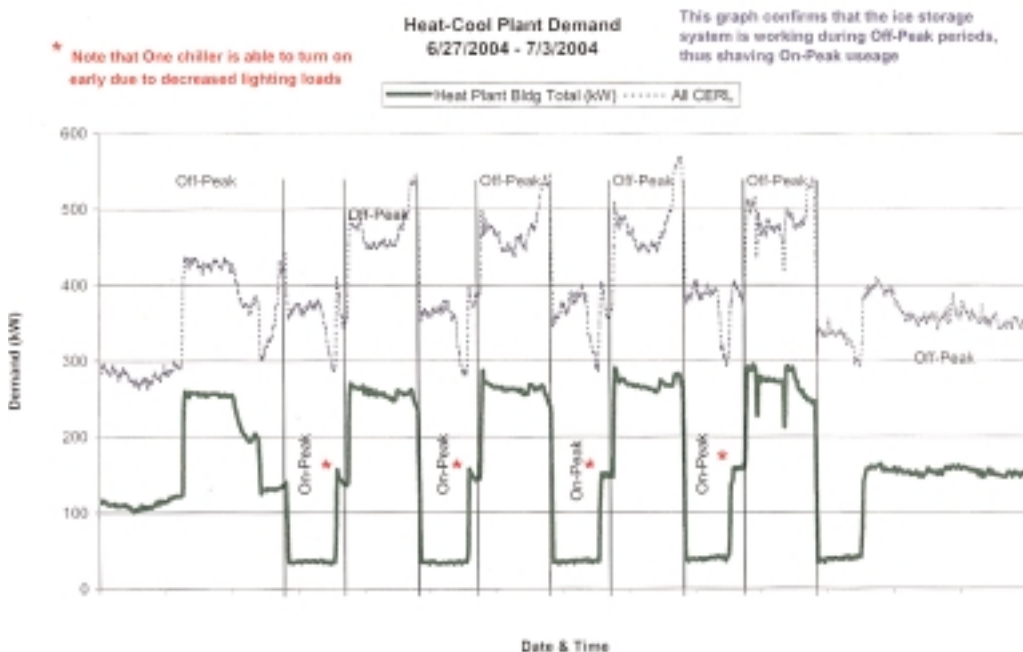
Researchers will continue collecting data and plan to add direct heating and cooling load metering to each building as well as retrofit more HVAC equipment with LON-based controls. Another goal is to use the data to identify energy conservation opportunities and document the savings of implementation.

The same procedures used for CERL's energy audit can be applied to any military facility to identify conservation opportunities.

For more information, please contact David Underwood at (217) 373-6780, e-mail: d-underwood@cecer.army.mil.

David Underwood is a researcher in ERDC-CERL's Energy Branch. **PWD**

Figure 1: Chilled Water/Ice Storage Electrical Demand





FY 2004 Annual Energy Report

by David Williams

As we come to the end of another fiscal year (FY2004), it is again time for us to start assembling the information required to complete the Annual Energy Report. Each year, federal agencies are required by Executive Order (EO) 13123 to measure and report to the President our progress in meeting the goals and requirements of the E.O. This report is to be submitted to the Department of Energy (DOE) and the Office of Management and Budget (OMB). Defense agencies that control federally-owned building space or directly pay the utilities in leased space are required to submit an energy management report to the Office of the Deputy Under Secretary of Defense (Installations & Environment) (ODUSD(I&E)).

So just what does the Annual Energy Report (AER) cover? The AER requires submission of information pertaining to energy consumption for various categories of buildings, water consumption, tactical vehicles and the strategies used to reduce energy consumption and improve efficiency, and renewable energy use.

Who develops the guidance and sets the reporting timelines for the AER? The DOE has the overall proponentcy for reporting to Congress on all federal agencies annual energy consumption and their progress toward meeting the goals of the E.O. Based on the timeline in which they have to report to Congress, DOE develops overarching guidance and promulgates it to the different federal agencies. With respect to the Army and the other service components, the Department of Defense (DoD) takes DOE's guidance and uses it to develop DoD guidance that is in concert with DOE's guidance, but more germane to its service components. Annually, there are very few changes.

What can you expect in the way of timelines for FY 2004? This year, DoD has adjusted the timelines in which the different components of the annual report are due. DoD has tasked the services to provide to them by 31 October 04 the A-11, Scorecard, and Data Report. Therefore, the Army's suspense is 15 October 04 for these same components.

Also, DoD has requested that the Narrative and Implementation Plan be submitted in mid-December 2004. Therefore, the Army's suspense for these components is 10 December 2004.

Where can you get more information and guidance on the Annual Energy Report? The DoE annual report guidance and OMB Circular A-11 guidance, along with DoD specific guidance and all the relevant downloadable forms, are available at the following websites:

http://www.acq.osd.mil/ie/irm/Energy/energygmt_report/fy04/energygmt04.htm

http://www.eere.energy.gov/femp/about/annual_report.cfm

http://whitehouse.gov/omb/circulars/a11/current_year/energy.pdf

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David Williams is a general engineer with the Utilities and Energy Team, Facilities Policy Division, OACSIM, responsible for compiling the Army's Annual Energy Report **PWD**

New Army Energy Strategy

by Jim Paton

Since the Army established an energy program in the mid-seventies, the strategy has mainly been to reduce utility costs by conserving, improving efficiency and by using sources of energy with the best cost for Btu content. We have made a lot of progress with this strategy, greatly reducing our average energy use per unit area and avoiding utility costs of more than three billion dollars since 1985.

Now, other factors are having a major influence on our energy program, such as potential supply shortages, sharp cost increases, energy security and reliability, increased environmental considerations, availability of funds, and new targets for Federal activities to increase use of renew-

able energy. The Energy Team at OACSIM is developing a long-range energy strategy to take the challenges of these factors into consideration and set the direction for the Army's Energy Program.

Based on the understanding that well-operated and efficient facilities improve the environment in which we live, work and train, which in turn, facilitates focus on mission and achieving Army objectives, the strategy sets broad objectives for the energy program. Those broad objectives are to:

- Set new energy and water standards for existing and new facilities
- Facilitate decisions for applying resources
- Improve energy security and reduce impact of price volatility.

Within the broad objectives are more tangible goals and targets for tracking our progress. As the Army's Energy Strategy becomes finalized, it will be followed up with a more comprehensive Army Energy Master Plan that lays out more specific responsibilities and funding requirements for the Army to achieve these objectives and goals.

The Army Energy Strategy is currently being staffed throughout the Army for review and comment.

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Jim Paton is a general engineer with the Utilities Privatization and Energy Team, Facilities Policy Division, OACSIM. **PWD**



Army Facilities Corrosion Prevention and Control (CPC) Program

by David Purcell

In July 2003, a General Accounting Office (GAO) study estimated the direct cost of corrosion for military systems and infrastructure to be between \$10 billion and \$20 billion annually. Title 10 of the Uniform Service Code, Section 2228 (also known as the "Bob Stump National Defense Authorization Act for Fiscal Year 2003") directed the Department of Defense (DOD) to actively pursue a Department-wide approach to combat corrosion.

In response to the congressional interest, the Office of the Secretary of Defense (OSD) created a Corrosion Policy and Oversight Office and appointed Mr. Dan Dunmire as the Director. To get funding to pursue its objective, a Program Change Proposal (PCP) to the FY05 budget was submitted by OSD and \$27 million of O&M funds were reprogrammed to implement emerging corrosion control technologies for weapon systems and facilities.

During the National Association of Corrosion Engineers (NACE) Corrosion Conference in New Orleans in March 2004, Mr. Dan Dunmire stated that funding for weapon systems and facilities would be about equal. For the out years FY06-11, \$50 million/year has been requested by OSD for CPC. It was decided by OSD, that a major portion of the FY05 funding

will go towards implementing emerging corrosion control technologies and requested project plans from the three services. Some of the important criteria for selection of OSD funded projects in FY05 are: (a) service matching funds, (b) return on investment (ROI) greater than 10, (c) mission criticality, and (d) tri-service participation. Another key criterion for FY05 projects is the ability to award contracts within 60 days.

Eleven (11) projects were proposed for Army Facilities, totaling \$5.055 M for OSD funding in FY05. Projects were selected from a list that had been developed based on the institutional knowledge of personnel in the Office of the Assistant Chief of Staff for Installation Management (OACSIM), the Installation Management Agency (IMA), and the Army Engineer Research and Development Center, Construction Engineering Research Laboratory (ERDC/CERL). The Army has requested matching FY05 funds from IMA totaling \$3.905M for 9 of the 11 projects.

In addition, Army installation matching funds (\$1.6M) were identified for two existing planned projects. Based on OSD requested funds in FY06-11, it is expected that the funding in out years will increase to fund additional corrosion prevention and control projects for Army Facilities.

ERDC/CERL has conducted research in corrosion control for the past 20 years and has developed extensive expertise. Previously, IMA Southeast Region Office had funded ERDC/CERL for demonstration and implementation of emerging corrosion control technologies which can be found



Patch test of overcoating on deluge tank.

at the following website:

<http://www.cecer.army.mil/pl/projectcctp/index.cfm?RESETSITE=cctp>. With OSD and IMA funding, this program will be expanded Army-wide and an Army policy is being developed to institutionalize the process for project selection in the future.

The corrosion control projects being proposed for OSD funding under this program in FY05 are proven emerging technologies that have not been widely used at Army installations in the past. These projects can be classified in the following generic categories:

- Coatings (Surface Tolerant Coatings for Steel Structures).
- Cathodic Protection (Remote Monitoring, Ice Resistant-CP Systems, Hot Water Tank Anodes).
- Corrosion Resistant Materials Selection and Design (Corrosion Resistant Materials for Water and Wastewater Treatment Plants).
- Water Treatment (Smart Control Systems for Boiler Water and Cooling Towers).
- Control of Environment (Electro-osmotic Pulse/Prevention of Water Intrusion, In situ Pipe Coating).
- Remote Corrosion Assessment and Management (Leak Detection, Corrosion Sensors, Indicator Coatings).



Corroded grating at wastewater treatment plant.



Army Installation Design Standards require energy conservation through efficient lighting systems

by Larry H. Black and L. Baxter Lawrence

Since man first discovered that fire could dispel the darkness, he has been attempting to find better means of artificial illumination. It took tens of thousands of years to get beyond torches, oil lamps and candles to the first really convenient system, gas lights. This was quickly superseded by incandescent electric lights. At the core of this evolution was a desire for aesthetics, convenience and affordability.

To meet a variety of needs, the original incandescent light has been supplanted by more sophisticated and specialized types, including halogen and high intensity discharge (HID), such as mercury vapor, metal halide, and high and low pressure sodium lights. The fluorescent light has been very popular since it was introduced during the Depression because it can produce four times more lumens per watt than a conventional incandescent bulb.

Energy conservation is an additional consideration in modern lighting. Fluorescent lighting should theoretically consume one fourth of the energy required for a comparable incandescent system thus conserving energy. Fluorescent lights can produce either warm white or cool white light. Warm white is appropriate for merchandising, and other commercial application, while cool white is more typically used in offices and classrooms.

Unfortunately, however, fluorescent lighting is not appropriate for all applications due in part to its short projection range which restricts its use to lower ceilings and where suspended fixtures may be used. With the exception of mercury vapor lights, HID can be as efficient to operate as fluorescent lights with the added advantage

of a long projection range making them good choices for large spaces such as gymnasiums as well as parking lots and street lighting.

Beyond efficient operation of lighting fixtures, energy conservation can also be achieved by avoiding unnecessary usage, i.e. switching off lights when not needed. In the beginning, it was a simple matter of manually switching lights off and on, then came timers, then photo cells, which could sense a loss of daylight and finally, motion sensors that could switch lights on when a person walked into a room.

Energy conservation through efficient lighting in new construction should extend beyond just the choice of lighting systems. Efficient lighting design must be an integral part of the overall building design process. Natural day lighting should be incorporated to as great a degree as is practical, through the use of windows, clerestories and skylights. Such lighting should be fully examined, however, and properly tempered with window treatments or light diffusing glazing to insure appropriate light levels, an even distribution of light and an absence of glare.

Consideration should be given to the choice of colors and materials. Dark dull surfaces absorb light, while light surfaces reflect light. The use of mirrors and other reflective surfaces can also be helpful in fully utilizing natural lighting. Care must, however, be exercised in the use of reflective surfaces to avoid glare. Reflectivity of surfaces has an impact on the quality and even the quantity of light. A room with a light colored ceiling and walls will have a much better quality and balance of light

due to the reflection of light off the pale surface while the same room with black ceiling and walls will have no reflected light and a poorer quality and very directional light with shadows.

Appropriate light levels are a key to energy conservation. A certain ambient light level is appropriate for any space to create a pleasant living or working environment but may not be sufficient for specific tasks which are conducted in a very limited area of the environment. For those work areas, such as desks and counters, supplemental task lighting is not only energy efficient but is normally more comfortable. To raise the level of light throughout the space to "task" level could waste energy while creating a harsh, unfocused and uncomfortable environment.

Energy conservation through efficient lighting depends on the appropriate choice of lighting systems including the fixtures, lamps and activation which have been integrated into the overall building design to as great a degree as possible to incorporate natural lighting and task lighting.

The Army Standards in IDS Chapter 3, Interior Lighting paragraph 3.14.6 and its referenced publications provide explanations of lighting design as well as the standards set by the Army.

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The products from these projects will be cost and performance reports, performance specifications and user guides in addition to implemented systems on-site.

A major benefit of implementation of corrosion control and prevention technologies is potential service life extension of Army Facilities, increased readiness and a reduction in annual sustainment costs.

For additional information, see the DoD Corrosion Exchange website at <http://www.dodcorrosionexchange.org/>.

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Safety inspections and inventory for the IMA SERO

by Noel Potts

To determine the safety status of boilers and the need for any repairs to ensure they will operate safely, annual inspections are being performed on power boilers at Army installations in the southeast U.S. following Army Regulation 420-49. The American Society of Mechanical Engineers defines power boilers in the Boiler & Pressure Vessel Code as steam boilers that operate at pressures over 15 psig and hot water boilers that operate at pressures over 160 psig or temperatures over 250F.

The U.S. Army Engineer Research and Development Center's Construction Engineering Research Laboratory (ERDC-CERL) developed a template for a contract statement of work and awarded a contract for the inspections. Consequently, 577 inspections of 253 boilers were performed during FY04 at 12 of the 20 Installation Management Agency (IMA) Southeast Region installations. Of the eight remaining installations, five do not have boilers requiring inspections; three are contractor operated and perform their own inspections.

To determine which boilers at each installation require inspection, a preliminary



Noel Potts of the U.S. Army ERDC-CERL measures boiler stack gas emissions and boiler efficiency with a portable combustion analyzer.

boiler inspection list was coordinated and finalized with each installation. As inspections were performed, results were added to the inspection list to produce a boiler inventory. The inventory is available to the DPW on a website and includes nameplate data as well as a rating of the condition for each inspected boiler.

Each boiler inspector is required to be commissioned by the National Board of Boiler and Pressure Vessel Inspectors (NBBPVI). Each site requires two inspection visits because each boiler usually gets both an "A" and a "C" inspection. The "A" type is an internal/external inspection with the boiler shut down, cooled off, and opened for access to its interior. The "C" type is an external inspection with the boiler in operation. At the conclusion of each inspection visit, the inspector attends a meeting with the person responsible for boiler maintenance to review inspection results and any actions required to remedy deficiencies.

With each boiler receiving two inspections, one would expect that for the 253 boilers there would have been 506 inspections rather than 577 inspections. The dif-

ference is due to some boilers being taken out of service after being "red-tagged" on the first inspection and other boilers being added to the inspection list after the first inspection visit.

Another reason for the discrepancy is that after its first round of inspections in fall 2003, Fort Campbell arranged another set of visits in May 2004. This was done so that results of the inspections could be analyzed and deficiencies corrected while most of the boilers were shutdown for the summer. This should allow Fort Campbell to enter the FY05 heating season with boilers that will operate safely and efficiently.

Five categories for boiler condition were used, ranging from red-tag (boiler is not safe to operate) to excellent (no deficiencies found).

Distribution of the inspection

results is:

	RED-TAG	POOR	FAIR	GOOD	EXCELLENT
"A" INSPECT'N	5%	12%	20%	18%	45%
"C" INSPECT'N	6%	10%	47%	15%	22%
TOTAL	5%	11%	33%	17%	34%

The Fair rating for "C" inspection is dominant because in efforts to reduce operation expenses, the frequency with which unmanned boiler rooms are checked has been reduced and some manned plants have been changed to unmanned. The manual reset feature for the secondary low water cut-off on many boilers is disconnected so the operator does not have to visit the boiler room and manually reset the safety feature for the boiler to resume operation.

The second most common deficiency concerns poor water treatment that causes oxidation and scaling of water-side surfaces. Oxidation occurs mainly near the water level of a steam boiler and will eat holes in tubes or drums. Scale on tubes inhibits heat transfer, reducing operating efficiency and possibly causing tube failure from overheating.



Boiler inspector examines the low water cut-off / control of water tube boiler at Fort Knox, KY.



Energy Conservation Investment Program (ECIP)

by Henry Gignilliat

Does your installation Energy Management Strategy require a high efficiency chiller replacement project, but O&M resources are not available to implement the project? Have you been hampered in meeting energy goals because your base-wide energy monitoring and control system does not cover all required buildings? Have you been planning a renewable energy project, but have been unable to implement it with alternative financing?

The Energy Conservation Investment Program (ECIP) may be the answer. ECIP is a small, but key component of the Department of Defense (DoD) energy management strategy. The FY 2006 program currently includes \$60M that will be allocated to the services on a "fair share" basis. The fair share is calculated using total installation (non-mobility) energy consumption from the previous year multiplied by the obligation rates on un-expired ECIP funds.

ECIP was established to improve energy efficiency of military facilities while reducing associated utility energy and non-energy related costs. The projects are aimed at reducing energy use through:

- Construction of new, high efficiency energy systems.
- Retrofit/ modernization of existing Army systems, buildings or facilities.

The program provides direct funding for energy-saving projects using Military Construction, Defense (MILCON) appropriations. ECIP projects do not compete for resources with MCA or O&M requirements. Army installations can use ECIP,



Henry Gignilliat

along with other resource programs, to meet energy reduction goals.

ECIP funding is centrally controlled by DoD and is allocated on a by-project basis. The Army prioritizes projects within the allocated amount of funding based on a combination of Savings to Investment Ratio (SIR) and the priorities emphasized by Executive Order (EO) 13123, including reduction of energy consumption and greenhouse gas emissions, increased use of renewable energy, water conservation, improved energy reliability/ security and enhanced mission support. DOD encourages the services to focus more on those projects that support the President's energy efficiency goals (projects that may be more difficult to fund with private sector investment). Please keep in mind that ECIP funds cannot be used to supplement Energy Savings Performance Contracts (ESPCs) or Utility Energy Services Contracts (UESCs).

To obtain resources through the ECIP

program, installations submit requirements through IMA Regions to OACSIM. A consolidated program list of projects is then submitted by OACSIM to DOD for incorporation in the FY 2006 Budget. Because ECIP is a MILCON program and requires significant advanced planning, DOD requires a proposed project list for FY 2006, with a DD Form 1391 for each project, as well as a plan for FY 2007 through FY 2009. The information provided identifies the project number, installation, State, project title, estimated cost (\$000), estimated annual energy savings (MMBtu), estimated annual cost savings (\$000), SIR, payback, and required design cost (\$000).

After authorization and appropriation, DOD notifies projects to the Congress with a 21-day waiting period. Funds flow through DOD Comptroller to Army Budget Office to Corps of Engineers for execution. The Army share of ECIP funding for installation projects provided over the last several years has been \$18-25 million per year.

Submitting good candidate ECIP projects, such as a chiller upgrade, energy controls or renewable energy systems, provides an excellent opportunity to attain energy objectives while minimizing installation budget impacts.

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Henry Gignilliat is the HQDA manager of the Energy Conservation Investment Program, and Acting Chief, Utilities Privatization and Energy Team, Facilities Policy Division, OACSIM **PWD**

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Remedies for oxidation include addition of, or improved maintenance of, deaerator tanks or use of oxygen scavenging chemicals. Remedies for scale include reduction of system leaks and losses, addition of, or improved maintenance of, water softeners, and more frequent blow-downs.

Other deficiencies include leaking/corroded/"frozen" safety valves; no drainage of safety valve discharge; soot deposits from improper burner adjustment; restrictive piping for safety valves; fire-tubes leaking where rolled into tube-sheets; leaking piping, valves, and fittings causing exterior corrosion of boilers; insufficient safety valve capacity; improv-

er gas train venting; and pressure gauges that are inaccurate or have insufficient range.

For more information about boiler inspections, please contact Noel Potts at ERDC-CERL, (217) 373-4576, e-mail: n-potts@cecer.army.mil.

Noel Potts is a researcher in ERDC-CERL's Energy Branch at Champaign, Illinois. **PWD**



Army Utility Services Regulation update

by William F. Eng

Solid Waste and Recycling Impacts

Army Regulation (AR) 420-49, when last revised in 1997 consolidated a wide range of utility-type functions previously covered in six separate regulations and removed a lot of “how-to” type guidance which was more appropriate for an Army Pamphlet, a Technical Manual, or similar publications, is undergoing a rapid action revision.

The current revision will incorporate many, or hopefully all, of the O&O or Organizational & Operational Plans that were developed to provide interim guidance during the transition to and ramp-up of the new Army Installation Management Agency and its 7 regions.

Solid Waste Management, Chapter Three of the revised AR, will still stress the concept of Integrated Solid Waste Management (ISWM), which means approaching the management of solid waste from a holistic basis – “cradle to grave and beyond.” Key players in ISWM are not even in the public works or environmental chain of command or span of control, but they must be made part of the process, if we are to make a significant impact on the overall character and magnitude of the solid waste stream.

A new topic is introduced: construction and demolition (C&D) wastes, which is estimated by many experts in the field to be the largest single solid waste problem looming on the horizon for state and local governments as well as military installations. Military construction projects were formerly looked on as “gifts from heaven” – big infrastructure improvements at no cost to the installation. Installations were only too willing to offer the services of the on-post landfill for disposal of all the C&D wastes from a MILCON project at “no cost” to the contractor. It didn’t matter how much or what was in the C&D wastes: “Bring it on!”

Times have changed and we now know

there are costs for unregulated disposal on C&D wastes in our on-post landfills. Traditional smashing and trashing of excess buildings is no longer the acceptable norm. Burying C&D wastes is also wasting resources: valuable landfill space and valuable materials that can be salvaged and re-used by others. Look for new policy guidance to expand on what’s in the revised AR.

The trend continues towards eliminating Army-owned landfills. Inactive ones need to be formally closed, capped and monitored in accordance with federal, state and local regulatory requirements. Where the longevity and gas-generating capability warrants, landfill gas may be recovered for energy utilization, however installing the infrastructure and providing the operational management is best acquired through third party arrangements.

Not mentioned in the AR, but newsworthy anyway. A long-awaited Qualified Recycling Program (QRP) guide or handbook is nearing final revision and will be formally staffed for review shortly. Publication by the end of 2004 looks very promising.

Water Supply and Wastewater Impacts

Army Regulation (AR) 420-49, when last revised in 1997 consolidated a wide range of utility-type functions previously covered in six separate regulations and removed a lot of “how-to” type guidance which was more appropriate for an Army Pamphlet, a Technical Manual, or similar publications, is now undergoing a rapid action revision.

The current revision will incorporate many, or hopefully all, of the O&O or Organizational & Operational Plans that were developed to provide interim guidance during the transition to and ramp-up of the new Army Installation Management Agency and its 7 regions.

Water Supply & Waste Water, Chapter Four of the revised AR, is substantially the same as the current version, with one notable exception. The subject of privatized water and wastewater systems is discussed, but on a limited basis. How installations legally relate to their new privatized utility providers is spelled out in the contract documents that created the privatized systems.

In the work-a-day world, where we all live, things are much fuzzier. As the utility privatization program is still in the infancy stage, having gone through a five to ten-year long conception, gestation, and birthing process, we, at headquarters as well as the field, are writing the rules as we go. The AR revision reflects how a single residential customer relates to the various utilities provide utility services to his home: in terms of delivery of service according to agreed upon terms and condition and industry and regulatory standards. The utility company is responsible for knowing what those standards are and enforcing them, without intervention by the installation.

Knowing that this approach was naïve and simplistic, but would have to do until the program had achieved some maturity, ACSIM has now engaged a consultant to develop a post-award contract management guide. The guide is to spell out in greater depth and clarity, exactly what installations need to know and do to ensure that privatized utilities delivery the best services for the price paid and that the infrastructure and systems endure through their expected life. Activities are just beginning on this effort and on-site and telephonic contact with as many field personnel will be made to draw on installation knowledge and experience to develop the guide.

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William Eng works at HQDA, OACSIM, on utility issues, specifically solid waste, recycling, water and wastewater. PWD



Sky blue water towers and nutmeg brown fire hydrants

by Larry H. Black and L. Baxter Lawrence

The Army Installation Design Standards (IDS) contain standards for two familiar elements to be seen on any Army installation, namely water towers and fire hydrants.

A water storage tank, also referred to as a water tower that has visual strength in its form can be used as a focal point or identifying landmark that can provide a sense of orientation within the installation.

Tanks shall be painted in a single solid color and shall be either tan or sky blue color (see IDS Appendix L Color Board). Do not paint tanks in a checker board pattern. Graphics and art work on the tank, shall be limited to the installation name and the installation unit crests may be placed on tanks as approved in the Installation Design Guide. Tanks in flight paths shall be equipped with a strobe lighting

following Federal Aviation Authority (FAA) standards.

Fire hydrants shall be nutmeg brown in color with a reflective finish and shall be visible and free of screening. This is the color adopted as the Army Standard on all installations following the National Fire Protection Association (NFPA) 291 "Fire Flow Testing and Marking of Hydrants" guidance.

A painted accent band on the rim of the cap shall indicate tested water pressure per



A fire hydrant that meets the Army standard.

NFPA 291, consistent with color scheme to provide simplicity and consistency with the colors used in signal work for safety, danger, and intermediate condition: Class AA – Light Blue, Class A – Green, Class B – Orange, Class C – Red.

See the Army Standards in IDS Chapter Six, paragraphs 6.6.6.4 for water tanks and 6.6.6.5 for fire hydrants.

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Americans are all wet!

by William F. Eng

Every man, woman and child uses between 85 and 100 gallons of water per day on the average, according to the U.S. Environmental Protection Agency. That's 75 percent more water than our neighbors to the north in Canada use on an annual per capita basis and almost FIVE times more than they use in China. What do we do with all that water and can we do something about cutting back?

A typical American household of four uses 350 gallons of water per day. Big city dwellers average an additional 35 gallons per day for public uses like firefighting and street washing.

How much are YOU wasting? If you are living in a house that has a water meter and pay your own water bill, you have a pretty good idea of how much you use and what it's costing you every month. Divide the gallons used by the number of months in the billing cycle and divide that by the number of people living in the household. Large and small people still count as one each. If your water meter reads in cubic feet, multiply by 7.48 first to convert to

gallons. Compare your results with the 85-100 figure mentioned earlier. If you are below the range—Congratulations! In the range? Don't take any bows just yet. Try to reduce your usage by 10 percent or more by following some easy tips, discussed later. Using more than 100 gallons per person per day? You need to do some serious sleuthing (water waste watching!) and take serious action to cut the waste.

If you live in a multi-family dwelling or house without a separate meter, you'll need to check every faucet, shower head, toilet for leaks. Look above and below: Under the kitchen and bathroom sink, inside the toilet bowl and storage tank. Do you see or hear water flowing, even if the tap is turned off? When the house is quiet, no one is taking a bath and no water-using appliances are operating, go down to the basement or some area where the incoming cold water line is exposed, place your ear on the pipe. If you hear water running, it means a leak somewhere in the system.

Are you or someone in your household guilty of bad water habits? Do you or

someone in your household let the water run continuously when you wash dishes in the sink, brush your teeth, or shave? Do you wash your car with a hose without a nozzle so you can turn it off when you don't need it? Do you use a hose to wash/sweep the walk or drive way? Do you water your lawn more than what's recommended or worse yet, until the water starts pouring down the gutter?

Try to adopt good habits.

Follow these water strategies and you can help cut water usage by as much as 40 percent:

- 3 percent – install a low-flow (0.5 to 2.5 gal per min) aerators on faucets.
- 5 percent – switch to a high-efficiency (40-50% less energy), water-conserving (30% less water) clothes washer.
- 12 percent – change to a low-flow (2.5 gal per min) showerhead.
- 18 percent – replace with a low-volume (1.6 gal per flush) toilet.

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Is your installation's Water Management Plan up to date?

by William F. Eng

As part of the Army's plan to meet the goals set forth by Executive Order (EO) 13123, the Army issued a water conservation policy memorandum on 18 March 2003.

The Assistant Chief of Staff for Installation Management (ACSIM), in his memo, mandated that the Army adopt the Department of Energy's 10 Best Management Practices (BMPs) as benchmarks for developing installation water management plans, increasing public awareness, and implementing conservation practices.

One step to ensure that the Army attains its water conservation goals is for all installations to incorporate water management plans into their installation's comprehensive utility management plans by 1 October 2004.

A comprehensive Water Management Plan includes information about how an installation uses its water, from the time it is delivered to the installation from the source through disposal. Knowledge of current water consumption and its costs is essential for making the most appropriate water management decisions.

Developing a Water Management Plan

Proper Water Management Plans should include the following as a minimum:

Operation and Maintenance (O&M).

Appropriate O&M recommendations from the *Best Management Practices* (see sidebar) are included in installation operating plans or procedure manuals.

Utility Information. Appropriate utility information includes the following:

- Contact information for all water and wastewater utilities.
- Current rate schedules and alternative schedules appropriate for usage or facility type. This helps you ensure that you are paying the best rate.
- Copies of water/sewer bills for the past



William F. Eng

two years. This will help you identify inaccuracies and determine whether you are using the appropriate rate structure.

- Information on financial or technical assistance available from the utilities to help with facility water planning and implementing water efficiency programs. Some energy utilities offer assistance on water efficiency.
- Contact information for the agency or office that pays the water/sewer bills.
- Production information, if the facility produces its water and/or treats its own wastewater.

Installation information. At a minimum, perform a walk-through audit of the installation to identify all major water using processes, location and accuracy of water measurement devices, main shut off-valves, and verify operating schedules and occupancy of buildings. To meet reporting requirements in Executive Order 13123, facilities should include a description of actions necessary to improve the accuracy of their water usage data. This can include a metering (or other measurement) plan for the facility.

Emergency response information. Develop water emergency and/or drought contingency plans that will describe how your

facility will meet minimum water needs in an emergency or reduce water consumption in a drought or other water shortage. This should be done in conjunction with your local water supplier.

Comprehensive Planning. Inform staff contractors and the public of the priority your agency or facility places on water and energy efficiency. Ensure proper considerations are taken into account early in the design and planning of the project. In order to properly manage water conservation projects, it is important that all water be accounted for through precise measurement, such as water meters. It is necessary to have measurements not only to plan how to address water conservation, but also to monitor and track progress made in these programs as well as to adjust and make changes.

Sample Water Management Plans

Examples of Water Management Plans for some U.S. Environmental Protection facilities can be downloaded from this website:

<http://www.epa.gov/oaintrnt/water/plans.htm>

Army Best Management Practices Implementation Schedule

The percentage of Army installations that must implement a minimum of 4 of the 10 BMPs by the indicated dates is:

- 15% of installations shall implement at least 4 BMPs by 31 December 2004
- 40% of installations shall implement at least 4 BMPs by 31 December 2006
- 75% of installations shall implement at least 4 BMPs by 31 December 2008
- 100% of installations shall implement at least 4 BMPs by 31 December 2010

The U.S. Army Installation Management Agency (HQ IMA) is developing an Army water conservation guide to standardize the process of developing



(continued from previous page)

The 10 Best Management Practices (BMPs)

1. Public Information and Education Programs

Education is key when implementing new technologies. If you install and use new technology, it is essential that you clearly define what the new technologies are and demonstrate to the users the proper way to use them. Publicizing the use of such conservation measures enhances public awareness and shows our commitment to saving our natural resources.

2. Distribution System Audits, Leak Detection & Repair

Performing periodic evaluations and analysis of your systems and instituting a leak detection and repair program can help reduce water losses and protect against property damage.

3. Water Efficient Landscape

Most areas landscapes require additional water to make up for the difference in natural rainfall and precipitation. Installing an irrigation meter would measure the amount of additional water being used on the landscape and would help conserve usage.

4. Toilets and Urinals

Federal law requires that residential toilets manufactured after 1 January 1994 use no more than 1.6 gallons per flush (gpf) and commercial toilets manufactured after 1 January 1997 use no more than 1.6 gpf and urinals no more than 1 gpf. The use of low flush valves, waterless (no flush) urinals, and other alternative technologies can greatly reduce water consumption.

5. Faucets and Showerheads

Federal guidelines mandate that all lavatory and kitchen faucets and aerators manufactured after 1 Jan 1994 use no more than 2.2 gallons per minute (gpm) and showerheads must use no more than 2.5 gpm. Changing your faucets and showerheads to meet federal guidelines would save water consumption and money.

6. Boiler/Steam Systems

Performing preventive and routine maintenance on boilers and steam systems would greatly increase operating efficiency. Proper operation of steam traps and steam lines could be ensured through periodic checks and could reduce water consumption and improve boiler efficiency.

7. Single-Pass Cooling Systems

These systems use 40 times more water than a cooling cycle operated at 5 cycles of concentration. If economical, replace single-pass cooling systems with multi-pass cooling or closed-looped systems. Other options are to look for other uses for the effluent.

8. Cooling Tower Systems

These systems help regulate temperature by rejecting heat from air conditioning systems or by cooling hot equipment. To do this, these systems use large amounts of water. One way to reduce water consumption is to recycle the effluent from a single-pass system and use it in the cooling tower.

9. Miscellaneous High Water-Using Processes

Such areas as kitchens, laundry/cleaning services, labs, etc. are high water-using processes. Using different methods such as metering or retrofitting equipment with more energy efficient will go a long way toward conserving water.

10. Water Reuse and Recycling

By identifying areas that can use non-potable water, installations can take advantage of using filtered but otherwise untreated water. Treated wastewater can be redistributed for non-potable uses.

water management plans. HQ IMA will also assist installations in selecting water efficiency BMPs for implementation.

To learn more about the 10 BMPs, please visit the DOE website at:

http://www.eere.energy.gov/femp/technologies/water_fedrequire.cfm

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Geothermal heat pumps and energy savings performance contracting save money, environment in Korea Region

by James C. Hamilton III

A majority of buildings and utilities within the Korea Region (KORO) of the Installation Management Agency are old and decrepit as most of the infrastructure and utilities were built in the 1960s. Many of the utility systems are undersized and energy inefficient. The facilities in KORO have inefficient, outdated heating ventilation and air conditioning (HVAC) systems that require a significant amount of maintenance, and have very high energy consumption, especially in the winter heating months.

Daniel Greene, Deputy Director of Public Works, Area II, has been in the forefront for various programs to increase energy efficiency. One program is to decrease operation and maintenance costs of heating and air conditioning by implementing an Energy Saving Performance Contract (ESPC) to install geothermal heat pumps in some facilities on Yongsan Garrison in Area II.

Heating, air conditioning or refrigeration systems commonly operate by moving heat from one area to another, such as moving heat from inside a house to the outside in the summer or moving heat from outside the house to inside in the winter. The ability to work in both directions is a system known as a heat pump. Traditional heat pumps, however, transfer heat from outside air to the air inside the house in the winter. At low temperatures, this process doesn't work well and electric heating elements are often used to supplement the heat pump. These elements are not energy-efficient.

A more efficient heat pump uses water as the heat exchange medium instead of air. Heat passes more efficiently between coils and water than coils and air. Also, if the difference in temperature between the coils and water is greater, the heat transfers more easily.

Geothermal heat pumps use the ground as a natural heat source. Coils buried in the ground up to several hundred feet deep can absorb heat that can then be transferred into a building during the winter. There is

no need to burn fuel to create heat. During summer months, the heat is carried from the building and absorbed in the cooler ground. This is accomplished by water flowing through pipes to the coils in the ground. Energy is required to concentrate the heat provided by the ground, but it is minimal compared to that required to create heat by burning fuels.

At a depth of 5 feet, the soil temperature in most regions of the world remains stable between 45-70 deg F. The geological conditions at Yongsan Garrison in Area II lend themselves to high performing geothermal earth loop systems. The geological formations of high-density granite provide excellent drilling conditions and a high level of heat transfer. Thermal conductivity tests completed at Yongsan established a thermal conductivity level that is highly supportive of a geo-exchange application.

In winter, geothermal systems don't have to work as hard (which means they use less energy) when they draw heat from a source whose temperature is moderate. It's much easier to capture heat from the soil or groundwater at a moderate 50° F than from the atmosphere when the air temperature is below zero. Conversely, in summer, the relatively cool ground absorbs waste heat from a building much more readily than the warm, outdoor air.

Because of the self-contained nature of the heat pump system, we expect there to be little effect on other mechanical systems that are currently in existence.

Geothermal heat pumps are efficient and provide reliable heating and cooling at much lower cost than other systems. They are environmentally friendly, saving our planet's fuel sources.

While serving as the Utilities Chief for the Area II DPW, Green looked for various ways to improve the efficiency of heating and cooling systems within ever shrinking resources. He understood the limited resources available to replace failing systems and branched out to elsewhere to find innovative means to provide quality HVAC sys-

tems for the Yongsan community.

Greene initiated and carried out the financing strategy using an Energy Savings Performance Contract (ESPC) where an energy service company bears the cost of implementing energy-savings measures in exchange for fixed payment from the resulting cost savings. Because of this financial requirement, initially it was difficult to find an energy service company that would risk the investment in an unstable overseas installation where a long-term pay-back may not be ensured. The ESPC program was realized only due to Greene's persistent effort in working with other government agencies and ESPC program contractors, and convincing the energy service company and government agencies that an overseas installation like Yongsan is a good candidate for implementation of an energy-savings program.

The contractor completed the first phase of the ESPC in FY03, using geothermal heat pump units with state-of-the-art temperature control systems that maximize the energy savings for various buildings. These included the Eighth Army Headquarters building, Soldier barracks, and family housing quarters.

Total savings realized last year from the ESPC geothermal program was 98,469 kWh of electricity valued at \$70,106.00. More importantly, the ESPC program in Area II opened doors for possible other energy service contractors wanting to establish similar service contracts on installations in other KORO Areas. It is also a major factor in improving the quality of life for Soldiers, civilians and families living and working in Yongsan. Programs like this are helping "Make Korea an Assignment of Choice."

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Fort Knox saves money through intervention

by Edward J. Gerstner

On 29 December 2003, Louisville Gas & Electric Company (LG&E) filed an application for approval of an increase in its electric rates to produce additional annual revenues of \$63.76 million (11.34%), and an increase in its gas rates to produce additional annual revenues of \$19.1 million (5.43%). This filing would impact Fort Knox in increase of electric billings by \$822,000 annually. At the request of this office, Army Regulatory Law filed a petition to intervene. On 30 June 2004, the Kentucky Public Service commission issued a final ruling. Cost Avoidance and Savings to the Army as a result of this proceeding are as follows:

a. The Company proposed in its initial application an annual increase of \$821,194 (12%) for Fort Knox for bundled electricity and no increase in gas transportation rates. The outcome of the case was an increase of \$346,043 (5.0%)

in electricity and none for natural gas. Relative to the company's proposal, DoD's cost avoidance was \$475,152 per year.

b. However, the major adversary in this case regarding natural gas cost allocation and rate design issues was the Attorney General's Office, not LG&E. The Attorney General supported the Company's class cost allocation criteria for electricity, but proposed an entirely different class cost of service methodology for natural gas transportation. The Attorney General (Mr. David Kinloch), proposed an increase of 32.95% for natural gas transportation customers on special contracts. This would have resulted in an annual increase of \$141,111 per year for Fort Knox. In tense negotiations, The Army attorney (Mr. McCormick) prevailed in thwarting that increase. Thus, effective immediately total cost avoid-

ance in this proceeding was the sum of \$475,152 in electric rates and \$141,111 in natural gas transportation rates, or \$\$616,263 annually.

c. Through DoD's intervention in this case, \$616,263 in annual increases in combined electric and natural gas billings was avoided. This agreement will be effective for 24-30 months. The benefit-cost ratio for one year of this intervention effort was therefore 10.8 (\$616,263 divided by contractor costs of \$57,000). This means that DoD would recover contractor costs in slightly less than 5 weeks.

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PWD

Recycling is the key to quality-of-life programs

by Claudette Roulo

German law requires that, as much as possible, trash be recycled. This law also applies to Soldiers stationed in Germany. It can sometimes be a frustrating experience trying to figure out which category an item of trash falls into.

To make compliance easier, recycling, or SORT, centers are located in Illesheim at Storck Barracks, in Katterbach on Katterbach Kaserne, and in Ansbach at the Bleidorn Housing Area. Both off-post and on-post residents are authorized the use of the SORT centers.

In fiscal year 2003, 6,140 tons of trash and 3,558 tons of recyclables were processed in the 235th BSB. This year, the DPW expects to take in approximately 8,000 tons of trash and 5,500 tons of recyclables, according to Jutta Seefried, SORT coordinator.

Items which are accepted at the SORT centers are:

- Bulk Waste (refrigerators, mattresses, etc.)
- Wood
- Cardboard and paper
- Scrap metal
- Rims and tires
- Electronics
- Industrial (flat) glass
- Used clothes and shoes

Three igloo-style containers and a paper receptacle are also placed outside each center's entrance gate.

Currently, the SORT centers are open 24 hours a day, but beginning in December, the SORT centers will be staffed and operating hours will change.

Trash and bulk items should not be left

outside or next to the recycling containers. Hazardous materials must be disposed of separately from recyclables. Hazmat centers are located in Katterbach and Illesheim.

Environmental Division representatives can be found at the monthly newcomer's briefings held by the Katterbach and Illesheim Army Community Service offices. For more information about the recycling centers, contact the SORT coordinator at 467-2158 or (09802) 832158.

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Claudette Roulo is a journalist in the 235th Public Affairs Office, Germany **PWD**



Waterless urinals, garbage disposal systems: examples of institutional water efficiency at Presidio of Monterey

by William Y. Davis and Dewey Baird

The Presidio of Monterey (The POM) is a U.S. military installation and home of the U.S. Armed Services Defense Language Institute, which provides foreign language training to military personnel from the U.S. Army, Air Force, Navy, and Marine Corps. The POM consists of dormitories, classrooms, administration buildings, dining facilities and recreational facilities, and in many ways, resembles a university campus. The POM is located on about 160 acres adjacent to the Cities of Monterey and Pacific Grove, California. The POM obtains its water supply from California-American Water Company (Cal-Am). The source of the water is the Carmel River under the jurisdiction of the Monterey Peninsula Water Management District (the District). Cal-Am serves about 90 percent of the water customers in the District and provides about 80 percent of the water under the jurisdiction of the District.

The POM functions as a community on its own under the direction of the base commandant. However, water delivered to The POM by Cal-Am is included in the District allocation to the City of Monterey. Thus, The POM adheres to District regulations and complies with the same water conservation goals as the neighboring communities.

The POM 1985 Master Plan details a schedule of building replacement and new construction to replace aging facilities. New construction occurs as congressional funds are made available; and water permits for new buildings must be obtained from the District. A study was conducted to document the water savings achieved at The POM through recent conservation efforts in support of the water credits issued to The POM by the District.

The POM Department of Public Works initiated a number of water efficiency measures at The POM:

- In 1998 with a showerhead replacement program and an active program to repair

distribution system leaks.

- In 2000, a series of water conservation efforts were implemented.
- In March 2000, the commandant's water use policy was issued reinforcing the Monterey Peninsula Water Management District's water conservation mandate regarding the scheduling of outdoor water use.
- In May 2000, the irrigation system at the Hill Top athletic field was replaced with a state-of-the-art system.
- In August 2000, water-efficient garbage disposal (SOMAT) systems were installed in two dining facilities.
- From December 2001 to March 2002, more than 170 waterless urinals were installed to replace less water-efficient urinals.
- In addition, landscape irrigation systems located around barracks (dormitories) that were prone to leaks and maintenance problems were removed.

The installation of waterless urinals and installation of the SOMAT disposal systems significantly altered water use patterns at The POM. This article describes the two water efficiency actions and their estimated water savings.

Waterless Urinals

Beginning in December 2001, the Directorate of Public Works began to replace flush urinals at the POM with waterless urinals. By March 2002, a total of 173 urinals were replaced in non-housing facilities (i.e., classrooms, administration offices and the recreational facilities). Urinals in dormitories and barracks were not replaced due to concerns about proper maintenance of the urinals by students who were unfamiliar with the maintenance procedures of the waterless fixtures.

The SOMAT Disposal Systems

The SOMAT system is a food waste pulping and dewatering system that



replaces the scraping trough (scullary) and garbage disposal system in kitchens. The SOMAT system uses water to move material scraped off plates at the feed tray to a pulper, which cuts the solid waste into a slurry. The slurry flows from the pulper to the water extractor (Hydra-Extractor®) that removes the water and produces an odor-free, semi-dry pulp. The extracted water is returned to the feed tray to complete the closed-loop cycle.

The water level in the pulper is automatically controlled. To prevent water from becoming too thick from constant reuse, a small amount of water (1-3 gallons per minute) is bled off from the extractor and replaced with fresh water by the automatic water level control system¹.

Previous water use is estimated as follows:

Garbage disposal flow:	5 gpm
Scullary flow:	6 gpm
Total flow:	11 gpm
Hours of operation:	420 minutes
7 hours	
Daily water use	
per building:	4,620 gallons
Number of buildings:	2
Total daily water use:	9,240 gallons
Days per year operation:	365 days
Annual water use:	3,372,600 gallons
	10.350 acre-feet



¹ Information obtained from SOMAT Corporation (www.somatcorp.com).



Fort Bragg's water conservation policy

by Lynda S. Pfau

A little more than two years ago, Fort Bragg was in the midst of an extreme regional drought. Mandatory water restrictions were enacted, and a new installation-wide permanent water conservation policy adopted to help regulate the use of potable water throughout the year. Within six weeks, water usage had decreased by nearly 30 percent.

That trend continues today with water usage levels remaining approximately 30 percent lower than levels prior to enact-

ment of the policy.

"The purpose of the water conservation policy was to establish routine water conservation practices in our homes and work place," said Gregory G. Bean, Director, Fort Bragg Public Works Business Center (PWBC). "The installation's drinking water source, the Little River, is a limited natural resource. Users and customers of potable water treated by Fort Bragg are expected to conserve water each and every day through conscientious practices."

The measures apply to all users and customers of water treated by the Fort Bragg Water Treatment Plant, to include housing, units, directorates, contractors, golf courses, and Pope Air Force Base. Based on the final number of their building, customers may water their lawns on an odd/even system; odd numbers can water on odd number days only; even numbers on even number days only. Watering is strictly limited to the hours of 7:00 a.m. to 10:00 a.m. and 6:00 p.m. to 9:00 p.m. to reduce evaporation. No more than 30-45 minutes per location is permitted.

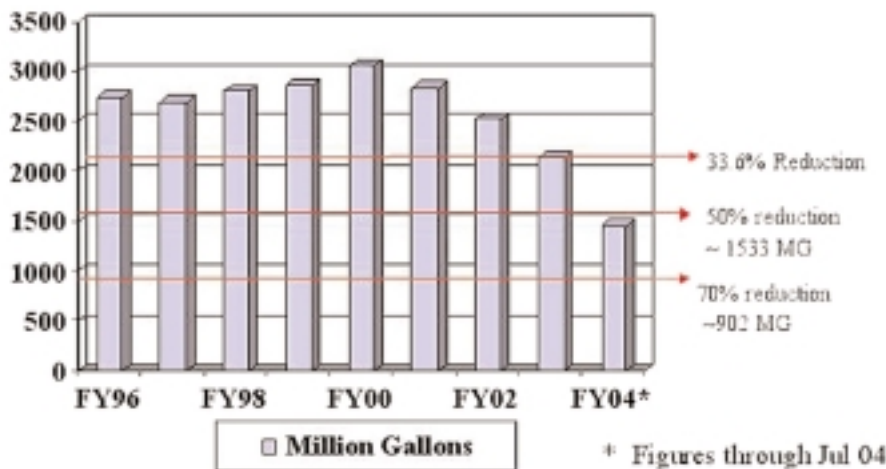
"The trend demonstrates our how our efforts in water conservation has helped us maintain a consistent reduction in potable water usage," said Paul Wirt, Chief, Environmental Compliance Branch.

The 30 percent decrease of water taken from the Little River represents nearly half of the 70 percent reduction as specified by one of the Sustainable Fort Bragg long-term goals.

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Fort Bragg Water Consumption



(continued from previous page)

Current water use is estimated as follows:

Water use per pulper:	2	gpm
Pulpers per building:	2	
Hours of operation:		
3.5 hours	210	minutes
Daily water use per building:	840	gallons
Number of buildings:	2	
Total daily water use:	1,680	gallons
Days per year operation:	365	days
Annual water use:	613,200	gallons
	1.882	acre-feet

Estimated water savings from the SOMAT garbage disposal systems are 7,560 gallons per day or 2,759,400 gallons per year (8.468 acre-feet per year).

Water conservation activities at the POM have saved an estimated 2.06 acre-feet per month, or 22,080 gallons per day. More than 70 percent of these water savings are a result of replacing flush urinals with waterless urinals and replacing garbage disposal systems with state-of-the-art disposal systems.

The installation of waterless urinals saved an estimated 11,490 gallons per day. The replacement of flush urinals continued after this study was conducted, thus increasing the water savings from this effort. The replacement of the garbage disposal systems in the dining facilities saved an estimated 7,560 gal-

lons per day.

These two water efficiency efforts can be implemented at most institutional facilities. The water savings documented in this study can be used to obtain the necessary water permits for new construction under the guidelines of the Monterey Peninsula Water Management District.

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Redstone Arsenal REM Program helps save energy, money

by Bob Quick

During the last few years, concerns about energy awareness have been growing in the government sector. A number of factors are catching the attention of managers at all levels. Some of these are increased energy consumption, increasing energy prices, short and long-term energy shortages like those seen recently in some areas of the country such as reductions in staff, reductions in O & M budgets and concerns about energy disruptions that could affect national security.

Redstone Arsenal, Alabama, is one of the first installations in the Southeast Region taking part in a fairly new concept, the Resource Efficiency Manager (REM) Program. A resource efficiency manager is tasked with a primary responsibility to investigate possible methods to reduce the cost and consumption of all forms of energy used at an installation or facility. The REM also works with the potable and industrial water distribution systems and the waste water systems looking for efficiency improvements.

Some of the REM personnel are also responsible for the recycling programs and waste disposal at their locations.

The REM works with the installation energy manager and in some cases, the REM is the energy manager. At many installations, the energy manager has multiple responsibilities, so the REM helps to enhance the work of the energy manager because energy efficiency is the primary responsibility of the REM. The REM also works with the base operations contractor and the utility suppliers to help achieve reduction goals.

One goal of Redstone's REM is to identify enough savings to equal three to five times the cost of the REM contract. The REM identifies ways to purchase energy at better rates, improve operations and maintenance procedures, procure energy efficient products, provide training for installation employees, identify billing errors, and create energy awareness pro-

grams. He also investigates renewable energy, new technologies, and alternative financing methods for conservation products.

The savings identified by the REM are used to justify and offset funding required not only for the REM contract, but also the energy efficiency projects identified for implementation.

Savings discovered thus far are the result of such things as lighting changes in existing facilities and suggested changes to plans for building modifications and new construction. The project recommendations amount to a savings of almost \$97,000 in electricity, natural gas and steam costs plus over \$10,000 in maintenance savings. Over 1,000,000 kilowatt hours will be saved as a result of implementing these recommendations, not to mention 13,000,000 gallons of water and more than 404,000 cubic feet of natural gas!

Other suggestions came from reviewing utility consumption and billing data and finding that out-dated calculations were being used in some instances and some tenants were not being billed properly for energy used. The billing review found almost \$750,000 worth of unbilled utility expenses that covered an 18-month period!

The REM at Redstone has also taken an active part in helping write installation energy policies and in completing various long-range and short-term energy plans. Additionally, a product monitoring / testing program was established to verify the performance of energy saving and energy monitoring devices in actual work environments. Evaluations of control equipment and O & M software are continuing projects.

The energy awareness program at Red-



(Left to right) Bob Quick, Resource Efficiency Manager, William (Bill) Porr, Director, Directorate of Public Works, and Mark Smith, Energy Manager, Directorate of Public Works, monitor air velocity in an air plenum.

stone uses short articles in the installation's weekly newspaper and the garrison bi-monthly e-mail newsletter to help educate the personnel that are assigned here. The installation newspaper has a circulation of over 20,000 copies per week plus it is posted on the installation web site. The garrison e-newsletter is distributed to more than 1,500 persons every other month. As a result of the exposure provided by these publications, the energy management office typically receives several phone calls a week requesting additional information.

The Army Community Service Newcomers' Orientation, which is held every two months, also distributes educational materials provided by the REM program at Redstone. This year, the energy awareness program has distributed over 161,800 pieces of information in electronic format and hard copies.

"Our Resource Efficiency Manager has not only been instrumental in identifying potential savings, but has also been a great enhancement to the energy office in many other areas as well," said energy manager Mark Smith, U.S. Army Garrison – Redstone. "I think we make a good



Residents recycle with ease at underground depot

by Lisa Moore

If recycling one glass bottle can light a 100-watt bulb for four hours, and one recycled aluminum can will operate a television for three hours, then why aren't more people recycling? The same can, if thrown away will take approximately 500 years to decompose and the bottle at least 1,000 years.

Recycling within the 279th BSB is done with ease at an underground recycling center with three principles in mind: reduce, reuse and recycle.

"Americans typically don't recycle because it has been considered an inconvenience. When it comes to trash, we just want to get rid of what we have as quickly as possible," said Sgt. 1st Class Ricardo Beauchamp, 279th BSB housing zone coordinator.

By using the rule of reduction, residents can decrease the amount of garbage thrown away.

Environmental Protection Agency research indicates about half of all waste is packaging. Reduce the amount of trash generated by purchasing products that require less packaging.

Purchase food and supplies in bulk, such as washing detergent. Ask for paper bags instead of plastic ones and refuse extra bags.

"Separating our trash initially seemed to be a nuisance. Before recycling, we used one large kitchen trash can and because the packaging was so bulky we had to take the trash out more often," said Theresa Daniels, 279th BSB family member.

Many products are designed to be used more than once – reusing items and containers results in less waste. Use a coffee



mug instead of a different paper cup for coffee. Use a dish towel instead of paper towels. When you must use disposable items such as single packs of ketchup or napkins, take only what is needed.

After cutting back the amount of waste, separate and discard what is left. The 279th BSB DPW makes discarding waste easier by putting more recycling depots where they are needed the most, in the housing areas.

These depots feature new underground recycling containers and now accept plastic. Three depots have already been built in the Flynn Housing Area, the Pines Housing Area and in one at the 82nd Engineer Battalion parking lot.

The new recycling containers are waist-high and give the appearance of holding no more than 25-one gallon juice containers. Looks are deceiving.

Once deposited, the recyclables go into a deep underground container and can be emptied when necessary.

"Recycling not only saves our environment, it saves money. Last year the 279th BSB saved over \$60,000 which was put back into the community," Beauchamp said.

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Lisa Moore works in the 279th BSB Public Affairs Office, Germany **PWD**



(continued from previous page)

team and work well together."

The REM has been under contract at Redstone Arsenal less than one year and has already proved very valuable by making recommendations that will generate reductions in energy consumption and

increased cost savings that exceed three times the annual cost of the contract, justifying what is hoped to be the beginning of many more cost savings to come.

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Bob Quick is a Resource Efficiency Manager with Erica Lane Enterprises, Inc., and supports Mark Smith in the Energy Management Office at Redstone Arsenal. **PWD**



Improving energy efficiency at Schofield Barracks

Have you ever wondered how a modern wastewater facility processes millions of gallons of wastewater each day?

The U.S. Army Directorate of Public Works (DPW), Schofield Wastewater Treatment Plant, handles all wastewater processing for Helemano Military Reservation, Wheeler Army Airfield, Schofield Barracks, and Schofield Barracks East Range. The plant is a fully functional, stand-alone wastewater treatment facility that operates 24 hours per day, 365 days per year.

The facility typically sees about 2.4 million gallons per day of influent flow. Therefore, the plant is constantly looking for ways to maintain and improve its operational stability and efficiency while keeping up with increasing demand.

To improve its processing capabilities and lowering its operating costs, Russ Leong, the DPW's Environmental Engineer, and Joe Kubey, DPW's Schofield Wastewater Treatment Plant Supervisor, started by targeting the most energy intensive portion of a secondary treatment system, which is the activated sludge treatment process. This process typically consumes 55% of the plant's energy.

To treat activated sludge at the plant, the waste stream is pumped into aerator tanks, where bacteria colonies break down the organic components in the waste stream. These bacteria colonies require oxygen to thrive so air is blown into the aerator tanks. The blower energy is what makes this portion of the wastewater treatment process so energy intensive.



Joe Kubey, DPW Supervisor, and Russ Leong, DPW Engineer, proudly display rebate check for \$16,700.

The old aeration system was manually controlled by a plant operator who would adjust the intake valve on a blower to increase or decrease the level of dissolved oxygen (DO) in the aerator tanks.

The aeration blower's manual intake suction valve is a 12" diameter butterfly valve that is throttled to increase or decrease the air flow rate to achieve a set-point of 0.4 parts per million. Just a small change in the valve position translates to a large change in the airflow rate. To minimize process upsets in the aeration tank, the plant operators would change valve positions only once per day. When the oxygen demand decreased during the off-peak periods, the blower was still running at higher than necessary speed. This led to excess DO levels during off-peak periods

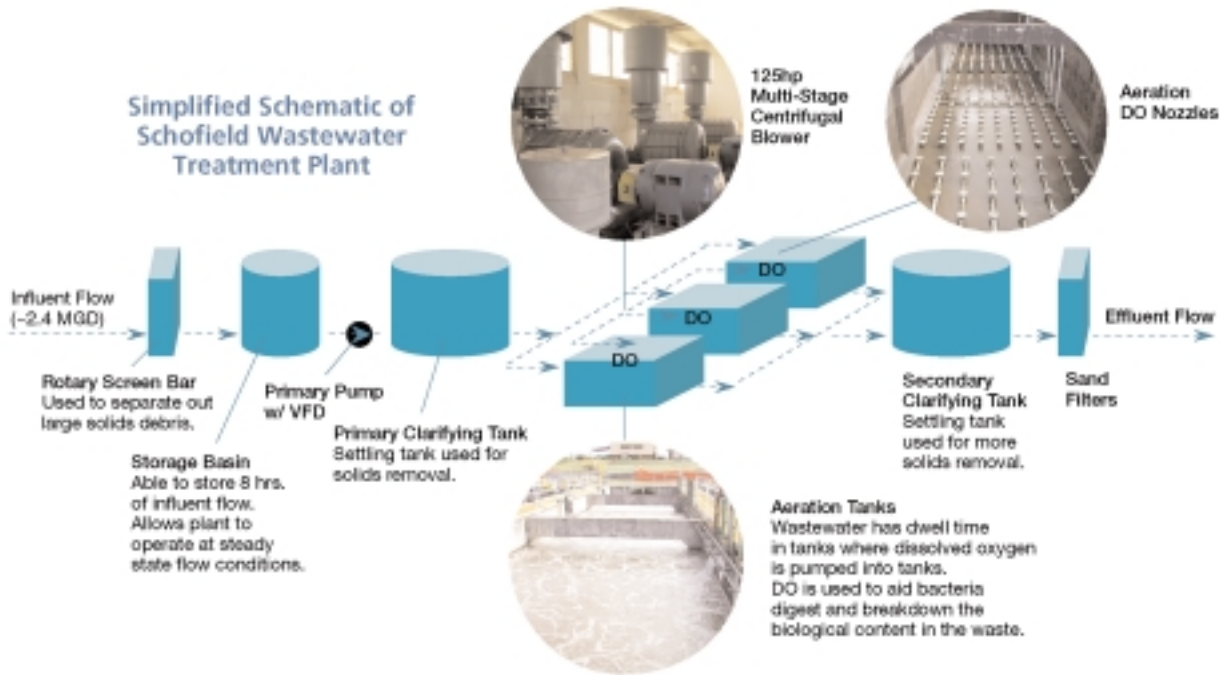
and wasted energy.

To stabilize the process and reduce energy consumption, a control system for the aeration blowers was developed with the assistance of Mike Elhoff – Hawaii Engineering Services. Elhoff retrofitted the aerator blower with a closed loop control system utilizing a dissolved oxygen (DO) meter and new automated suction valve.

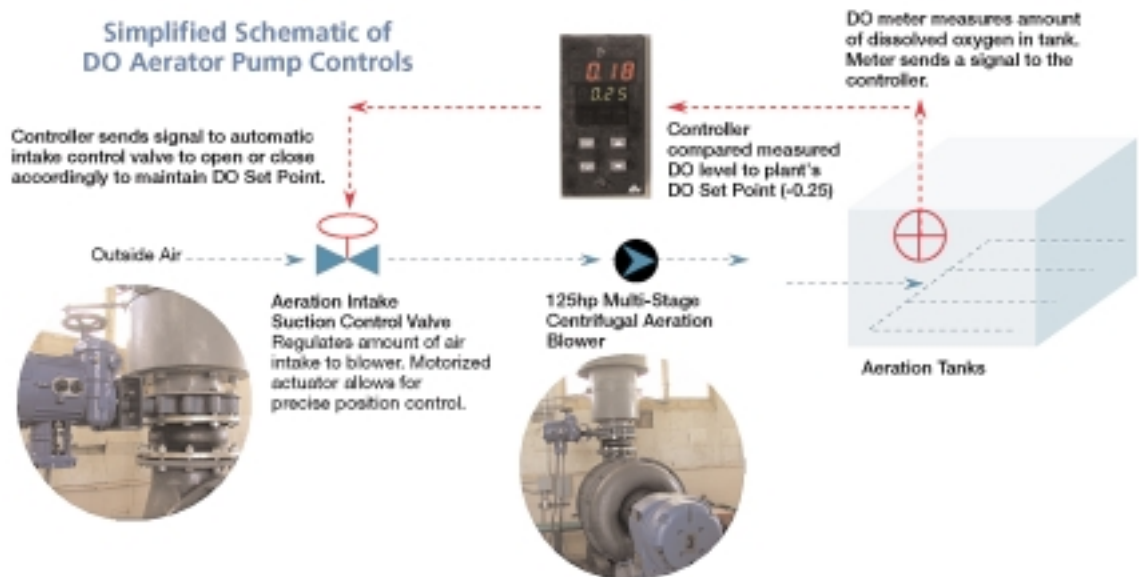
The project was successfully implemented in early 2002 and the energy savings achieved by controlling the aeration blower to deliver only the necessary amounts of oxygen far exceeded everyone's expectations.

With an installed cost of \$36,150 and an added annual maintenance cost of \$1,000 for calibration of the controls, the system has a life-cycle cost

	Old Manual DO Aerator System	New Automated DO Aerator System	Savings
Avg. Blower Demand:	95 kW	72 kW	23 kW
Measured Energy Consumption: (data collected for 7/01 & 7/02)	78,149 kWh/mo	55,010 kWh/mo	23,139 kWh/mo
Est. Annual Energy Consumption:	937,785 kWh/yr	660,126 kWh/yr	277,659 kWh/yr
Est. Annual Operating Cost:	\$93,785 per yr	\$66,013 per yr	\$27,766 per year



Simplified Schematic of DO Aerator Pump Controls



of just over \$55,000, resulting a project payback of only 2 years! And if that's not impressive enough to convince Uncle Sam to fund the project, the energy savings qualified for a \$16,700 customized rebate

incentive from HECO's Energy Solutions for Business Program.

Good luck as you implement your energy efficiency projects. If you need help, don't hesitate to call 94-POWER!

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White Sands Missile Range replaces windmills with solar-powered wells

by Kevin M. Casey

Mule deer, pronghorn, elk, oryx, quail, migratory birds, foxes, mountain lions, coyotes and a wild desert hog known as javelina are among the animals populating White Sands Missile Range (WSMR) in South Central New Mexico. And before the U.S. Army brought in biologists, ecologists and botanists to preserve the animals' quality of life, range riders looked out for the wildlife, maintaining watering holes and troughs across 2.2 million acres of desert.

Today, scientists study, tag and track the fauna, and the work of maintaining the Range's wildlife-watering units falls to those who keep the lights on and the water flowing here, the men and women of the Installation Support Directorate.

Uprange, as many as 18 windmills have been used to pump underground water into tanks that keep the troughs full for the animals. Most of the water is with in 100 feet of the dusty surface, but a couple of wells descend more than 250 feet beneath the desert. In the mid '90s, IS Facility Operations Manager James Elwood thought he'd replace a windmill with a solar-powered water pump to see how it worked. Since then, the solar wells have proven to be cheaper to install, almost maintenance free and, unlike the windmills, pose no safety threat to workers.

Elwood and Windmill Technician Ivan Armijo installed their first solar pump at WSMR's Hardin Ranch site eight years ago. "Whenever we'd pass by on our way to another job, we'd stop to check the floats and check the unit to see if it was still pumping," Elwood said.

A simple float like the one in any toilet tank maintains a volume of about 10 gallons of water in the trough. Time after time, the two men found the trough full and the solar unit pumping away, as if it thrived on neglect.

The unit kept pumping without maintenance for five years. About three years ago, they had to clear a clogged screen

inside the system. The hard water in this part of the Range and the wispy roots of nearby vegetation eventually plugged the screen and interfered with water flow. Though the Hardin Ranch well is 260-feet deep, cleaning the screen took 15 minutes. "You just pull it up by hand, clean it off and put it back," Armijo said.

In contrast to the new solar-powered wells, the windmill at WSMR's Red Canyon site takes eight quarts of oil that need to be changed annually. When the time comes, Armijo takes the bonnet off the tower, drains the old oil into a bucket and replaces it, all while holding on for safety. In the past, gusts have left him hanging from the windmill by one hand, twisting in the wind 33-feet above the ground.

In addition to the regular oil changes, leathers on windmill pump cylinders wear out and need to be replaced every one to three years. "That takes a day at least," Armijo said. Elwood estimates a cost of \$450 for each visit to maintain a windmill. An inoperative windmill also impairs the mission of the wildlife-watering units. "We have to truck water to the tank when a windmill is down," Elwood said. "The trucked water is chlorinated, and the animals won't drink it for a week."

A traditional argument against solar energy is that it isn't cost effective. A home solar electricity system can take 15 to 25 years to pay itself off through savings on the electric bill. But for keeping wildlife-watering troughs full throughout WSMR, the economics of replacing windmill-pow-



Solar-powered water well at Lena Cox Boone Ranch, White Sands Missile Range, New Mexico.

ered pumps with solar-powered ones are much more persuasive.

A 6-foot windmill costs \$2,000 without the tower or pipe. Final costs can be \$5,000 installed to serve a 100-foot well. The deeper the well, the larger the windmill required and the greater the financial investment. A 14-foot windmill like the one Elwood and Armijo maintain at Red Canyon can cost \$10,000 installed, and the installation requires a truck, a crane and lots of manpower.

The solar units cost about \$1,900 installed, and two workers can do it without any heavy equipment in as little as 15 minutes. Instead of wrestling with unwieldy 20-foot lengths of steel pipe joined together, installers can attach a solar-powered pump to one end of a 250 foot roll of flexible polyethylene pipe and lower it into the well casing.

In August, Elwood and Armijo installed a solar pump at WSMR's Potter's Ranch site about 50 miles from their base of operations uprange at the Stallion Range Center. "It took us longer to drive out to the site than actually install it," Elwood said.

"And as soon as we hooked it up, within



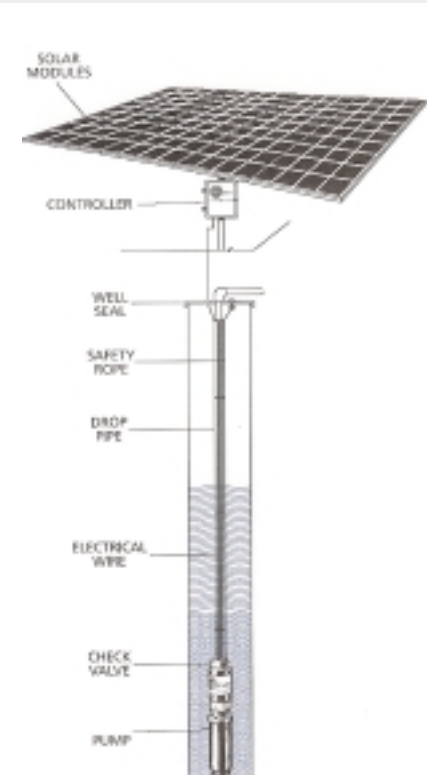
Fort Belvoir – home base for fuel cell vehicles



Through a cooperative research and development agreement with the Army, Fort Belvoir, Virginia, is home base for the General Motors HydroGen3 fuel cell vehicle. The car, running on liquid or compressed hydrogen, is being tested and demonstrated in the traffic around the nation’s capital.

A fuel cell-electric vehicle runs with approximately twice the energy efficiency of an internal combustion engine. Its exhaust: water vapor. Though HydroGen 3 and the Hy-Wire show car, also at Fort Belvoir, are non-tactical, the technology could eventually help the Army produce quieter vehicles with longer range, requiring the transport of less fuel and producing practically no emissions, according to Paul Skalny, deputy director and director of strategic initiatives and programs for the National Automotive Center. **PWD**

(continued from previous page)



Typical solar water well diagram. Photo taken from Arizona Wind and Sun website.

two minutes it was already pumping water,” Armijo added.

The solar pumps move 1.5 gallons per minute, compared to 3 gpm for a 6-foot windmill and 10 gpm for a 14-foot windmill. But it takes a strong, sustained wind of up to 12 mph to make some of WSMR’s windmills pump. Some days they only pump for two hours. Meanwhile, the smaller, solar units pump from sunup to sundown. Even on cloudy days, when they pump a little slower, the solar units usually move more water than the biggest windmill. The units can be equipped with a battery that keeps them pumping at night, but that isn’t necessary to meet the needs of the WSMR’s wildlife-watering units.

WSMR wildlife biologist Patrick Morrow says some naturalists believe the post shouldn’t interfere in the lives of the animals here, even by providing them drinking water. After all, the deer thrived in this desert long before the Army claimed the land. Morrow respects that point of view, but for now agrees with those who want to keep the troughs full.

“Because these units have been in place so many years, many wildlife depend on them no differently than a spring,” he said, “so let’s continue to maintain the ones we have. I think it’s a benefit.”

So far, Elwood and Armijo have converted five of the 18 windmills in their area of responsibility. They started with those farthest from Stallion, and it will be some time before all are replaced. For example, there’s a windmill near Stallion that feeds a 5,000 gallon tank. “It works. It’s close,” Elwood said. He doesn’t think he’ll tear it down any time soon. When the last one does go, it will be the end of an era, but Elwood’s own eight-year experiment has proven solar-powered wells are just cheaper, easier and safer than the windmills they replace.

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Kevin M. Casey is a staff writer/editor with the installation’s Missile Ranger newspaper. **PWD**



Regardless of the weather, USMA saves water

by Martha Hinote

The northeast United States is not generally known for daily doses of rain and repeated major record-breaking snowfalls. However, the last two years have been a major exception. It seems that it rains daily and then it rains in buckets with the appearance of large thunder storms and remnants of tropical storms.

Additionally, the last two winters have featured an abundance of snow and ice. In light of all the precipitation in its various forms, it may seem strange to the members of the U.S. Military Academy (USMA) community to still be asked to save water. However, we know from experience, since fortress USMA has been here since 1802, that can change in the drop of a hat!

We operate and maintain two water treatment plants and many miles of underground pipes, most of which were installed many years ago. As a guiding principle, we hate to waste water.

So one of the ways we strive to save water is with an active post-wide leak detection program. Because of that, the Directorate of Housing & Public Works' Utilities & Facilities Division (UFD) continues to strengthen and improve its Leak Detection Program.

"When the program started about five years ago, we were losing up to 300,000 gallons of treated water a day, every day," said Greg Jones, Chief of the Water Treatment Branch. "We now average a water loss of under 100,000 gallons per day," he continued. With a processing cost of \$1.00 per every 1,000 gallons, the savings means lots of dollars saved.

"Most leaks do not burst out of the ground. Most of them remain underground entering the storm lines or even entering the sewer lines," added Jones. So how, exactly, do you find an underground water leak, a process that is made more difficult if it happens to occur when there is snow on the ground, and believe me, we get lots of snow up here.

The experts in UFD use sophisticated electronic equipment that picks up the



Chris Campbell, Certified Water Plant Operator, operates water pump from a remote site.



Old water main located on West Point reservation buried approximately 10 feet below the surface.

sounds of the water traveling underground. The experts can tell the difference in the sounds the water makes at fire hydrants, water valve boxes, in a length of underground pipe, or that a water leak makes. Most of this type of work is performed late at night and in the early morning hours. Even a car going nearby is recorded by the equipment and makes isolation of the leak more difficult.

"We want to be very sure we have located the leak, before we start digging," said Jones. "A 'dry hole can cost up to \$5,000 without actually fixing a leak."

This task is sometimes challenging because sections of the infrastructure of the post are old. When most of the pipes were installed back in 1934, large rocks and boulders weren't removed. The pipes were constructed around the rocks.

There are approximately 55 miles of water piping on West Point and Jones'

workers survey as much as they need to in order to find a leak. "We can tell if there is an undetected leak," said Phil Dwyer, one of our water treatment plant operators, "because we monitor the usage of the water from each of our two plants (Lusk and Stony Lonesome)."

USMA activities create a need to use lots of water. In addition to supplying

treated water to over 1,000 homes for our military faculty and staff, we supply water to our public buildings, irrigation for our 18-hole golf course and historic parade field, athletic fields and the water to make snow at our ski slope for the times when the weather is very cold but not very



Ron Vanasco uses the electronic leak detector.

wet. This places an added emphasis on our water conservation programs.

We use our public information program to inform the community of things they can do to save water. We even provide specialty information on the correct method for most efficient lawn watering during the spring/summer season. Everything from notices and articles to a mock-up of a water treatment plant (shown at public events including the Parents-Teachers Organization's carnival at our post school) is used.

We are striving to bring our water usage numbers down even further through additional leak detection efforts, replacing old infrastructure to prevent underground small leaks, and a continued, extensive public information campaign.

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Martha Hinote is the customer relations officer for the Directorate of Housing and Public Works at USMA. PWD



Fort Gordon recycling program auctions rights to World War II-era facilities

by Layne Young

After gauging public interest this spring, Fort Gordon held a public auction to sell the recycling rights to several WW II-era buildings. Instead of demolishing the buildings as scheduled, the auction sold the recycling rights to four warehouses, a small shed, and a pole barn so that qualified members of the public could deconstruct them prior to final demolition and landfilling. Deconstruction is the careful disassembly of a building that allows old wood and other materials to be reused.

About 30 people gathered at Fort Gordon on July 17 for the auction. The recycling rights to a former warehouse, once used to store Army supplies, sold for \$2,700. The buyers from Augusta, Georgia, plan to use the wood, metal and window fixtures salvaged from the warehouse to construct a new home. Recycling rights to the remaining buildings were auctioned off at prices ranging from \$5 to \$1,300.

All hazardous materials are removed from the buildings by the installation before deconstruction begins and buyers enter into an agreement with Fort Gordon stating that deconstruction of the buildings can begin no earlier than August 1, 2004 and must be completed by September 11, 2004. Purchasers pay a deposit and agree to remove more than half of the building's wooden material by weight. All remaining wooden and masonry solid waste will be removed by the installation demolition contractor and hauled to the on-post landfill.

Fort Gordon, along with the Georgia Department of Natural Resources, held deconstruction training several days before the auction. Attendees were shown different techniques for dismantling buildings including how to salvage old wood and remove nails from boards. They also learned how to prepare a contract for deconstruction and how to market recycled materials. Deconstruction training participants came from as far away as Greensboro, North Carolina, and Austin, Texas.

The Fort Gordon deconstruction and recycling program was created in response to several Executive Orders and DoD and Army measures of merit that encourage the reduction of lifecycle costs of solid waste management at base operations. In addition to the revenue generated from the auction, is anticipated that the overall costs for final demolition and landfill expenses will be reduced.



Workers inspect salvaged wood at Fort Gordon warehouse.

Deconstruction serves the public good will by providing lower cost building materials to the community and supports job creation and economic development. The deconstruction process protects the natural environment by reducing the need for the extraction of new resources and combines the recovery of both quality and quantity of reusable and recyclable materials.

Money collected at the public auction is given to the Morale, Welfare and Recreation (MWR) program of Fort Gordon for the benefit of its Soldiers and their families. Similar auctions have been successful at Fort Knox and Fort Campbell, Kentucky.

Fort Gordon hopes to conduct another auction in October 2004, after the deconstruction work in progress is completed. For more information on the Fort Gordon auction and other deconstruction issues, please contact the Army Environmental Center at (410) 436-6866 or visit <https://www.denix.osd.mil/denix/Public/Library/Recycling/recycle.html>.

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Layne Young works at the U.S. Army Environmental Center in Aberdeen, Maryland. PWD



Tom Napier inspects roof decking at Fort Gordon.



From tiny snails to the big picture

by Stephanie McKenna

When Dr. James Bailey, natural resource scientist at the Aberdeen Proving Ground, Maryland, Directorate of Health, Safety and Environment (DHSE), first became a scientist, his specialty was snails.

He spent several years in Africa studying schistosomiasis, a disease caused by parasitic worms that use the *Bulinus* snail as an intermediate host between humans. Bailey loved doing the research, but the reality of too little money sent him looking for a way to make a living as a scientist.

Bailey made the move from small snails to large wetlands when he came to Aberdeen Proving Ground (APG) in 1989, serving as a fish and wildlife biologist with the Directorate of Public Works before joining the DHSE in 1990. He leads the installations Special Area Management Program, pursuing ways to enhance wetlands and manage invasive species.

His experience in balancing public land use with preserving a healthy ecosystem has motivated Bailey to share what he has learned with the next generation of environmental professionals. In March 2004 he was elected to a one-year term as president of the National Military Fish and Wildlife Association (NMFWA), where he will lead the NMFWA in its efforts to protect and manage wildlife and other natural resources.

Bailey considers his goals for NMFWA as he sits in his office inside the historic Malcom Mitchell House on APG. Native and historic plants surround the 100-year old Victorian mansion, a fitting example of how to use public land without destroying natural habitat.

For starters, he hopes to dispel the notion that natural resource managers are more concerned with the environment than with the Army's mission. "We're very concerned with the mission," he explains, "but we need to balance that with the 25 million acres of land for which we are responsible in the Department of Defense." Bailey said he wants to "keep it in the policy makers' vision that that the land is the principle component of military



Dr. James Bailey, Aberdeen Proving Ground natural resource scientist, assesses the functional value of a wetland as part of the installation's Special Area Management Plan.

Photo credit: Brian Feeney

actions."

He also plans to focus his attention on bridging the gap between contractor and government workers. In NMFWA, he said, "contractors should have the same rights as government workers to vote on issues." A constitutional bylaw amendment that would allow just that will be voted on in March 2005.

But his NMFWA responsibilities don't overshadow his job at DHSE, which includes his duties as installation coordinator of Integrated Training Area Management. One project that he finds particularly interesting began after 9/11 when the Navy started a live fire-training program at APG. As coordinator, it's his responsibility to remediate any environmental impacts the training program has on the Chesapeake Bay shoreline.

With such a hectic schedule, what keeps this scientist going? "I look at myself as the Army's conscience," Bailey said. "I look for ways to minimize negative impacts of military training as well as ways to promote positive impacts to the environment. That's

what keeps me going."

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Stephanie McKenna served as summer intern in the U.S. Army Environmental Center Public Affairs Office. She is pursuing a degree in technical writing from Towson State University, Maryland. **PWD**

CALL FOR

ARTICLES

The November/December 2004 issue of the **Public Works Digest** will feature

The Annual Report

Please submit all articles to:

alex.k.stakhiv@usace.army.mil

with POC (name, title, office) and author (name, phone, e-mail) information no later than October 29, 2004.



New Army Energy Program website launched

by David Purcell

The Office of the Assistant Chief of Staff for Installations Management (OACSIM), in coordination with the HQ U.S. Army Installation Management Agency (HQ/IMA), launched the new Army Energy Program website on 12 August 2004. The new website is designed to disseminate information on Army energy policy and program activities and projects as well as highlight accomplishments of the Army's energy program focused on meeting federal energy and water savings goals.

When asked his opinion of the new site, John Nerger, Director of Facilities and Housing said, "I am confident this new site will impress, inform and inspire all across the Army who are working to reduce energy and increase energy security."

The new website is directly accessed at <http://hqda-energypolicy.pnl.gov/> or through the OACSIM web site (<http://www.hqda.army.mil/acsimweb/fd/policy/energycur.htm>) by following the links under "Facilities and Housing/Utilities and Ener-

gy." In the future, it will also be accessed from the HQ/IMA homepage (<http://www.ima.army.mil/index.asp>). The website was developed and is being maintained by the Department of Energy's Pacific Northwest National Laboratory (PNNL).

Key features and enhancements of the new website include an overall new "look" with a new homepage layout that includes an Energy Program mission statement, a summary of "What's New," a quick-view "Calendar" and "Photo of the Month." Also new are user-friendly drop-down menus, a comprehensive section on Funding and Financing; inclusion of the latest and most up-to-date policy memorandums and guidance, and a comprehensive set of links to other energy- and water-related web sites and resources.

In addition, the new website contains relevant news and documents from the federal and private-sector energy community. At the bottom of each page is a link provided to an e-mail address for submitting

comments on the website's content. Comments and suggestions to improve or enhance the site content and functionality are welcome.

In summary, the website provides a "one-stop-shop" for communicating important energy- and water-related information for the Department of Army, IMA Region and installation energy managers, as well as other DoD and federal staff responsible for managing building and facility utilities and infrastructure. Future plans for enhancing communications about the Army's Energy Program include the development and dissemination of an electronic newsletter.

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David Purcell is a general engineer with the Utilities Privatization and Energy Team, Facilities Policy Division, OACSIM. **PWD**

HOST continues to evolve to educate Army communities about lead hazards

by Jim Routson and Will Slauson

The Office of the Assistant Chief of Staff for Installation Management, (OACSIM) is further developing the Lead Hazard Management Informational and Instruction Program - Hands On Skills Training (HOST) website by including an additional module, "Statutory Disclosure."

The new module's primary goal is to educate users about the lead-based paint and lead hazards disclosure policy for Army-owned family housing and provides important information about federally mandated disclosure requirements. It will augment the current 16 individual user-friendly HOST modules that are designed to educate users about the control and abatement of lead hazards in soil, steel structures, nonresidential buildings, and family and child occupied facilities. These users may include commanders, managers, and installation support personnel having

environmental responsibilities for the installation or facilities.

Some of the topics incorporated into the new module are:

- What are the Army's disclosure requirements when assigning families to Army housing/child occupied facilities?
 - What is the Army's disclosure rule requirement for performing remodeling and renovation in Army family housing/child occupied facilities?
 - What are the disclosure requirements for lead-based paint and lead-based paint hazards by sale of Army residential property?
- The "Statutory Disclosure" module is expected to be on-line in October 2004.



HOST continues to be an excellent resource to educate users about the Army's Lead Hazard Management program and assists commanders, managers, and support personnel in making decisions for the environmentally safe and cost-effective control and abatement of lead hazards. HOST is located on

the web at <http://www.hqda.army.mil/acsimweb/fd/policy/host/>.

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Jim Routson works for the Directorate of Facilities and Housing, OACSIM; and Will Slauson is Project Lead for the HOST web-site with Man-Tech International Corporation. **PWD**



Geospatial Risk Assessment Modeling System (GeoRAMS)

by Annette L. Stumpf and Dr. Linda Peyman-Dove

Installation managers know that the spill or release of commonly available toxic industrial chemicals and materials can disrupt activities and threaten human health and the environment. To address this potential threat, a new geographic information system (GIS)-based computer application named Geospatial Risk Assessment Modeling System (GeoRAMS) was developed.

GeoRAMS can be used to determine to what extent geographic areas are affected when 44 different toxic industrial chemicals or agents are released into the air, spilled on the soil, dumped into a water body or injected into a water pipe system. It also indicates when people can safely reoccupy the areas and use the water.

GeoRAMS assesses intermediate, sub-chronic health risks to humans due to exposure between 2 days and 1 year. Users can play what-if games to identify locations in the transportation network that pose a high risk so that alternative plans can be developed proactively. They can also model other scenarios and design operational plans for reducing the risk to people and the environment.

The GeoRAMS Solution

Researchers at the U.S. Army Engineer Research and Development Center (ERDC) Vicksburg and Champaign laboratories worked with the U.S. Army Center for Health Promotion and Preventive

Medicine (CHPPM) and Argonne National Laboratory to create this unique capability. Initial funding for GeoRAMS has been provided through the Environmental Response and Security Protection (ERASP) Program. The GeoRAMS team has integrated four independent models: Air Dispersion Model (SciPuff), Soil Model (SMRCF), Surface Water Model (CEQUAL-W2), and Water Pipe Model (EPA-Net) with chemical screening levels and the ability to display time-based geospatial results.

Output from the GeoRAMS application can be viewed geospatially through time. The land area, water body or water pipe network is shaded green if the chemical concentration is considered safe for humans, and red if the level is unsafe. Using ESRI ArcGIS Tracking Analyst software, the areas for a site can be viewed through a moving picture changing from unsafe to safe over time. Output can also be viewed through tabular and graphic data.



GeoRAMS information flow.

Scenarios Assessed Using GeoRAMS

The models are integrated so the user can study different scenarios, such as an airplane dropping a chemical that falls on the soil, is washed into a water body by rain, and then eventually is pulled into the inlet of the local water treatment plant that supplies the community and installation with drinking water. Users can



Hazardous substances, such as those transported every day in the nation, can be released accidentally or intentionally to contaminate the local community.



AEWRS (aka HQRADDS) redesign update

by David Purcell

As previously reported, HQRADDS is changing to the Army Energy and Water Reporting System (AEWRS). Work continues on this multi-phase project with some notable improvements already.

Phase 1 has been underway for a several months and will be completed by 30 November 04. To date, the following improvements have been implemented:

- Realignment of DODAACs by Region and add Region capability to view data and pull reports (completed 30 Jul 04).
- Water consumption and cost tracking capability has been added (completed 30 Jul 04).

By mid-September, you will also see:

- Optimized report printing that eliminates blank pages.
- Enhanced data entry and correction with drop down menus.
- Addition of two alternative fuel product codes, E-85 and B20.

The completion of Phase 1 will include implementation of new password requirements and the underlying Oracle software will be upgraded to higher version (10G) in preparation of replacing Oracle Forms

technology with Java 2 Enterprise Edition (J2EE) standards which will eliminate the requirement for Oracle JInitiator plug-in.

Phase 2 should be completed by May 05 and will include such improvements as:

- Replacing Oracle Forms technology with J2EE standards.
- Modified installation access to past data. Users will be given the ability to access previous FY data for 6 months into the new FY, after which access to previous FY data will be blocked with read only.
- Added capability for user to change password when notified of password expiration.
- Help feature and administrative email function will be included.
- Enhanced "Look & Feel" of screens.
- Improved access to the AEWRS website with elimination of Oracle JInitiator.

Phase 3, which should take another 5-6 months, will include such improvements as:

- Energy Manager's database will be created which will include a data entry interface and all functionality necessary to support the Annual Energy Report.
- Reports will be downloaded in Excel or a compatible format.
- Accommodation for the reporting of Mobility Substitution Energy.

- Standard DOD Unit of measures will be calculated by the system. The users will input data/units as received in their bills.

Phase 4 consists of the final improvements and the duration is dependent upon the time required to establish the interfaces with other systems. The proposed interfaces will reduce redundancy of data entry and provide consistent data among systems. Currently, it is proposed that AEWRS interface with the following systems:

- Installation Status Reporting (ISR).
- Integrated Facilities System (IFS).
- Fuel Automated System (FAS).
- National Oceanic and Atmospheric Administration (NOAA).

Other planned improvements in Phase 4 include:

- Capability for local report design.
- Addition of degree day's information.
- Improved chart/graph capability.
- Capability for administrator to send mass email to all registered users.

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create their own scenarios to test by choosing the time, location, chemical agent, duration and method of release. Historic weather conditions are used in modeling the dispersion, extent and duration of the impact to human health.

The user can perform what-if simulations in either a planning mode or an incident response mode to answer the following types of questions:

- Which areas remain unsafe for use or inhabitation following the initial evacuation?
- When can use of contaminated areas or resources such as work areas, training lands, streams, lakes, reservoirs and

drinking water, be safely resumed and when should water/soil samples be collected and tested to confirm the analysis?

- Which locations in the transportation system pose the most risk?
- Would it be prudent to shut down certain intersections, road segments or gates during high security alerts?
- How could operational plans be modified to reduce the risk to human health?

GeoRAMS for Your Installation /Community

The GeoRAMS software is being demonstrated in FY04 at one Army installation. GeoRAMS development for any location involves site-specific setup of

water pipe, water surface, air and soil models. Once those site-specific models have been input, users can run the GeoRAMS software to analyze scenarios, discover vulnerabilities, evaluate designs and plan proactively.

The GeoRAMS team is available to create site-specific models for your installation or community.

POC is Dr. Linda Peyman-Dove, (601) 634-2267, PeymanL@wes.army.mil.

Annette L. Stumpf is a researcher at ERDC's Construction Engineering Research Laboratory in Champaign, Ill; and Dr. Linda Peyman-Dove is a researcher at ERDC's Environmental Laboratory in Vicksburg, Mississippi.. **PWD**



Fort Drum and Fort Campbell prepare for the new Units of Action

by Robert J. Sperberg, Donald G. LaRocque and Col. Jim Duttweiler

Construction recently began at the site of the first Unit of Action (UA) at Fort Stewart, Georgia. Preparation of the ground, installation of utilities, and erection of the first trailer and relocatable buildings has begun. The first set of barracks will be ready soon for the Soldiers, and work will continue unabated until the project is complete during October 2004.

The next two installations to receive the new UA organizations are Fort Drum, New York, and Fort Campbell, Kentucky. With the approval earlier this month of the relocatable procurement requests for Fort Drum and Fort Campbell by the Deputy Assistant Secretary of the Army for Installations and Housing, the last step in the planning, design, and funding of the needed facilities was completed. Now these construction projects have also begun in earnest. While work on the project sites is under way, extraordinary efforts by the commanders and their staff at these two posts, as well as the Installation Management Agency, are taking place to ensure all aspects of the UA activations are accomplished with precision.

Fort Drum and Fort Campbell provide two very different scenarios for the installation planners. While the first effort at both installations is to use existing permanent structures to the maximum extent possible, neither post can fully meet the UA requirements with existing facilities. Both garrisons have developed projects for the necessary additional space but have found different solutions to the challenges at their garrisons.

At Fort Drum, there are a number of existing wooden temporary buildings. An ambitious project has begun to repair these old wooden structures to provide barracks and other facilities. These repair efforts will result in fully functional, albeit old, interim billets for soldiers of the new UA. For headquarters, administrative, and maintenance facilities, Fort Drum will also install nearly 100 relocatable buildings. As

a result of careful planning and design of the overall project, nearly 240,000 square feet of relocatable buildings will be added to the installation. The total cost of the effort this year is estimated at \$40 million.

The relocatable facilities are approved and purchased as unit property while the site preparation work for each distinct site must be approved and funded as a construction project. This has required an intense coordination and staffing effort from the garrison to the region, Headquarters Installation Management Agency, Assistant Chief of Staff for Installation Management, Assistant Secretary of the Army (Installations and Environment), Office of the Secretary of Defense, and Congress. Projects range from locally-approved construction projects to congressionally-approved military construction project.

Over the previous few years, Fort Drum's surrounding civilian community of Watertown, New York, has experienced a downturn in its commercial and industrial base. The relatively remote location and economic circumstances have required the full mobilization of the installation support services to coordinate with local civil leaders to address schools, off-post housing for families, and other community services. Planning is under way to ensure that the new soldiers of the UA and their families will find a community prepared for their arrival both on and off post.

Fort Campbell is planning an approach that calls for greater use of the installation's permanent construction. Fort Campbell's remaining one million square feet of World War II wood buildings are nearly all occupied -- there are almost no temporary facilities available for use by the new UA. While Fort Campbell will be renovating some existing Korean-era permanent structures, their focus will be on temporary modular facilities to meet mission demands. Fort Campbell plans to spend roughly \$65M on the purchase and

set up of over 200 relocatable buildings to headquarter the additional 8 battalions and 57 companies that will be on the installation as a result of Modularity. To avoid buying temporary barracks, the post is making maximum use of older, gang-latrine style "hammerhead" barracks to house single junior enlisted (E1-E4) Soldiers and relying on the local economy to support most of the single NCOs (E5s and above).

Fort Campbell's location and surrounding community provide a different community environment from Fort Drum. Sufficient Family Housing is available either on post or within the local community. More apartments for singles and young marrieds are going up every day. Schools, childcare, and other family support capabilities are already available and need only minimum preparation between now and the UA activation. The sudden increased number of families and accompanying school-age children will place a strain on local schools, but the communities are gearing up and working with State and Federal officials for additional funds.

Environmental Assessments, required by the National Environmental Protection Act, were begun in late winter and completed in July with a "FONSI" -- Finding Of No Significant Impact. These assessments determine the impact of the additional units on not only the physical environment (water, sewage, landfills, air) on and off the installation but socio-economic impacts (schools, etc.) as well. At Fort Campbell, the installation must work with regulatory agencies and communities in both Tennessee and Kentucky, which compounds the complexity of the process.

The contract for the Infantry UAs interim facilities at Fort Campbell has been awarded and construction is underway. These facilities should be in place by the end of September, approximately 2 weeks after the e-date. Facilities for the Aviation UAs, SUA and UEx should be com- ➤



Army posts to grow with BCT (UA) positioning

by Sgt. Lorie Jewell

A number of Army installations will grow by several thousand Soldiers in the next few years as a result of decisions on where new brigade combat teams (units of action) will be temporarily based, according to senior Army officials.

Permanent locations will be decided during the 2005 Base Realignment and Closure process, also known as BRAC, the officials said.

"It is an operational necessity right now to build these brigade combat team units of action and get them into the field as quickly as possible," said Brig. Gen. David Ralston, director of force management in the Army's G-3, at a media briefing.

In the thick of fighting the Global War on Terror, the Army is transforming from a division-based force into smaller, more rapidly deployable brigade-based units of action that will provide greater combat power. Plans call for 43 modular brigade combat teams (units of action), or BCT (UA)s, to be in place by fiscal year 2006, up from 34 brigades the Army has now. The National Guard will also transform its current combat force to 34 modular BCT (UA)s, officials said.

The 3rd Infantry Division at Fort Stewart, Georgia, has reset from three brigades into four BCT (UA)s and is preparing to return to Iraq this winter, officials said. The 101st Airborne Division at Fort Campbell, Kentucky, will begin resetting this fiscal year, as will the 10th Mountain Division at Fort Drum, New York. Those changes are expected to add about 1,400 more Soldiers to Fort Stewart; 300 to Hunter Army Airfield in Savannah, Georgia; 400 to Fort Benning, Georgia; 4,200 to Fort Drum; and 3,000 to Fort Campbell. These numbers are likely to change as the Army continues to implement plans, officials said.

In fiscal year 2005, the 2nd Cavalry Regiment will convert to a Stryker Brigade Combat Team and move from Fort Polk, Louisiana, to Fort Lewis, Washington. That move will add about 3,900 Soldiers to Fort Lewis. New BCT (UA)s will also stand up at Fort Polk, which will see an overall increase of about 300 Soldiers; Fort Richardson, Alaska, where 2,600 additional Soldiers are anticipated; and Fort Hood, Texas, which will grow by about 5,000 Soldiers.

The Soldiers will be assigned to the new units of action through cross-leveling, PCS moves, and straight out of advanced individual training, or AIT. Some will also be transferred from Korea and other overseas locations, and after completing drill sergeant and recruiting tours. Officials pledged to limit back-to-back combat tours as much as possible.

Once permanently stationed with a new unit of action, the Army will make every effort to allow Soldiers to remain at an installation for up to seven years.

In deciding where to position the new units of action, planners said they considered several factors: the location of an installation in regard to its power projection; its training capabilities; whether its existing infrastructure and the surrounding community could handle an influx of additional Soldiers; and the ability to minimize turbulence to Soldiers and their families.

The Center for Military History is currently examining options for renaming these formations and to decide unit designations.

Sgt. Lorie Jewell writes for the Army News Service. **PWD**

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plete by the end of October. While presenting a challenge, the 101st Airborne does not see this schedule as a "show stopper."

In February, the installation had only the barest of inklings of transformation and modularity...the emphasis was on receiving the Division back from Iraq. Now, just five months later, the installation has awarded over \$30 million in contracts and will soon reach the \$40 million mark. This is a tribute to the hard work and leadership of many agencies — the 101st Airborne Division, 18th Airborne Corps, FORSCOM, U.S. Army Garrison

Fort Campbell, Army Contracting Agency, Installation Management Agency Headquarters and Southeast Region Office, and the Corps of Engineers. This has been a team effort from day one. A lot has been accomplished in a short period of time but much remains. The team is ready.

From visionary master planning, to aggressive management of existing facilities, to careful community planning, and fully utilizing the flexibility afforded by modern relocatable manufacturers, Fort Campbell and Fort Drum commanders and staff have taken the right first steps to bring the new UAs at their installations online. All the steps are being taken to

ensure necessary new or renovated facilities are in place, support functions are prepared, and community services are ready and fully capable to welcome the latest addition to the Army's warfighting force.

The bottom line, everyone is involved! Bring 'em on!

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Robert Sperberg is the Chief of the Facilities Policy Division, OACSIM; Donald G. LaRocque is the Public Works Program Manager, IMA; and Col. Jim Duttweiler is the Director of Public Works, Fort Campbell, Kentucky. **PWD**



HQDA energy awareness seminars

by Jim Paton

Each year, the Army Energy Office conducts approximately 15 energy awareness seminars. These seminars consist of a one-week site visit by a team comprised of a representative of the Office of the Assistant Chief of Staff for Installation Management (OACSIM) and by two architect-engineers under contract for technical support. The seminar team surveys facilities and presents observations at sessions for building energy monitors, commanders and staff, and facility engineering personnel. Representatives of Installation Management Agency Region Offices are encouraged to attend and may accompany the seminar team and participate in presentations.

Typically, the week starts with introductory meetings with the Garrison Commander and DPW. Following discussion with the installation energy manager to discuss

objectives and expectations of the seminar, the seminar team reviews utility cost and consumption data and conducts building surveys in typical and unique facilities as coordinated by the energy manager. The seminar team spends three good days surveying installation buildings for energy saving opportunities with the focus on low-cost measures and O&M improvements that can be easily implemented with in-house resources.

Following the surveys, the seminar team prepares site-specific presentations with details of their surveys and gives the presentations at the sessions as mentioned. Key to the success of the seminar is a good turnout from the installation community at the presentations.

The seminar also offers a great opportunity for the energy manager to increase

energy awareness through their Public Affairs Office. The energy awareness seminar concludes with an out-brief to the garrison commander and DPW.

The seminars are conducted at no cost to the installation; however the host installation must provide support to the seminar team for escort and access to facilities to be surveyed. The OACSIM will be soliciting nominations for energy awareness seminars early in the fiscal year. Installation and region energy managers may also request a seminar by contacting the Army Energy Office at armyenergypolicy@hqda.army.mil.

POC is Jim Paton, (703) 601-0364, e-mail: james.paton@hqda.army.mil.

Jim Paton is a general engineer with the Utilities Privatization and Energy Team, Facilities Policy Division, OACSIM. **PWD**

ISTD announces FY05 Training Schedule

The mission of the Professional Development Support Center's (PDSC) Installation Support Center is to provide training and professional development for personnel involved in support functions at the installations. For the past few years, the Installation Support Training Division (ISTD) staff has worked to develop training designed specifically to support military Installations. The curriculum includes four areas of concentration: Basic Department of Public Works (DPW), Real Property Master Planning, Installation Support Contracting and Public Works Integrated Facilities System (IFS) and Management Training courses that focus on the application of the IFS.

The FY05 schedule and a brief description of each course are provided. For a more detail description, please go to the PDSC website: <http://pdsc.usace.army.mil>. To register for these courses, please call Sherry Whitaker, (256) 895-7425, in the PDSC Registrar Division, Huntsville, Alabama, e-mail: sherry.m.whitaker@hndo1.army.mil. If this schedule does not meet your needs, please contact Betty Batts, (256) 895-7407, to schedule a special or an onsite session, e-mail: Betty.j.batts@hnd01.usace.army.mil.

ISTD FY05 Training Schedule					
CRS No. Short Title	Session	Training Date		Location	Tuition
075 Master Planning	2005-01	11-15	Apr 05	Huntsville, AL	\$1,200
075 Master Planning	2005-02	06-10	Dec 04	Ft. Worth, TX	\$1,200
101 EA-MILCON	2005-01	8-11	Mar 05	Huntsville, AL	\$1,200
101 EA-MILCON	2005-02	2-5	Aug 05	Huntsville, AL	\$1,200
214 Space Utilization	2005-01	11-15	Jul 05	Huntsville, AL	\$1,200
252 1391 Processor	2005-01	1-5	Nov 04	Huntsville, AL	\$1,200
252 1391 Processor	2005-02	2-6	May 05	Huntsville, AL	\$1,200
253 1391 Prep	2005-01	9-13	May 05	Huntsville, AL	\$1,200
980 DPW Work Recp	2005-01	05-07	Apr 05	Huntsville, AL	\$1,200
981DPW Budget/JCA	2005-01	26-29	Jul 05	Huntsville, AL	\$1,200
984 IT for PW Managers	2005-01	18-21	Jul 05	Huntsville, AL	\$1,200
988 DPWBOC	2005-01	17-20	May 05	Huntsville, AL	\$1,200
989 DPWMOC	2005-01	12-21	Apr 05	Alexandria, VA	\$1,200
989 DPWMOC	2005-02	09-18	Aug 05	Alexandria, VA	\$1,200
990JOC Basic	2005-01	23-22	Jul 05	Huntsville, AL	\$1,200
990 JOC Basic	2005-02	8-11	Feb 05	Huntsville, AL	\$1,200
991 JOC Advance	2005-01	3-5	May 05	Huntsville, AL	\$1,200
991 JOC Advance	2005-02	21-23	Jun 05	Huntsville, AL	\$1,200
999 DPW Prog Mgt	2005-01	07-11	Feb 05	Huntsville, AL	\$1,200



Brief Course Descriptions

CRS # 075: Master Planning The objective of this course is to make planners more effective by providing them with the information, understanding and tools needed to operate within the Army Real Property Master Planning system.

CRS #101: Economic Analysis MILCON This course explains the fundamental principles and procedures for developing economic analysis in support of military construction and capital investment projects. The practical application of economic principles is provided through hands-on computer training sessions in which participants develop economic analyses using the Army's economic analysis package, ECONPACK.

CRS # 214: Space Utilization This course is designed for space utilization, master planning, real property management, and facilities management personnel. The course has two primary focuses: (1) to train managers at all levels how to determine organizational space allowances and requirements, and to plan and conduct utilization surveys; and (2) to identify ways to increase efficiency through space planning techniques.

CRS #150: Real Property Skills This course provides basic skills for Army Military Real Property clerks, specialists, and officers on the use of the Army Military real property automated system module of the Integrated Facilities System (IFS) and the basic knowledge of Army Military Real Property.

CRS #252: 1391 Processor The DD Form 1391 Processor System which is available in a web-enabled environment, is the means for documenting and submitting military construction project requirements and justification data for funding requests to Congress. This course introduces the student to the capabilities, formats, functions, and usage procedures of the DD Form 1391 Processor System. The 1391 Processor System allows users to prepare, edit, query, submit, review, and distribute DD Forms and supporting DD Form 1391 documents electronically using a personal computer.

CRS #253: 1391 Preparation This course provides a logical framework for preparing the DD Form 1391, "Military Construction Project Data", and provides working knowledge on how to verify requirements, prepare the documentation package, review, certify, and program a project to request congressional authorization and appropriation of military construction funds.

CRS #286: Real Property Management This course is designed as an introduction to Army Military Real Property Management, as well as a means of providing Army Military Real Property personnel up-to-date information on changes and issues relating to the responsibilities, regulations, policies, and procedures of Army Military Real Property Management. The objective is to provide an overall understanding for the new Army military real property person and also to enhance the experienced real property managers knowledge of the functions of Army Military Real Property Management.

CRS #972: DPW Quality Assurance This course is for Quality Assurance evaluators, CORs, and other personnel with contract surveillance responsibilities. It incorporates recent DOD guidance addressing techniques for service contracts using Commercial Item acquisition procedures.

CRS #974: DPW Performance Based Service Acquisition This course is for supervisors, technical and project managers, contracting officers, contracts specialists, and technical personnel involved in the administration of Performance-Based contracts. This course addresses the regulatory requirements, policies and procedures governing PBSC and service contract administration. It incorporates recent DOD guidance addressing techniques for Performance Based Services Acquisition using Commercial item acquisition procedures

CRS # 980: DPW Work Reception The DPW Work Reception provides students with an overview of the entire DPW function with emphasis on the reception of work from the customers. Students will learn how to enter service orders & work orders into the Integrated Facilities System (IFS) and how to answer service order and work order status inquiries from customers. This is a course for DPW Installation Personnel. Students must have an AKO account.

CRS # 981: DPW Budget/JCA This course provides a concentrated look at the Integrated Facilities System (IFS) Job Cost Accounting (JCA) Module's role as a tool to manage the financial aspects of work accomplished by the DPW. This course is for DPW Installation Personnel. Students must have AKO account.

CRS # 984: IT for DPW Managers The IT for DPW Managers course is designed to present the Army Knowledge Management System and the means for DPWs to become "NETCENTRIC". This course will review the mean systems designed to support

DPW operations and program management. The final phase of the course will help the DPW use these systems to sustain a continuous process improvement program. Students must have AKO Account

CRS # 988: DPWBOC This course provides students with an overview of the Army Installation Management Concepts, Organization and missions, and Directorate of Public Works (DPW) operations. This course covers Real Property requirements planning, acquisition Planning, financial and work management systems and operational evaluation procedures, organization, function and mission of the DPW, and how to integrate real property Maintenance activities. Recommend students be Department of the Army personnel.

CRS # 989: DPWMOC This course is an orientation for the new Directorate of Public Works (DPW)Managers and key DPW Staff personnel. The course covers: Administration, organization, functions and management systems of the installation DPW to include: Operations and Maintenance, Army (OMA), Army Family Housing (AFH), Work Classification and Approval Limits; DPW Financial & Work Management Systems, DPW Resource Management and Annual Work Plans, DPW Automation, Real Property Master Planning; Facilities; Public Safety, Acquisition

CRS# 990: DPW Job Order Contracting (JOC) Basic Purpose: This course teaches students the basic policies and procedures for properly executing sustainment, restoration, and modernization projects using a Job Order Contracting contract applicable to the Directorate of Public Work organization on an Army installation or community.

CRS #991: DPW Job Order Contracting (JOC) Advanced This course teaches students strategies and procedures for technical discussion and negotiation with contractors in the JOC task order process. JOC is most applicable to the Directorate of Public Works organization on any Army installation or community.

CRS # 999: DPW Program Management This course provides students with an insight into the functional relationship between Operations & Maintenance (O&M), Engineering Plans & Services (EP&S), Engineer Resource Management (ERM), and other Directorate of Public Works (DPW) key personnel & those with Army installation organizations. Students must have taken the DPWBOC Course, #988 and the DPWMOC Course #989.

PROSPECT course openings

The FY05 Corps of Engineers PROSPECT Program has openings available in the following courses:

General Construction QV, #054,
HVAC Design:Basic, #391,

session 05-02, 28 Feb – 4 Mar 05,
session 05-01, 1-5 Nov 04,
session 05-02, 16-20 May 05,
session 05-01, 18-22 Apr 05,
session 05-02, 20-24 Jun 05,
session 05-01, 14-18 Feb 05,

San Diego, CA
Tampa, FL
Seattle, WA
Champaign, IL
Salt Lake City, UT
Arlington, TX

HVAC Control System: O&M, #246,
Mechanical QV, #074,
Paint, Coatings, and QA, #084,

*The course descriptions and tuition information can be located at <http://pdsc.usace.army.mil>.
If you are interested in attending these courses, please contact Janine Wright, (256) 895-7455.*



Installation Management Agency changes leadership

by Richard M. Arndt

The mantle of leadership of the Army's Installation Management Agency passed from Maj. Gen. Anders B. Aadland to Maj. Gen. Ronald L. Johnson in a ceremony held on the steps of Fort Belvoir Post Headquarters on 9 August 2004.

Presiding over the ceremony, Maj. Gen. Larry J. Lust, the Army's chief of staff for installation management, took part in the transfer of the IMA colors from Aadland, who retires after 35 years of service, to Johnson.

Aadland was IMA's first director. The agency was created on 1 October 2002 in order to provide effective, standardized management of Army installations worldwide to better support the Army's Soldiers, civilians, and family members.

Building an organization from the ground up has its advantages and disadvantages, Lust told the assembled crowd of more than 200.

"On the plus side, you have a blank piece of paper," Lust said, adding that when creating IMA, that meant there were fewer historical impediments to defining the agency's mission and scope.

"On the minus side, you have a blank piece of paper" Lust said, referring to the fact that Aadland and his staff had no foundation upon which to build. Aadland and his staff had to lay that foundation themselves, leaving a solid surface upon which others, like incoming director Johnson, can build.

Lust welcomed Johnson to his new post, describing him as "the right Soldier at the right time for IMA."

Aadland also congratulated Johnson on his new position, and thanked the members of the IMA team.

"The team you lead is unbeatable," Aadland told Johnson during his remarks. "They are proven leaders, Soldiers, civilians and contractors. Every person in IMA goes to work each day knowing that their contribution is vital to the success of our war fighting units."

The ceremony also honored Aadland on his retirement after 35 years of service. Speaking to the crowd of his retirement, Aadland choked back tears.



Incoming IMA Director Maj. Gen. Ronald L. Johnson, Army Assistant Chief of Staff for Installation Management Maj. Gen. Larry J. Lust, and outgoing IMA Director Maj. Gen. Anders B. Aadland sing the national anthem during the change of command ceremony.
Photo Credit: Richard M. Arndt

"I've come to realize," he said, "that you can take the Soldier out of the Army, but you can't take the Army out of the Soldier."

Johnson told the crowd that he is honored by the responsibility of leading "the only organization in the United States Army that positively affects the quality of life of Soldiers and family members, wherever in the Army they are."

Upon his retirement, Aadland was awarded the Army's Distinguished Service Medal. Aadland's other awards include the Legion of Merit with three oak leaf clusters, the Meritorious Service Medal with seven oak leaf clusters and the Army Commendation Medal with two oak leaf clusters. Aadland's wife Sandra; daughters Kolleen and Kristen; son, 1st Lt. Erik Aadland; and granddaughter Sydney all attended the ceremony.

As incoming IMA director, Johnson assumes responsibility for the management and day-to-day operation of 184 Army installations. He leads 78,000 military and civilian personnel and is charged with managing a budget exceeding \$8 billion. As IMA director, Johnson is tasked with continuing the work begun under the Transformation of Installation Management initiative, the Army's most comprehensive reorganization in the past three decades. Johnson will lead IMA as a key component of Army transformation, over-

seeing the management of Army installations worldwide in support of mission readiness and execution, and in support of Soldiers, civilians and family members.

Johnson comes to IMA from the U.S. Army Corps of Engineers, where he most recently served as commander of the Gulf Region Division and U.S. deputy to the Program Management Office, Coalition Provisional Authority, Baghdad, Iraq.

Johnson's previous assignments include director of military programs and G3 of the U.S. Army Corps of Engineers in Washington, D.C.; commander of USACE's Pacific Ocean Division; assistant commandant of the U.S. Army Engineer School and deputy commander, Fort Leonard Wood, Mo.; and executive officer to the secretary of the Army.

Johnson is a graduate of the U.S. Military Academy at West Point, the Engineer Officer Basic Course, the Armor Officer Advanced Course, the Command and General Staff College, the School of Advance Military Studies, and the Senior Service College Fellowship - Joint Center for Political and Economic Research, Georgia Institute of Technology. He holds a master's degree in strategic planning from the School of Advanced Military Studies.

Richard M. Arndt is the editor of the *Belvoir Eagle*. PWD



Lt. Gen. Carl A. Strock takes command of U.S. Army Corps of Engineers

Lt. Gen. Carl A. Strock took command of the U.S. Army Corps of Engineers in a military ceremony on 1 July 2004 at Fort Myer, Virginia. General Peter J. Schoomaker, Army Chief of Staff, hosted the ceremony. Strock replaces Lt. Gen. Robert B. Flowers who retired during the same ceremony after 35 years of Army service.

Flowers served as the Army's 50th Chief of Engineers from October 2000 until today. "General Flowers is a leader, and a warrior, and we are thankful for his dedicated service," said Schoomaker.

"The last four years, I've commanded a unique organization, the U.S. Army Corps of Engineers. There's nothing else like it," said Flowers. "Unique in all the world, great civil servants, taking care of the nation and it's Armed Forces, and I'm enormously proud of all of them." He acknowledged the many Officers, Non-commissioned officers and fellow Soldiers, who mentored him.

During the ceremony, Flowers and Strock passed the ceremonial flag, symbolizing the change of command. Strock is the 51st Chief of Engineers. The U.S. Senate confirmed his nomination as Chief of Engineers on 25 June 2004, with promotion to the rank of Lieutenant General. However, the promotion took place later this summer.

"I am deeply honored and truly humbled to stand before you today," said Strock. "I am honored because there is no greater privilege than to be entrusted with command when your nation is at war."

Strock has served the Army 33 years. He was previously assigned as the Director of Civil Works,

and the Director of Military Programs at the U.S. Army Corps of Engineers, Washington D.C. He also served as Deputy Director of Operations for the Coalition Provisional Authority, Operation Iraqi Freedom.

As Chief of Engineers, he leads the world's largest public engineering agency with 35,000 employees.

POC is Constance Gillette, (202) 761-7690, e-mail: Constance.S.Gillette@hq02.usace.army.mil.

(Editor's Note: This is the first time in the transfer of command between the 51 different Chiefs of Engineers and Commanders of the U.S. Army Corps of Engineers over the 200 plus years of the Corps' existence that a graduate of the Virginia Military Institute (Flowers, VMI '69) handed over command to another graduate of the Virginia Military Institute.(Strock, VMI '70).) **PWD**



Lt. Gen. Carl A. Strock



Photo credit: Marti Hendrix



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