

Public Works *Digest*

In this issue:

Energy and Water Conservation





U.S. Army Installation Management Agency

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On the cover:

Winners of the 2005 Secretary of the Army Energy and Water Management Awards.

3 Letter from the Editor

Disaster Support

- 4 Progress continues for Corps' Hurricane Katrina cleanup efforts

2005 Energy Awards

- 5 27th Annual Secretary of the Army Energy and Water Management Award Winners
- 5 And the winner is...

Energy and Water Management

- 6-8 The Energy Policy Act of 2005
- 9-11 Army Energy Strategy for installations
- 10 Army awards projects for Energy Conservation Investment Program by *Henry Gignilliat*
- 11 Army's Energy Campaign Strategy for water conservation by *William F. Eng*
- 12-13 IMA's Natural Gas Risk Management Program to stabilize natural gas prices by *Scott McCain and Paul Volkman*
- 13 Capabilities and technology in support of the Army Energy Strategy by *Philip R. Columbus and Kelly M. Dilks*
- 14-15 Update on utilities privatization by *Paul Volkman*
- 16 Commentary: Sustainable energy demands decisions that look beyond cost by *Eileen Westervelt and Donald Fournier*

Installation Successes

- 17 Picatinny Arsenal to cut energy use in half by *Stephen Brod and Richard Havrisko*
- 18 Long-range energy planning yields significant results for Southeast Region energy program by *Doug Dixon*
- 19-20 Fort Sam's water savings could fill a lake by *Richard Scholze and Jackie Schlatter*
- 20-21 Fort Lewis' innovative characterization and soil removal at former infiltration range by *Kym Takasaki*
- 22-23 Community conservation works at Fort Huachuca
- 23 Fort Lewis sets precedent by eliminating Title V Air Operating Permit by *Rena Ely*
- 24 Repopulation of local flora and fauna helps conserve water by *Andrew Stamer*

Construction

- 25 Unexploded ordnance removal project for Basic Combat Convoy Course construction at Camp Bullis by *Tim Bobannon*
- 26-27 From Brostrom to Bay View – the 20th anniversary of Fort Ord's 2667 project by *Thomas Petersen*
- 28 Building on hallowed ground by *Chris Augsburg*

Installation Management

- 29 ACSIM revising, consolidating Army regs on Installation Management by *Philip R. Columbus*
- 29 Army study on source zone assessment and remediation
- 30-31 Suggestion Program enhances quality of life and mission readiness by *Yi, U-Nan*
- 31 Changes to standards for managing mercury-containing equipment

Automation

- 32-33 Using SIRRA to assess regional encroachment risks by *Natalie R.D. Myers*
- 33 Army Real Property Inspection Database offers 24-hour accessibility by *Claud Reindl*
- 34-35 New software improves central plants and thermal loop analysis by *Jim Dirks and Bob Dabowski*
- 35 New and improved Army energy and water data collection and reporting tool
- 35 New Army Energy Program communication and data tools

Professional Development

- 36-37 2005 Tri-Service Cost Engineering Workshop and Conference leverages change by *Kim Gillespie*
- 37 Register for Real Property Master Planning course
- 37 2006 Public Works Digest Schedule
- 38 Army holds annual Energy Forum

Who's Who

- 39 Maj. Gen. Johnson selected as Corps deputy, Maj. Gen. Rochelle selected as IMA director



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LETTER FROM THE EDITOR



I recently read that the total number of hurricanes has dropped since the 1990s. Nevertheless, the number of Category 4 and 5 hurricanes worldwide has almost doubled over the past 35 years. The devastation wreaked by Hurricane Katrina and the subsequent ongoing supply shortages are difficult to imagine for those of us living outside the affected areas. It is the day-to-day impact of high gasoline prices left in Katrina's wake that serve as a constant reminder of our dependence on petroleum resources. Worldwide supplies are abundant, but they're not limitless; they will eventually run out. While Katrina is an extreme case and a localized disaster, it still serves to remind us of what can happen globally if we deplete our fossil resources.

The federal government is the largest consumer of energy in the United States and it is our responsibility to set an example with smart energy management. By promoting energy efficiency and the use of renewable energy resources on our installations, we can help to save both energy and money, while demonstrating responsible, cleaner energy choices. This issue of the *Public Works Digest* features articles on what the Army is doing to conserve energy in the construction, utility management, and operations and maintenance fields.

Of particular note are the articles provided by the ACSIM's Facilities and Policy Division on the Energy Policy Act of 2005, the Army Energy Strategy, and the Army Energy Forum. These are covered in depth with a summary of the key requirements for the Army and an explanation of developing actions to meet the Army's energy and water management goals over the next 25 years. In addition, IMA's Paul Volkman provides a detailed update on utilities privatization that should bring everyone up to speed.

There are also good ideas, new technologies and energy-saving products sprinkled throughout this issue of the *Digest*. As always, many installations contributed articles about their efforts to conserve energy and water: Picatinny Arsenal is installing a decentralized system to cut its energy use in half; Fort Sam Houston is implementing twice the required number of best management practices; Fort Huachuca is educating its community on water use reduction; and the Southwest Region of IMA is reaping significant benefits through its Long-Range Energy Management Plan.

Finally, be sure to read about the new software that will enable a more detailed analysis of any number of central energy plants. And don't forget to clip the 2006 *Digest* schedule on p. 37; it provides all the upcoming themes and article submission deadlines.

This is the last *Digest* I will put together as editor. My retirement will coincide with the publishing of this issue. In the 13 years I have been doing this, I have gotten to know many of you and formed many close friendships. I have watched the *Digest* grow from a four-page newsletter to the informative and eagerly awaited magazine it is today, but this could not have happened without you, our readers. I'd like to thank all of you and hope that you will continue submitting your articles so that the *Digest* can continue to promote the Army's programs and policies, share good ideas on how to improve the Army's public works business worldwide and publicize your installation successes and innovative programs.

Time for me to move on...

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



Progress continues for Corps' Hurricane Katrina cleanup efforts

WASHINGTON, D.C., Sept. 20 – In support to the Federal Emergency Management Agency, the U. S. Army Corps of Engineers continues to work with local, state and federal partners, to bring relief to the Gulf Coast following Hurricane Katrina. Nearly 2,400 Corps employees are actively engaged in recovery efforts.

With more than \$2.9 billion in missions, the Corps is working closely with government agencies and private contractors to meet the most urgent needs of providing ice and water, temporary roofing, temporary housing, power assessment, and debris removal across the area impacted by Hurricane Katrina.

In preparation for potential impacts by Hurricane Rita, the Corps is preparing for the storm by pre-positioning personnel and equipment. The Corps will continue to closely monitor the path of the upcoming storm.

The following Federal Emergency Management Agency (FEMA) missions are being performed in the affected areas of Louisiana, Mississippi and Alabama. The following is a synopsis of the activities underway:

Status of Levees and Protection:

Work continues to repair the levees as Engineers and local authorities are continuing to assess the damages to the levee system, make interim repairs, and remove floodwater from the city.

The levee system in its present condition does not ensure that the city of New Orleans will be protected from flooding resulting from storms or hurricanes. The Corps' first priority is to first bring the system back to its pre-hurricane level of protection and then determine what longer-term action is needed. The Corps has developed a phased plan for restoring the area's storm safeguards, working in partnership with local levee boards and contractors.

Un-watering:

The Corps estimates the New Orleans area is more than 80 percent un-watered. As of today, it is estimated that the overall

un-watering effort will be completed in early to mid-October, provided there is no significant rainfall between now and then.

The Corps will continue to assist local officials in repairing organic pumps, designed to remove city water, even after the city is dry. The un-watering effort will remove most, but not all of the water. There will be some isolated pockets of water that will remain. However, these pockets of water should not hamper recovery efforts such as debris removal, structural assessments and restoration of critical services.

Water and ice:

In Mississippi, the water and ice missions are entering the closeout phase. A total of 5,500 trucks of ice, water and Meals Ready to Eat or MREs, supported the Mississippi response. Deliveries totaled 100 million pounds of ice, 38 million liters of water, and 8.1 million MREs.

Debris removal:

To date, more than 2.6 million cubic yards of debris has been removed in the areas affected by Hurricane Katrina. It is estimated more than 24 million cubic yards will be removed during cleanup efforts.

Operation Blue Roof:

In Mississippi and Louisiana, "Operation Blue Roof" is underway in several counties. The Operation Blue Roof program provides temporary plastic sheeting for roofs that were damaged during Hurricane Katrina. Over 25,000 requests for assistance have been received thus far. It is estimated over 50,000 homes will need plastic sheeting.

Power Assessments:

In Mississippi, the power mission is nearing closeout phase as power is restored. Out of 415 assessments, 414 have been completed. In Louisiana, 401 power assessments out of 470 have been completed.



With Hurricane Rita approaching the Gulf area, construction crews work around the clock to reinforce an interim levee repair that was made after a breach caused by Hurricane Katrina. A USACE Quality Assurance team from Task Force Unwatering was on site at the St. Bernard Parish back levee location. Left to right; Capt. Jason Wood, Kevin Wagner, Capt. David Pounds and Benjamin Farrell. (Photo by Hank Heusinkveld, Wilmington District, USACE)

Temporary Housing:

Temporary housing is being handled using a national/regional approach through the FEMA Housing Area Command.

Other missions:

Recently, Congress approved a \$400 million hurricane relief package separate from funded FEMA missions. The emergency supplemental appropriation covers navigation and flood control. Of that amount, \$200 million is for navigation work in the South Atlantic and Gulf Coast region, and \$200 million is for flood control and coastal emergencies. Those funds are being used for damage assessments and immediate repairs to the levees in New Orleans as well as assessments and preparations for long-term flood damage reduction.

The priority of the Corps is to support efforts to save lives and find people, sustain lives, and setting conditions for recovery.

The Corps, in support of FEMA, provides disaster response assistance to the nation, working in concert with 30 federal departments, as well as state and local governments.

*For more information on the Corps' response to Hurricane Katrina, please go to: www.usace.army.mil **PWD***



27th Annual Secretary of the Army Energy and Water Management Award Winners

The winners of this year's Secretary of the Army Energy and Water Management Awards were recognized at the annual Army Energy Forum, August 18, 2005 in Long Beach, Calif. Mr. Bob Sperberg, Chief, Facilities Policy Division, Office of the Assistant Chief of Staff for Installation Management (OACSIM), presented the awards.

Each winner received an engraved plaque/certificate signed by the Secretary of the Army and a monetary award. The award winners in each award category are as follows:

Installation:

Fort Lewis, Washington - *Energy Efficiency/ Energy Management*

Fort Knox, Kentucky - *Energy Efficiency/ Energy Management*

Yuma Proving Ground - *Innovative/New Technology*

Small Group

414th Base Support Battalion, Hanau, Germany - *Energy Efficiency/Energy*

Management (Mr. Karl-Heinz Schneider, Mr. Walter Rausch, Mr. Peter Adrian)

Rock Island Arsenal, Illinois - *Renewable Energy* (Mr. David Osborn, Mr. Kim Johnson, Mr. Dave Degan, Mr. Allen Thompson, Mr. Dick Brown)

Fort Buchanan, Puerto Rico - *Energy Efficiency/Energy Management* (Mr. Victor Quinonez, Mr. Ramon Figueroa, Mr. Edgardo Garced, Mr. Ferdinand Torres, Mr. Jesus R. Gimenez)

Fort Bliss, Texas - *Energy Efficiency/Energy Management* (Mr. Juan Morales, Mr. Danny

Villareal, Mr. Ricardo Berumen)

Individual:

Mr. Tommy Baldwin - Fort Rucker, Alabama - *Alternative Financing Project*

Mr. Bobby Lynn - Fort Hood, Texas - *Energy Efficiency/Energy Management*

Mr. Steve Jackson - Southeast Region Energy Office - *Individual Achievement*

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Left to right: Nancy Niemann, Fort Hood; Kim Johnson, David Degan, Jerry Sechser, David Osborn and Allen Thompson, Rock Island Arsenal; Walter Rausch, Hanau Germany; Tom Hutchins, Fort Knox; Karl-Heinz Schneider; Hanau Germany; Steve Jackson and Michael Frnka, Installation Management Agency Southeast Region; Peter Adrian, Hanau Germany; Bobby Lynn, Fort Hood; Jack Nixon, Yuma Proving Ground; Juan Morales, Fort Bliss; Jim Butts, Army Medical Command; Ricardo Berumen, Fort Bliss; Bob Sperberg, OACSIM; Bernadette Rose, Fort Lewis; Charles Howell, Washington State University; Tommy Baldwin and Ed Janaski, Fort Rucker; MAJ Sheila Hegwood, Victor Quinonez, Edgardo Garced and Ferdinand Torres, Fort Buchanan; Gary Meredith, Fort Knox.

And the winner is...

We are pleased to announce that the U.S. Army Installation Management Agency Southeast Region (IMA-ER) Energy Team is the winner of a 2005 Presidential Energy Award for Leadership in Federal Energy Management

A leader amongst the IMA Regions in promoting energy efficiency and providing the tools and support to achieve the goals of Executive Order 13123, the IMA-SER teamed with 16 Army installations in the Region, the Department of Energy's Southeast Regional Office, Huntsville Corps of Engineers, and Pacific Northwest National Laboratory (PNNL), to institute a compre-

hensive energy management program.

During FY 2004, the IMA-SER used several of the energy efficiency tools identified in Executive Order 13123, including:

- Alternative financing.
- Facility energy audits.
- Sustainable building design.
- Off-grid generation to reduce energy consumption and utility costs.

This successful energy program is made possible by a cross-cutting team effort that includes the top leaders in the Region.

In FY 2004, the IMA-SER saved \$23,448,015 and 1,437,466 MMBtu from Energy Savings Performance Contracts

(ESPC) and (Utility UESC projects implemented since FY 1999. In addition, over \$23 million in Energy Conservation Investment Program (ECIP) projects have been awarded or are planned for Southeast Region installations for implementation in FY 2004, 2005, or 2006. Many of these projects were identified as a result of facility energy audits conducted at the installations.

The award ceremony will take place on October 27, 2005 at the U.S. Department of State in Washington, DC.

POC is Michael Frnka, Chief, Public Works Division, SERO, IMA, (404) 464-0776 DSN 367, e-mail: frnkam@forscom.army.mil. **PWD**



The Energy Policy Act of 2005

After more than four years of starts and stops, on 8 August 2005, President Bush signed the “Energy Policy Act of 2005” (H.R. 6) into law. The over 1,700-page bill contains a myriad of provisions, incentives, programs and appropriations to encourage conservation and energy/water efficiency, expand the use of alternative and renewable energy, increase the domestic production of conventional fuels, and invest in the modernization of the nation’s energy infrastructure. It is the first comprehensive energy legislation since 1992 and is designed to put the country on a path toward reducing our dependence on foreign sources of energy, and thus create a more secure energy future with more reliable, affordable, and clean sources of energy.

There are many elements of the Energy Policy Act of 2005 (EPAct 2005) that will directly impact the federal sector, and, depending upon future federal appropriations, will significantly help the federal sector reduce energy costs and meet energy goals. Of particular importance, the bill establishes new aggressive federal energy savings goals, puts increased emphasis on renewable energy, and reauthorizes the Energy Savings Performance Contract program to provide an avenue for federal agencies to meet the new goals and save operational costs.

To ensure the Army is positioned to accomplish the requirements of the EPAct 2005, the Facilities & Policy Division of the Office of the Assistant Chief of Staff for Installation Management is incorporating the provisions of the act within the developing Army Energy and Water Campaign Plan for Installations. For more information on the campaign plan, see the separate article in this issue, titled “*Army Energy Strategy for Installations - The Army and Water Campaign Plan for Installations: Developing Actions to Meet the Army’s Energy and Water Management Goals for the Next 25 Years.*”

The key requirements of the bill that are vital to the federal sector and the Army are summarized below. The overall impact of the new requirements are yet to be determined, and for some of the require-

ments, the Department of Energy, or other lead federal agency, will be developing policy and guidance over the coming months for implementing the requirements.

Key provisions of the Energy Policy Act of 2005 that are of interest to the Army include:

Section 102: Energy Management Requirements

- Annual energy reduction goal (Btu/ft²) of 2%/year from FY 2006 through FY 2015 (compared to a reduction goal of 1.5%/year from FY 1985 through FY 2005). The overall goal is a 20% reduction by FY 2015 (using an FY 2003 baseline).
- Energy reduction reporting baseline changed from FY 1985 to FY 2003.
- Reduction goals apply to all buildings including industrial or laboratory facilities.
- Retention of funds appropriated for but not expended on energy, water and wastewater treatment because of energy or water savings measures. Retained funds may only be used for energy efficiency, water conservation or unconventional and renewable energy resources projects.
- *Lead agency is the Department of Energy (DOE).* DOE will issue guidelines to agencies in 180 days and will recommend to Congress new requirements for FY 2016 through FY 2025 by FY 2014.

Section 103: Energy Use Measurement and Accountability

- Electric metering required in Federal buildings by FY 2012 using advanced metering or metering devices that provide hourly data.
- *Lead agency is DOE;* DOE will issue guidelines to agencies in 180 days.
- Within 6 months of DOE guidance, each agency shall submit an implementation plan to DOE.

Section 104: Procurement of Energy Efficient Products

- Procurement of Energy Star or FEMP-recommended products required. Exception granted if product is not

cost-effective over the life of the product, or does not meet agency functional requirements.

- Agency will incorporate energy efficiency requirements consistent with the criteria used for Energy Star or FEMP-recommended products in all guide specifications; project specifications; construction, renovation and services contracts; and the factors for the evaluation of offers received for the procurement of energy consuming products.
- GSA and DLA are lead agencies for maintaining a listing of Energy Star and FEMP-recommended products.
- Requires procurement of premium efficient electric motors (1 to 500 hp) and to take action (including O&M) to maximize the efficiency of air conditioning and refrigeration equipment.
- *Lead agency is DOE;* DOE will issue guidelines to agencies in 180 days.

Section 105: Energy Savings Performance Contracts

- Reauthorizes Energy Savings Performance Contracting (ESPC) authority through FY 2016.
- *Lead agency is DOE.*

Section 107: Advanced Building Test Bed

- DOE, in consultation with the Administrator of General Services, shall establish an Advanced Building Efficiency Testbed program for the development, testing, and demonstration of advanced engineering systems, components, and materials to enable innovations in building technologies. The program shall evaluate efficiency concepts for government and industry buildings, and demonstrate the ability of the next generation buildings to support individual and organizational productivity and health as well as flexibility and technological change to improve environmental sustainability.
- \$6M/year from FY 2006 through FY 2008 authorized to DOE carry out this section.
- *Lead agency is DOE.*



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Section 109: Federal Building Performance Standards

- Amends Section 305 of the Energy Conservation and Production Act of 1992 (EPA 1992) that the new federal residential or non-residential buildings be designed to use 30% less energy than the level established by ASHRAE 90.1-2004 Code or most current code (<http://www.ashrae.org/>) or the International Energy Conservation Code (IECC <http://www.iccsafe.org/>), if life-cycle cost-effective.
- Sustainable design principles are to be applied to the siting, design, and construction of all new and replacement buildings.
- If water is used to achieve energy efficiency, water conservation technologies shall be applied to the extent that the technologies are life-cycle cost-effective.
- In budget request by each federal agency for each FY, the agency must list all new federal buildings owned, operated or controlled by the agency and provide a statement specifying whether the buildings meet or exceed the revised energy standards.
- *Lead agency is DOE.* DOE must determine cost-effectiveness of revised standards within 1-year.

Section 131: Energy Star Program

- The Energy Star program (www.energystar.gov) will be codified and the responsibility will be divided between the Environmental Protection Agency (EPA) and DOE.
- Energy Star product criteria will be regularly updated and appropriate lead time be provided prior to the effective date for new or significant revisions to a product category.
- DOE shall establish new Energy Star qualifying levels for clothes washers and dishwashers by January 1, 2006, to be effective by January 1, 2007. DOE shall establish new Energy Star qualifying levels for clothes washers by January 1, 2008, to be effective by January 1, 2008.

Section 135: Energy Conservation Standards for Additional Products

- DOE shall engage in rulemaking to create national energy efficiency standards and test procedures for additional products. These products include refrigerated vending machines; distribution transformers; low-voltage dry-type transformers; traffic signal and pedestrian module light fixtures; fluorescent lamp ballasts; compact fluorescent lamps; illuminated exit signs; torchiere light fixtures; commercial unit heaters; furnace fans; dehumidifiers; commercial pre-rinse (water) spray arms; battery chargers and external power supplies. See http://www.eere.energy.gov/buildings/appliance_standards/
- This section prohibits the manufacturer or import of mercury vapor lamp ballasts after January 1, 2008.
- *Lead agency is DOE.*

Section 136: Energy Conservation Standards for Commercial Equipment

- DOE shall engage in rulemaking to create national energy efficiency standards for a number of commercial appliances and equipment. These products include packaged air conditioning and heating equipment; various types of commercial refrigerators, freezers and refrigerator-freezers; commercial ice makers; and commercial clothes washers. See http://www.eere.energy.gov/buildings/appliance_standards/
- *Lead agency is DOE.*

Section 203: Federal Purchase Requirement

- The President, acting through DOE, shall seek to ensure that, to the extent economically feasible and technically practicable, of the total amount of electric energy the federal government consumes during any fiscal year (FY), the following amounts shall be renewable energy:
 - ✓ Not less than 3% in FY 2007 through FY 2009.
 - ✓ Not less than 5% in FY 2010 through FY 2012.
 - ✓ Not less than 7.5% in FY 2013 and each FY thereafter.

- Renewable energy is defined as electric energy generated from solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project.
- The amount of renewable energy (credit) shall be doubled if:
 - ✓ The renewable energy is produced and used on-site at a federal facility;
 - ✓ The renewable energy is produced on federal lands and used at a federal facility; or
 - ✓ The renewable energy is produced on Indian land and used at a federal facility.
- *Lead agency is DOE.* Biannual progress reporting is to begin no later than April 15, 2007.

Section 204: Use of Photovoltaic Energy in Public Buildings

- The General Services Administration (GSA) may establish a photovoltaic energy commercialization program for the procurement and installation of photovoltaic solar electric systems for electric production in new and existing public buildings. The purpose of this program is to accelerate the growth of a commercially viable photovoltaic industry; reduce the fossil fuel consumption and costs of the federal government; attain the goal of installing solar energy systems in 20,000 Federal buildings by 2010, as contained in the federal government's Million Solar Roof Initiative of 1997 (see <http://www.millionsolarroofs.org/>); stimulate the general use within the federal government of life-cycle costing and innovative procurement methods; and develop program performance data to support policy decisions on future incentive programs with respect to energy.
- Appropriated funding to carry out commercialization program is \$50M for each of fiscal years 2006 through 2010.
- Appropriated funding to carry out evaluation program is \$10M for each of fiscal years 2006 through 2010. ➤



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- Requires GSA to undertake a photovoltaic solar energy systems evaluation program 60 days after passage. Program will evaluate such photovoltaic solar energy systems as are required in public buildings.
- *Lead agency is GSA.* GSA will issue rules, develop strategies and report annually to Congress.

Section 911 Energy Efficiency

- DOE shall conduct programs of energy efficiency research, development, demonstration, and commercial application. Such programs shall take into consideration the following objectives:
 - ✓ Increasing the energy efficiency of vehicles, buildings, and industrial processes.
 - ✓ Reducing the demand of the United States for energy, especially energy from foreign sources.
 - ✓ Reducing the cost of energy and making the economy more efficient and competitive.
 - ✓ Improving the energy security of the United States.
 - ✓ Reducing the environmental impact of energy-related activities.
- Programs shall include research, development, demonstration, and commercial application of advanced, cost-effective technologies to improve the energy efficiency and environmental performance of vehicles; cost-effective technologies for new construction and retrofit to improve the energy efficiency and environmental performance of buildings using a whole-buildings approach including onsite renewable energy generation; advanced technologies to improve the energy efficiency, environmental performance, and process efficiency of energy-intensive and waste-intensive industries; and advanced control devices to improve the energy efficiency of electric motors, including those used in industrial processes, heating, ventilation, and cooling.
- *Lead agency is DOE.* Appropriations for this section are \$783M for fiscal year 2007; \$865M for fiscal year 2008; and

\$952M for fiscal year 2009.

Section 912: Next Generation Lighting Initiative

- DOE shall carry out a Next Generation Lighting Initiative in accordance with this section to support research, development, demonstration, and commercial application activities related to advanced solid-state lighting technologies based on white light emitting diodes. See <http://lighting.sandia.gov/Xlightinginit.htm>.
- *Lead agency is DOE.*

Section 924: Distributed Energy Technology Demonstration Programs

- DOE may provide financial assistance to coordinating consortia of interdisciplinary participants for demonstrations designed to accelerate the use of distributed energy technologies such as fuel cells, microturbines, reciprocating engines, thermally activated technologies, and combined heat and power systems in high-energy intensive commercial applications.
- *Lead agency is DOE.*

Section 1224 Advanced Power System Technology Incentive Program

- DOE is authorized to establish an Advanced Power System Technology Incentive Program to support the deployment of certain advanced power system technologies and to improve and protect certain critical governmental, industrial, and commercial processes. Funds provided under this section shall be used by the Secretary to make incentive payments to eligible owners or operators of advanced power system technologies to increase power generation through enhanced operational, economic, and environmental performance.
- *Lead agency is DOE.* Appropriated funding is \$10M for each of the fiscal years 2006 through 2012.

Section 1331 Energy Efficient Commercial Buildings Deduction

- There shall be allowed as a deduction an amount equal to the cost of energy efficient commercial building property placed in service during the taxable year.

The deduction under with respect to any building for any taxable year shall not exceed the excess (if any) of the product of \$1.80 and the square footage of the building.

- An energy efficient commercial building property means property with respect to which depreciation (or amortization in lieu of depreciation) is allowable, which is installed on or in any building which is located in the United States, and within the scope of ASHRAE Standard 90.1-2001, which is installed as part of the interior lighting systems, the heating, cooling, ventilation, and hot water systems, or the building envelope, to reduce the total annual energy and power costs with respect to the interior lighting systems, heating, cooling, ventilation, and hot water systems of the building by 50 percent or more in comparison to a reference building which meets the minimum requirements of ASHRAE Standard 90.1-2001.
- In the case of energy efficient commercial building property installed on or in property owned by a Federal, State, or local government or a political subdivision thereof, the Secretary shall promulgate a regulation to allow the allocation of the deduction to the person primarily responsible for designing the property in lieu of the owner of such property. Such person shall be treated as the taxpayer for purposes of this section.
- The amendments made by this section shall apply to property placed in service after December 31, 2005.
- *Lead agency is DOE.* DOE shall promulgate regulations which describe in detail methods for calculating and verifying energy and power consumption and cost, based on the provisions of the 2005 California Nonresidential Alternative Calculation Method Approval Manual (see http://www.energy.ca.gov/title24/2005standards/nonresidential_acm/).

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Army Energy Strategy for installations

The Army Energy and Water Campaign Plan for Installations: Developing actions to meet the Army's Energy and Water Management goals for the next 25 years

To ensure that the Army provides safe, secure, reliable, environmentally compliant and cost-effective energy and water services to soldiers, families, civilians and contractors on Army installations, the Army is developing The Army Energy and Water Campaign Plan for Installations (Campaign Plan) as the implementation plan for the Army Energy Strategy for Installations (Energy Strategy). The Secretary of the Army and the Chief of Staff have set the Army's strategic goals for energy and water with the signing of the Energy Strategy on 08 July 2005.

The Energy Strategy lays out the general direction for the Army in five major initiatives:

1. **Eliminate energy waste in existing facilities**

Eliminate and reduce energy inefficiencies that waste natural and financial resources, and do so in a manner that does not adversely impact comfort and quality of the facilities in which soldiers, families, civilians and contractors work and live.

2. **Increase energy efficiency in new construction and renovations**

Increase the use of energy technologies that provide the greatest cost-effectiveness, energy efficiency and support environmental considerations.

3. **Reduce dependence on fossil fuels**

Increase the use of clean, renewable energy to reduce dependency on fossil fuels and to optimize environmental benefits and sustainability.

4. **Conserve water resources**

Reduce water use to conserve water resources for drinking and domestic purposes.

5. **Improve energy security**

Provide for the security and reliability of energy and water systems in order to provide dependable utility services.



Impromptu gathering to discuss the process of developing the campaign plan - left to right: Millard Carr, Doug Dable, Don Jurasz, Col. Mark Loring.

The Campaign Plan defines specific actions to ensure the Army successfully achieves these long-range energy and water management goals. It will form the foundation for the future direction and resource requirements for cost-effective energy and water management for the Army.

"The Army is quite familiar with the concept campaign plan," said Bob Sperberg, Chief Facilities Policy Division, OACSIM. "As with a battlefield campaign plan, the Energy and Water Campaign Plan has very specific and measurable end states and outcomes. To achieve a desired end state, the Campaign Plan lays out very specific actions, approaches, tools, technologies, initiatives, policies, and funding strategies necessary to meet the actions and key milestones. All actions will then be prioritized and will define the requirements for our energy and water program we will use in the POM (Program Objective Memorandum) cycle. We will adjust and revise our Campaign Plan with each new POM cycle (every two years). To do this, we will measure our successes and challenges against the program metrics in each

aspect of the Campaign Plan, but never wavering from achieving the Army's long-term strategic goals." ➤

The development of the Campaign Plan becomes even more important and timely with the recent passage of the *Energy Policy Act of 2005*. The Campaign Plan will specifically address how the Army will meet the requirements of the *Energy Policy Act of 2005*. These include:

- Meeting the new energy reduction goals for buildings and industrial facilities.
- Enhanced energy efficiency standards for new building construction.
- Metering and sub-metering of buildings.
- Reauthorization and extension of the Energy Savings Performance Contracting authority.
- Increase purchases and use of renewable energy.
- Procurement of Energy Star or FEMP-recommended products.



Army awards projects for Energy Conservation Investment Program

by Henry Gignilliat

Through the Energy Conservation Investment Program (ECIP), the Army is executing \$24.8 million in projects for FY05 at eight installations. These energy projects will help Army installations to reduce utility costs, increase the use of renewable energy and meet the new energy reduction goals of the Energy Policy Act of 2005.

Awards include projects at Fort Gordon for \$1.25 million to install energy efficient boilers; Rock Island Arsenal for \$5.45 million to install high efficiency chillers and provide summer shutdown of the steam plant; and Fort Drum to install a utility monitoring and control system for \$4.9 million. Other FY05 ECIP projects include digital energy management controls at Fort Campbell for \$980,000 and a barracks photovoltaic power system at Fort Sam Houston for \$1.7 million.

ECIP was established by DOD to improve the 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, higher efficiency energy systems.

- Retrofit/modernization of existing Army systems and facilities with equipment and systems that operate at a higher efficiency than existing.

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 OMA funding requirements. Army installations can submit candidate projects through their Installation Management Agency (IMA) Region to be considered for funding.

The FY06 President's Budget identified \$60 million in Defense MILCON funds for ECIP that included \$21.4 million allocated to Army projects by DoD. Upon passage of the Defense Appropriation Act, DoD notifies the Congressional committees of projects to be executed by the Services. After a 21-day waiting period, the DoD Comptroller makes funds available to the Corps of Engineers for execution of the Army's FY06 program.

The projects identified for funding in FY06 include barracks geothermal conversion at Fort Knox, steam distribution upgrade at Anniston Army Depot, and energy-efficient lighting and upgraded boiler

ers at Presidio of Monterey.

The ECIP projects can help meet the new goals in the Energy Policy Act of 2005 including a 2 percent per year energy reduction (effective in FY06) from a 2003 baseline. The program can also assist in implementing long-range initiatives of the "Army Energy Strategy for Installations" and can support actions outlined in the "Army Energy and Water Conservation Campaign Plan."

Installations have already submitted candidate projects for FY07-10 program in July 05. Projects forwarded to DoD by the Office of Assistant Chief of Staff for Installation Management for FY07 funding will be released for design in the first quarter of FY06. Installations planning FY08 and out year projects will have an opportunity to submit projects again during the request period Mar-Jul 06.

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To initiate the process of the development of the Campaign Plan, the Army held a series of stakeholder meetings in May, June and July of this year designed to solicit ideas and approaches for most effectively and efficiently achieving the key Energy Strategy initiatives and desired outcomes. Stakeholders included experts from the public and private sector, including other DoD services.

According to Don Juhasz, Chief, Utilities and Engineering Team, OACSIM "This is the first time the Army has formally and broadly reached out to contractors and planners in the energy

community to help the Army better clarify the challenges and options to efficiently and wisely use our limited energy and water resources. This input is critical to the Army's framework of the Energy Campaign Plan."

Once the input from the stakeholder meetings was summarized, the Army brought together a team of approximately 30 Army, former Army, and Department of Energy experts in a 3-day workshop to draft the Campaign Plan. At the beginning of the workshop, a charge was given by Colonel Mark Loring, Director Facilities and Housing OACSIM, to accept the challenge ahead to in a "collaboration and partnership with private industry, Army

stakeholders and Defense Agency experts" with a "...groundbreaking and ambitious effort to apply new vision and set direction for the Army Energy Program for the next 25 years."

The timeliness and importance of planning for the future was reinforced by Don Fournier, former scientist at ERDC/DERL and noted professor and energy futures expert from the University of Illinois who was also invited to be a member of the Campaign Plan workshop team. He gave the working group a stark summary of the current and future global energy and water trends and implications. Don noted several challenges ahead, citing the volatility of the natural gas mar- ➤



Army's Energy Campaign Strategy for water conservation

by William F. Eng

Water = Energy or does it? The Army must use less and less energy every year, regardless of the cost or the mission. The Army must also use less and less water. "It's the Law." EPACT of 05 and Executive Order (E.O.) 13123 mandates the establishment of water conservation goals for all federal agencies, which includes the Army.

Although most installations have adopted at least four of the Department of Energy's ten Best Management Practices (BMP's) as required by Army policy, much more proactive steps must be taken to achieve meaningful water use reductions. As part of the ongoing Army Energy Strategy Campaign Plan, a small cadre of engineers, planners and scientists are fleshing out a multi-action plan to "reduce water use to conserve water resources for drinking and domestic purposes."

Action #1 of the draft plan is to assess the current water use, costs, and availability at Army installations to prioritize sites for analysis of water conservation opportunities. The old axiom about a journey is still true. "How do you know how far you have gone if you do not know where you are or where you have been." The same is true about your water situation at the installation level. How much is actually used and how much

is lost through leaks, unaccounted usage, or for other reasons. Getting this baseline correct will be quite a task, but a necessity nevertheless.

Most installations have at least one meter that measures the quantity of water delivered to the post by a public water utility when water is purchased. Where an installation produces its own water from underground wells or surface water impoundments, like reservoirs, lakes, and ponds, often the amount of water produced is usually estimated from the amount of electricity used to pump the water and the pumping rate; this is not as reliable for determining leakage, line losses, etc. Building occupancy rate and building use categorization need to be accurate, in order to develop and maintain a database from which to make accurate and reliable projections.

Other planned actions supporting the initiative to reduce overall water usage are:

- Improving the storage capacity and distribution integrity.
- Increasing water efficiency in all plumbing fixtures.
- Limiting potable water for irrigation, and increase use of native plants.
- Increasing efficiency in process water use.
- Prioritizing projects and development of implementing strategies.

- Developing technical standards and training to facilitate project development and implementation.
- Identifying water resources for future demands to meet mission critical needs (and plus ups).

Within each of these actions, are outlined specific steps for completing the action and the intended end state. The water conservation work group is laying out the current and future policies; management and institutional issues, technologies and tools required and some milestones for the road ahead.

In the end, the Army's Energy Strategy Campaign Plan will be a road map for the next 25-years that will make significant and meaningful reductions in water use and to conserve water resources for drinking and domestic purposes on Army installations, worldwide. The timeline for completing the first draft of the Campaign Plan is the end of September 2005.

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ket, declining domestic and North American natural gas production, and increased global demand, as a significant risk given the dependence of the Army on this clean-burning fuel.

At the close of the workshop, the group had developed over 50 specific actions for the five major Strategy initiatives. The actions were then more fully developed by the working group, and prioritized and refined by OACSIM staff. An outline summary of the actions developed in the first draft of the Campaign Plan was presented to stakeholders during the last

day of Energy 2005 in Long Beach, CA. Additionally, the Campaign Plan was reviewed by Army and other federal energy staff at the annual Army Energy Forum that immediately followed the industry stakeholder meeting.

The Campaign Plan will be revised and a final draft will be prepared for coordination across the Army Staff and MACOM. It is anticipated that a final Campaign Plan will be published by the end of the calendar year.

As noted, we envision that the Campaign Plan will be updated with each new POM cycle to incorporate the successes,

lessons learned, new approaches and technologies. The updates will also adjust for any shortfalls in funding or delays in program execution, in order for the Campaign Plan to reflect the constantly changing defense, national, and global energy and water landscape. Information and updates on the development of the Campaign Plan can be found on the OACSIM Energy Program web site at <http://hqda-energypolicy.pnl.gov/programs/plan.asp>.

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IMA's Natural Gas Risk Management Program to stabilize natural gas prices

by Scott McCain and Paul Volkman

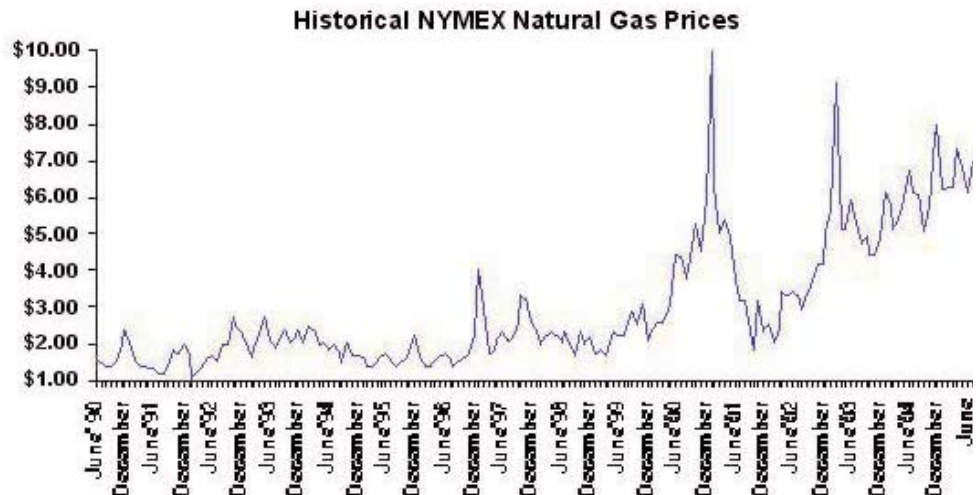
Natural gas represents a growing part of installation energy budgets as prices continue to increase above historical levels. Throughout the 1990's, natural gas prices averaged below \$2 per dekatherm as deregulation and excess supply provided cost savings against utility tariff prices. Beginning in 2000, natural gas prices began to rise above the historical average and exhibited higher levels of volatility. Since the year 2000, the average annual natural gas price has increased from \$3.88 to \$6.58 per dekatherm through the first six months of 2005. Prices are on track to test the record contract settlement level of \$9.98 per dekatherm set in January 2001.

Driving the increase has been the rise in crude oil prices sparked by a growing global supply-demand imbalance. Due to the high correlation between natural gas and crude oil prices and the fact that crude oil prices are forecasted to continue their rise, by default, natural gas prices will increase as well. Installation utility personnel remember the adverse effect these prices had on operating budgets when commodity prices nearly exceeded \$10 per dekatherm in 2001.

To minimize the impact of the rising prices on utility budgets and reduce the potential disruption to non-fuel programs, the Installation Management Agency (IMA) has developed and implemented the Natural Gas Risk Management Program. The objective of the program is to provide price stability, budget certainty and to support IMA's goal of providing sound stewardship of our assets and managing resources efficiently.

The primary benefits of the program are:

- Minimizes the impact of rising and volatile natural gas prices.
- Protects utility budgets from rising energy prices.
- Stabilizes natural gas prices for the fiscal year.
- Improves monthly cost forecasting and planning.



- Reduces disruptions to non-fuel programs caused by unanticipated requirements for funds to pay higher-than-expected energy bills.

HQ IMA has recognized the value of the program and has committed to centrally fund this commercial best practice. The program provides decision support service to all installation utilities personnel at CONUS installations. Included in the services are fundamental market insights, comparative fuel cost analysis, strategy development, and risk assessment. Based on recommendations generated for the winter of FY04, IMA was in a position to recognize a cost avoidance of approximately \$12 million had all installations participated.

The program provides price stabilization through the utilization of a provision in the Defense Energy Support Center's (DESC's) natural gas supply contract, which provides the option for an installation to lock-in a price for future delivery of forecasted requirements. Although the program is not limited to installations participating in the DESC program, the service has been designed to complement the existing supplier price conversion clause in the DESC contracts.

Participation in the program requires minimal input from the installation utility personnel. Currently, installations that are interested in participating should expect the following:

- Each installation should receive a call approximately 6 times during the fiscal year to discuss the market and the installation's budget objectives.
- The communication is intended to discuss any pending recommendations, confirm consumption requirements for the period in question, and verify any significant changes in operations that





Capabilities and technology in support of the Army Energy Strategy

by Philip R. Columbus and Kelly M. Dilks

On 8 August 2005, President George Bush signed the Energy bill. The bill outlines the nation's strategic direction in promoting cleaner and alternative sources of energy. "This bill is not going to solve our energy challenges overnight," Bush said. "It's going to take years of focused efforts to alleviate those problems."

As Congress developed the Energy bill, the U.S. Army developed the Army Energy Strategy with these five goals:

1. Eliminate energy waste in existing facilities.
2. Increase energy efficiency in new construction/renovations.
3. Reduce dependence on fossil fuels.
4. Conserve water resources.
5. Improve energy security.

The Energy policy and development of the Army Energy Campaign Plan is led by the Office of the Assistant Chief of Staff for Installation Management, Facilities Policy Division, Utilities and Energy Team.

As the Utilities and Energy Team and

their writing partners develop the Army Energy Campaign Plan, ideas, concepts and other what-if scenarios are played out based on where the Army must be in the future to support the Army's utility and energy requirements. Once the Campaign plan is developed and approved, a capabilities gap analysis is performed to determine what is possible now and identify potential research foci for closing the gaps in the future.

The gap analysis is part of the Installations Capabilities Process. The gap analysis is the responsibility of the Technology Standards Group of the Army Facilities Standardization Committee. This activity is designed to identify installation needs to support the warfighter for which adequate technology, products, or processes currently exist. The installation capability gap analysis is tied into the addition to TRADOC Pam 525-66 which includes Installations and Flagships as a key component in support of the warfighter.

The Technology Standards Group is collecting ideas for evaluation. Sources include the Installation Management

Agency's Process Improvement Program and other programs designed to improve operation and management of Army installations. The Technology Standards Group is also utilizing the Installation Design Standards website. Individuals who have recommendations for short or long term needs should use this opportunity to get their ideas into the evaluation process. Take the opportunity presented to make sure your ideas are evaluated and reviewed by the Army installation leadership. It is your chance to make a difference for our Army now and in the future.

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would alter the forecasted requirements.

- Installations will receive a lock-in recommendation via e-mail.
- Installations will make the decision to accept or decline the recommendation.
- If an installation accepts the recommendation, the required steps are to forward the recommendation to DESC with a message clearly authorizing DESC to execute the lock-in.
- No action will be required for a decline.

The natural gas risk management program is an integrated strategy based on key steps. The first and most important step involves the collection of up to five years of historical consumption data in addition to the upcoming fiscal years' forecast of requirements. Armed with this information, a sensitivity analysis is com-

pleted for each installation that provides critical insight as to how natural gas is consumed. The next step in the program is a detailed analysis of the underlying price drivers who are responsible for influencing the direction and volatility in the market. Due to the dynamic nature of the energy markets, this is an ongoing process and includes both fundamental and technical analysis.

Utilizing the consumption and market information, customized risk management strategies are developed. Each strategy is customized based on the installation's unique consumption requirements. Once developed, each strategy is simulated against a number of market scenarios. Once a strategy is finalized, it is implemented through the recommendation process.

Growing global demand, industry con-

solidation, and increased reliance on imports are the primary drivers for energy prices to remain elevated and volatile. To minimize the impact of rising prices, installations are encouraged to participate in the natural gas risk management program. By participating in the program, installation personnel receive the benefit of stabilized natural gas prices over the fiscal year, which helps with planning and budgeting, as well as protects the utility budget and volatile energy prices from rising.

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Update on utilities privatization

by Paul Volkman

History

The Army has under-funded the sustainment and modernization of our utilities systems at installations for years. The result is our utility infrastructure is in poor physical condition. The cost to fix these long neglected utility systems was estimated at \$3-4 billion. The prospect of obtaining funding of this magnitude from the Military Construction (MILCON) or Sustainment, Restoration, & Modernization (SRM) budgets was dim. The Army simply did not have the money needed to revitalize the decaying utility infrastructure. The challenge was to modernize the utility infrastructure in the shortest period of time with minimum funding. Army policy makers also came to the conclusion in 1991 that operating and maintaining the utility infrastructure was not a core function for the Army. The Army developed a strategy to study electrical, natural gas, water, and wastewater utility systems, and where economically feasible, privatize the system or modernize those utilities that would not be privatized. The Army was the first service to recognize privatization as an option for utilities modernization. In 1997, DoD reviewed the Army strategy and determined all Components and the Defense Logistics Agency (DLA) could benefit from utilization of the Army approach.

DoD Goals

The privatization authority was institutionalized in Defense Reform Initiative Directive (DRID) #9 in 1997. The directive tasked the services to review all their utility systems for privatization by January 2000, and it became the backbone for DoD's objective to modernize the infrastructure of the services. It didn't take long for everyone to realize this goal would not be achieved. There were several thousand systems DoD wide that would need to be studied and the process would be time consuming.

Acknowledging the many challenges, DoD issued a second DRID #49, in December of 1998 establishing new milestones. DoD's goal is to complete the utility privatization evaluations by the end of FY05. The Army has informed DoD that we will complete our evaluations at the end of FY06 due

to the scope and complexity of our approach. The Army program does not merely complete evaluations, but actually seeks to accomplish successful privatizations.

Initially, each service was left on its own to analyze the economics of the situation and make the determination to privatize or not. With experience, DoD decided standardizing the processes and procedures would make it easier for DoD to report to Congress. Reporting formats were standardized and the process for performing the economic analysis was standardized with the introduction of the Utilities Privatization Economic Analyses Tool (UPEAST).

Army Standardizes Procurement with DESC

Initial Army direction on utilities privatization tasked the garrison commander with completing the analysis to determine if privatization was economically feasible. Using local contracting expertise from the Corps of Engineers (COE), local Directorate of Contracting, or Defense Logistics Agency (DLA), each garrison commander approached the task differently. Contracting for utility privatization is a complex and time consuming process. Private utility providers would find neighboring installations would execute the utilities privatization program to different standards, making the RFP process more cumbersome and increasing the time and costs of the program.

After reviewing its progress, the Army opted to centralize its contracting support with DLA's Defense Energy Support Center (DESC). The Army now works closely with DESC to ensure the appropriate priority is placed on the Utilities Privatization actions. The Army's Contracting Agency (ACA) assists with the post-award contract management.

Under DoD policy, the services are allowed to exempt utilities from privatization if it is uneconomical or there is a valid national security concern. The Army has a firm policy to avoid security exemptions. Our position is that utility system security is a business concern whether the system is on or off post. Accordingly, we rely on industry experts and our utilities contractors in this regard.

Current Status

As of 30 June 2005, the Army has completed actions on 247 of the identified 351 utility systems requirements to be studied. This represents 70 percent of the systems in the program. Of the 351 systems, 103 systems have been or are being privatized, while the economic analysis has demonstrated that 135 systems are uneconomical to privatize at this time. That leaves 113 systems whose evaluations must be completed by the end of FY06.

By privatizing, major capital improvements will be made to the systems through private investments relieving DoD of future MILCON or SRM funding requirements. The utilities privatization provider will program for these needed sustainment and modernization requirements and prorate their costs across the life of the contract, often 50 years long. In the process, utility systems will be brought up to industry standards and the installations will not have to develop, defend, and execute major projects in a program whose scope is undetermined while relying on an unsupported schedule. BRAC

The BRAC announcement impacts most of our installations. A few are proposed to close, but most are realigned resulting in changes to the utility needs of the installation. For those installations proposed to close, the Army is suspending actions related to privatization until the final BRAC law is signed. For those installations already privatized, the changes proposed in the BRAC may necessitate negotiations with the new owner of the system. For installations where realignment is occurring and privatization is in progress, the Army is continuing the evaluation process.

GAO Review

The Government Accountability Office (GAO) completed a review of DoD's utility privatization initiative in May 2005. The GAO recognized that utilities privatization could provide quicker system improvements than might otherwise be available. The report also expressed concerns on several issues on the process DoD has established and made some suggestions for improvement. GAO's concerns



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included the accuracy of the economic analyses and, why the identified improvements required of a vendor are not being performed by the Army where the Army retains ownership of the system.

The GAO also questioned the practice of permanently conveying the ownership of the systems to the successful bidder rather than using a more limited arrangement; and the limited oversight of the privatization process and resulting contract. DoD is currently drafting its responses to the GAO report.

Funding

FY05 was a challenging year for installations involved in utilities privatization. Due to the continuing demands placed on the Army in support of Operation Enduring Freedom, OMA funding has been limited. At the beginning of FY05, IMA funding for utilities privatization was not sufficient to fully fund all the privatization contracts, resulting in the identification of an unfunded requirement satisfied through supplemental appropriation. But, due to cash flow limitations, money has been given out in increments requiring installations with recently awarded utilities privatization contracts to “manage” their resources. At this time, funding for all recently awarded contracts has been made available to installations.

Schedule to Complete the Program

To meet the end of FY06 Army goal for completing the analysis of the utility systems, the economic analysis must be completed and a decision made to privatize or find the system uneconomical to privatize. The actual award of the contract may follow later.

Remaining Utilities Privatization Decisions

	Electricity	Natural Gas	Potable Water	Waste Water
Aberdeen/Edgewood			X	
Aberdeen PG	X			
Anniston Army Depot	X		X	X
Bluegrass	X			
Detroit	X		X	X
Dugway Proving Ground			X	X
Fort A. P. Hill			X	X
Fort Belvoir	X		X	X
Fort Bragg		X	X	X
Fort Buchanan	X		X	X
Fort Dix			X	X
Fort Gillem	X	X		
Fort Gordon			X	X
Fort Greely	X		X	
Fort Hood	X		X	X
Fort Hunter-Liggett	X		X	X
Fort Jackson	X		X	X
Fort Knox			X	
Fort Leonard Wood			X	X
Fort Lewis	X		X	X
Fort McNair	X			
Fort McPherson	X	X		
Fort Meade			X	X
Fort Monmouth	X		X	X
Fort Myer	X			
Fort Riley	X		X	X
Fort Polk	X	X	X	X
Fort Richardson	X	X	X	X
Fort Sam Houston			X	X
Fort Stewart		X		
Fort Wainwright	X		X	X
Hunter Army Air Field		X		
Oahu	X		X	X
Picatinny			X	X
Pine Bluff Arsenal	X	X	X	X
Rock Island			X	X
Red River		X		
Redstone Arsenal	X	X	X	
Schofield	X			
Tobyhanna AD			X	X
Walter Reed AMC	X		X	X
West Point MA			X	X
White Sands Missile Range	X	X	X	X
Yuma	X		X	X

Utility System Modernization

We have completed analysis of 247 systems and retained ownership of 135 of those systems since they were found uneconomical to privatization. For the foreseeable future, the 135 systems will continue to be owned and operated by the Army. In completing the utilities privatization analyses,

we identified problems that we would want a contractor to fix if we privatized the system. Now we need to program the same projects to bring our Army-owned systems up to C2 (quality) status.

We also need to identify the magnitude of the problems and begin a measured program to correct these problems. HQ IMA and OACSIM are working together to develop a utilities modernization program to begin in FY08. We have begun the process to develop these requirements in the Army funding process through the execution of the new Army Energy Campaign Plan. The Energy Campaign Plan will define the system requirements, assess the appropriate technology to meet the future system needs, and establish an investment program and project execution method to bring all of our Army owned systems to a level that ensures we have safe, secure, reliable, and environmentally sound energy systems well in the next several decades.

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Commentary: Sustainable energy demands decisions that look beyond cost

by Eileen Westervelt and Donald Fournier

With oil prices barreling in on \$70 and natural gas following along, the nation is again giving energy the attention it deserves. However, being able to afford needed energy is only one of many sides to the energy equation. In addition, there are serious concerns about the prudence of our consumption patterns in light of their environmental and political ramifications. All these issues must be factored into our action plans for the Army and the nation.

Costs of our mainstream oil and natural gas fuels are expected to rise steadily without relief for the foreseeable future. As a nation we are steadily depleting our domestic supplies and are significantly increasing imports. (We currently import 56 percent of our oil and 17 percent of our natural gas.) While our energy appetite is growing, so is that of the rest of Earth's swelling population. Improved standards of living in the developing world (especially China and India) produce continually growing competition for finite energy resources. Since supply is diminishing coincident with surging demand, prices will rise to whatever the market will bear.

Although half of our electricity is generated from coal, the electrical system is not immune to price increases. Electricity prices will rise in parallel to natural gas prices as peaking capacity resides in gas-fired plants. Electric prices will further increase as required new generation capacity and backlogged upgrades to the transmission grid are amortized.

Domestic supplies of both oil and natural gas are well past their peak production of the 1970s and availability is declining. Proven domestic reserve lifetime for natural gas at current consumption rates is about 8.4 years; for oil, it is 3.4 years. However, lifetimes for both commodities will stretch by increasing our proportion of imported

fuels. This situation will leave us vulnerable to supply decisions outside our control.

Tapping into our domestic supplies is a mounting challenge. Almost half of our domestic natural gas reserves are considered stranded – they are too remote, on restricted lands, or too environmentally detrimental to harvest. Construction of an Alaskan natural gas pipeline and the importation of liquefied natural gas are partial solutions to domestic natural gas shortages, but the necessary production and distribution infrastructure will require years to construct.

Further, our electrical transmission grid is aging and overtaxed. It was not designed to accommodate the complex high load traffic it must now handle due to deregulation, and its reliability will degrade until appropriate investments are made.

Even on a global basis, and with ongoing supportive trade agreements, the end game for oil, gas, and nuclear fission power is in sight within a half century. The proven world reserve lifetime for natural gas and oil are both less than 40 years with expected demand increases. Our current nuclear fuel usage will consume the world reserves of low-cost uranium in about 20 years. Developing a nuclear breeder reactor program and closing the fuel cycle could offer true energy independence, but at increased environmental and security risks. It remains to be seen if this is viable both politically and ecologically.

Current energy practices are not sustainable. The earth's endowment of natural resources are depleting at an alarming rate—exponentially faster than the biosphere's ability to replenish them. Fuel combustion affects the global climate with the production of greenhouse gases and impacts the local climate with other pollutants. Mining and production of fuels destroys ecosystems and biodiversity. Wastes from nuclear power generation

plants accumulate with no viable means of safe and effective disposal. Our actions clearly limit and potentially eliminate options for future generations.

Combustible and explosive fuels, along with potential weapons-grade nuclear materials, create security concerns. Additional risks stem from our nation's disproportionate consumption of energy relative to global consumption. The United States currently has less than 5 percent of the world's population, but uses 25 percent of the world's annual energy production. A more equitable distribution of resources is in our best interest for a sustainable future.

This energy scenario is sobering and can no longer be ignored. Energy consumption is indispensable to our standard of living and is critical for the Army to carry out its mission. However, the impact of excessive, unsustainable energy consumption may undermine the very culture and activities it supports.

We must act now to develop the technology and infrastructure necessary to transition to other energy sources. Bold, new policy approaches, leap-ahead technology breakthroughs, cultural changes, and significant investment are requisite for this new energy future. Increasing energy efficiency, using distributed generation, and implementing renewable energy technologies are our best options for meeting future energy requirements. Time is essential to enact these changes. The process should begin now.

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(The views expressed in this commentary are those of the authors and do not reflect in any way on policy within the Army or Department of Defense.) **PWD**



Picatinny Arsenal to cut energy use in half

by Stephen Brod and Richard Havrisko

On July 1, 2005 at 8:30 a.m., Picatinny Arsenal's central steam plant's four large boilers shut down for the last time and for a very good reason. The boilers were being replaced by a new, decentralized system—serving many individual and small groups of buildings—that will cut the Arsenal's energy use in half and reduce its costs by nearly \$5 million annually.

A Picatinny Arsenal team, led by the Director of Utilities, Richard Havrisko, began meticulously planning for that day over five years ago when it became apparent that the aging 1940s-era central plant needed a replacement. Working with energy services contractor Chevron Energy Solutions (a division of Chevron U.S.A. Inc.), the team evaluated a wide range of options, including building a new central plant with cogeneration. Ultimately, a \$41.3 million decentralization project was determined to be the best option because of its numerous advantages.

Specifically, the project:

- Reduces energy use by a projected 49.7 percent or 372 MMBtu per year.
- Achieves savings of \$ 4.9 million per year.
- Reduces risk associated with a central plant failure that would affect the entire Arsenal.
- Allows flexibility in future use and design of facilities.
- Provides a comprehensive natural gas distribution system.
- Incorporates a central energy management system for remote control and monitoring of equipment with future expansion capability.
- Reduces harmful carbon, sulfur, and nitrogen dioxide emissions by an estimated 1 million tons.

The project applied nearly every heating technology available somewhere at the Arsenal, including steam and hydronic boilers, low-temperature infra-red heating units, furnaces, unit heaters, electric heat, and propane-to-gas conversions. This created logistical challenges during construction, but it also ensured that building occupants were provided heating solutions that met their needs in the most energy-efficient manner. While several methods of heat production are now employed, heat distribution and control within buildings has, for the most part, remain unchanged.

One highlight of the system is the “boil-

er in a box.” Due to space constraints and other issues, this innovative product incorporates a boiler and all necessary support equipment in a shipping container. Fifty-six boxes, ranging in size from small residential boilers to units that exceeded 4 MMBtu, were installed. Also, Picatinny needed a creative solution to address mission-related restrictions on the installation of natural gas equipment in large areas of the Arsenal. As a result, satellite boilers that use existing steam distribution lines were installed as close as possible to buildings.

Project construction, which began on Sept. 30, 2003, was noteworthy in that:

- All work was completed safely, without any significant incidents.
- Design and installation of heating systems—involving 275 buildings and 407 pieces of equipment totaling over 211,894 MBh—was completed in only 18 months.
- 6,000 feet of existing steam distribution lines were refurbished and reused for the satellite boiler plants. Over 8 miles of the remaining steam lines are no longer in use, and 1.4 miles of steam line in main office areas of the Arsenal were demolished to significantly improve the appearance of the surrounding area.
- Over 12 miles of natural gas distribution lines were installed to supply 130 buildings and allow future connection to additional buildings.
- At the height of construction, almost 200 workers from several trades were on site.

The largest satellite boiler plant, which provides steam to explosive testing areas, now has three Cleaver-Brooks 500-hp steam boilers located near the old central plant. Also as a result of the project, 135 buildings have new or converted heating systems, while the other buildings are fed by satellite boilers.

The system was constructed as a design-build partnership of Picatinny Arsenal, Chevron Energy Solutions and New Jersey Natural Gas (NJNG). Work was completed on time and budget. Chevron Energy Solutions will operate and maintain the system for 18 years, allowing the Arsenal to significantly downsize its work force and focus greater resources on its core missions.



Richard Havrisko (Right) and William F. Porphy, Facilities Operation Manager, Chevron Energy Solutions, inspect a Cleaver-Brooks 500-hp boiler.

The project is paid for from operational cost savings at no expense to the government or taxpayers. A follow-on project is being developed to leverage the decentralization work to achieve even greater savings through controls and distribution system optimization.

The success of the project can be attributed to the strength and dedication of the project development team and the commitment and willingness of the garrison commander to take some risks. In addition to the leader, it required a deputy to the garrison commander who was available whenever needed to assist with keeping the project moving, a contracting officer who was willing to listen and explore all avenues, an environmental representative who doggedly provided volumes of information and followed up with the State of New Jersey, a program support specialist who worked relentlessly to provide justifications and ensure all requirements of the program were being followed, a lawyer who could be counted on to offer opinions without lengthy delay, a government project manager who was extremely adaptable and customer oriented during the construction period, and a contractor who was truly seeking to be a partner in the process.

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Stephen Brod is the Project Manager for Chevron Energy Solutions and Richard Havrisko is the Director of Utilities, Garrison, Picatinny Arsenal.

PWD



Long-range energy planning yields significant results for Southeast Region energy program

by Doug Dixon

The Installation Management Agency (IMA) Southeast Region Office (SERO) energy program completed 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 Executive Order (EO) 13123 goals by FY 2010. Each installation in the region is responsible for developing and updating 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.

The first step in completing the *Long-Range Energy Management Plans* was to conduct comprehensive energy assessments at each of the installations using the Facility Energy Decision System (FEDS). These assessments provided estimates of the installation energy savings potential based on audits of representative facilities. The assessment team was made up of engineers from Pacific Northwest National Laboratory (PNNL), the site energy manager, and various other installation technical staff.

Following the site-wide energy assessment, an energy planning workshop was conducted at the installation. 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 was to take the results of the energy assessment and prioritize key activities and projects for implementation. By including the servicing utilities and/or Energy Savings Perfor-

mance Contract (ESPC) companies in these workshops, the sources of funding/financing for the projects can be identified and the project implementation begins immediately.

Significant results from the planning process include increased participation in the Energy Conservation Investment Program (ECIP), and the establishment of new alternative financing arrangements, both Utility Energy Service Contracts (UESC) and ESPC.

Steve Jackson, Energy Manager, Southeast Region, said, "Several installations have made tremendous progress in using these tools for the first time."

The Southeast Region installations were awarded nearly \$16 million in ECIP projects in the FY 2006 program out of a total of \$19.1 million for Army installations worldwide. Three of the four Southeast Region installations were awarded multiple projects.

"Installations that have not participated in the ECIP program for more than a decade were successful in getting projects approved in the FY 2006 program," Jackson noted.

The scope of these projects was highly diverse, ranging from controls projects to geothermal heat pumps to on-site peak demand generators to building conservation measures (insulation, lighting).

Following the energy planning workshops, five installations began pursuing UESC arrangements for the first time. Three of these installations (Fort McPherson, Fort Campbell, and Blue Grass Army Depot) signed master agreements for UESC services with their servicing utility by June 2005. Fort McPherson and Fort Campbell are currently executing their first delivery orders (projects) under their UESC agreements.

The Blue Grass Army Depot (BGAD) arrangement was of particular interest as



Energy Planning workshop at Fort Benning.

the primary electric utility was not willing to engage in UESC activities with the installation. Steve Sharp, the Chief of Public Works at BGAD, decided to establish a new electric service agreement with Blue Grass Energy Cooperative for a small portion of the site load, in order to enter into a UESC arrangement with the cooperative. This all took place in less than six months. The first delivery order under this UESC is to be signed before the end of FY 2005.

Steve Sharp explained, "What I'm particularly excited about are the benefits Blue Grass AD will receive as a result of the UESC agreement between BGAD and Blue Grass Energy that was expedited due to information gained during the energy planning process."

The long-range planning process in the Southeast Region has resulted in significant progress in implementing projects that will help the region move toward meeting the EO 13123 goals and the future goals of the Energy Policy Act of 2005.

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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Fort Sam's water savings could fill a lake

by Richard Scholze and Jackie Schlatter

Fort Sam Houston, Texas, has saved millions of gallons of potable water annually through its efforts to conserve. To comply with Executive Order 13123, *Greening the Government Through Efficient Energy Management*, Fort Sam embarked on a proactive mission to reduce its water consumption. While federal facilities are required to achieve no less than four Federal Energy Management Program (FEMP) Best Management Practices (BMPs), the fort's water management plan addresses eight of the 10 identified by the Department of Energy.

Fort Sam's DPW expects that the cost of water and wastewater will continue to rise for the foreseeable future. The San Antonio Water System (SAWS) has been raising rates over 10 percent per year. The installation is now undergoing a study for utilities privatization. If Fort Sam were to buy water from the local utility, it could pay \$4.24 per 1,000 gallons—substantially higher than the current production cost of \$0.95 per 1,000 gallons. With an average annual consumption of over 1 billion gallons of water, economics and environmental stewardship demanded a plan of action for water conservation. The DPW requested assistance from the Engineer Research and Development Center's Construction Engineering Research Laboratory (CERL).

Public Information and Education Programs

The benefits and cost-effectiveness for this BMP are well documented. Utility districts implementing public information and education programs report average annual savings between 10 and 15 percent of total water use. This result comes at little to no cost to implement. Fort Sam Houston (FSH) uses multiple opportunities to promote water conservation on a continual basis. Examples are:

- Working with the installation public affairs office to publish articles about water conservation in the installation newspaper, the *News Leader*.
- Widely publicizing telephone numbers for the DPW service call desks to report

leaks or other water waste.

- Producing a poster program on water and energy conservation for elementary school students.

Leaks, Losses and Unaccounted for Water

A comprehensive leak detection survey conducted in FY04 found FSH to have a very tight water distribution system with only 8 leaks having an estimated flow of 17 gallons per minute, (24,500 gallons per day or about 9 million gallons per year). There will still be some unaccounted for water present in any system, even one as tight as FSH's, due to undetectable leaks, joint seepage, fire flow testing, flushing programs, and other conditions.

The annual estimate of water lost in this way is about 78 million gallons, or 10 percent of the total annual water purchase. With an incremental cost of water and sewer of \$2.11 per Kgal, a loss of this amount costs the installation some \$165,181 annually.

On average, a leak detection survey and repair program can save between 25 and 50 percent of estimated losses. During FY04 FSH implemented a leak detection survey on its 67 miles of water main at a contract cost of \$35,605. The survey found 8.935 million gallons per year of water being wasted, which is a very low figure and reflects the good condition of the water distribution infrastructure. By repairing leaks and avoiding this loss, and considering the cost of the survey, the payback for this conservation measure is 1.89 years.

Water Efficient Landscaping

Landscape irrigation at FSH accounts for a substantial amount of the total water demand. The fort has made progress in reducing irrigation water use through several measures, including the purchase of reuse water from SAWS. Turf areas are watered between 2200 and 0400. Among the other efforts in this BMP are:

- Any new landscaping plans will have drought tolerant plant materials and be approved by the FSH agronomist or horticulturist.

- Drip or low-volume bubblers will be used on all installed shrubbery.
- Reuse water is encouraged for turf where appropriate.

Toilets and Urinals

An Energy Savings Performance Contract (ESPC) to upgrade showers, toilets, sinks and urinals in over 1 million square feet of space has been implemented. It includes low-flow toilets and flush valve urinals, new showerheads, pedal sinks and faucet aerators, depending on the facility.

These measures have saved nearly 10 million gallons of water per year for sinks and showers, 17 million gallons of water for toilets and 5.5 million gallons with new urinals. The total value of water and sewer saved is almost 33 million gallons for an annual savings of \$124,402. In addition to the water savings, these measures save energy by reducing consumption of hot water from lavatory faucets. About 50 percent of the water used at a lavatory is hot water. Additional retrofits for bathrooms are scheduled under the ESPC proposal.

Other Initiatives

In addition to the four required BMPs, Fort Sam forged ahead with conservation plans for water cooling systems, miscellaneous high water-using processes, and water reuse and recycling. Management options for cooling towers were judged to be not cost-effective based on the high capital cost of replacement and the inability of water savings to produce a sufficient payback. The fort did, however, implement operations and maintenance practices that assist in conservation and replaced much of the potable water in the cooling systems with reuse water purchased from SAWS.

In the miscellaneous high water-using processes BMP, the hospital and dining facilities were investigated. These buildings are fairly new and represent state-of-the-art construction. As such, they have capitalized on the best technology for energy and water conservation. No additional measures were identified for water savings other than a proactive awareness campaign which is already a base-wide initiative. ➤



Fort Lewis' innovative characterization and soil removal at former infiltration range

by Kym Takasaki

Innovative characterization, treatment and disposal activities were recently performed as part of the cleanup activities at a former infiltration range at Fort Lewis, Wash. These innovative approaches resulted in waste stream reduction, expedited cleanup, and significant cost savings for the installation.

The former Evergreen infiltration range was used for troop training under live fire in the 1950s and 1960s. As part of the Fort Lewis Agreed Order with the Washington State Department of Ecology (Ecology), Fort Lewis Directorate of Public Works tasked USACE with determining the nature and extent of contamination on the range. In addition the USACE – Engineering Research Development Center (ERDC) provided support for soil treatability testing.

For the initial characterization, a Triad work strategy was designed to determine if surface soils contain significant concentrations of metals with the focus on collecting sufficient data for potential future actions (i.e., risk analysis vs. remediation). The Triad strategies include three major components: systematic project planning, dynamic work strategies, and real-time measurements. Ecology was engaged early in the process to establish exit strategies for the site. Then soil sampling was designed with remediation in mind. A field portable

XRF was used to measure lead concentrations in the soil to obtain sufficient information in one mobilization to design a soil removal plan. Magnetometers surveys were also conducted by ERDC and Seattle District in adjacent areas of suspected impact to delineate the presence of bullets.

The Triad work strategy resulted in significant time and money savings for this project by reducing mobilizations, laboratory costs, developing accurate volume estimates, and allowing efficient evaluation of remedial alternatives. (See <http://www.triadcentral.org> for complete project case study). It is estimated that a more traditional step-by-step investigation approach would have taken at least another year and cost an additional \$200,000.

Sampling data showed that the contaminant driver, lead, was limited to the impact berm and the area immediately behind the berm. The majority of soil also contained bullet fragments and failed the Toxicity Characteristic Leaching Procedure (TCLP)



The screening system.

criteria, i.e. the material designated as a RCRA hazardous waste. Following site characterization the team learned that the property was slated for a Milcon barracks construction project in FY 06. Because of the construction schedule, the contaminated property required immediate evaluation of alternatives.

In the evaluation, the installation recognized the environmental benefit of reusing contaminated property as opposed to developing non-contaminated open space. A cleanup action level of 250 mg/kg for lead was selected. This value is the State Model Toxics Control Act (MTCA) Method ➤

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FSH has a successful program to reuse highly treated wastewater from SAWS. The water is used on the installation for irrigation at the golf course, a museum, and for cooling water at several facilities such as Brooke Army Medical Center, one of the large barracks, the main base exchange, a youth center and a few other areas.

Consumption data for one year show that reuse water totaling nearly 120 mil-

lion gallons per year was used on FSH, with two-thirds of that for irrigation (80 million gallons) and the remainder for cooling tower use. That is 120 million gallons of potable water that was not consumed! The major user was the golf course, which consumed almost 72 million gallons. Additional applications for replacing use of potable water with non-potable reuse water are continuously reviewed.

For more information, including help with your water management plan, please contact Richard

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A template for developing the plan, designed by the Installation Management Agency, is available at the CERL water conservation website, <https://eko.usace.army.mil/fa/water/>

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A goal for unrestricted site use, which is protective of human health. Using this cleanup criteria, approximately 5,000 cubic yards of lead impacted soils were estimated as requiring removal.

In accordance with the Interstate Technology Regulatory Council guidance “Characterization and Remediation of Soils at Closed Small Arms Firing Ranges” (January, 2003), Fort Lewis Public Works explored the option of reusing the contaminated soil at an active range at the facility instead of disposing of them at a hazardous waste landfill. This option brought a systems approach to the full life cycle management at range sites whereby limited waste is generated. No contaminated soil would be sent to hazardous or nonhazardous waste landfills. This resulted in no new clean soil required for range construction.

USACE worked with Public Works and Ecology to reach agreement of this innovative win-win approach that both protected the environment and minimized waste. Ecology accepted this option if the bullet fragments were removed from the soil and residual soils were treated to reduce leachability of lead to below hazardous waste levels.

Contract plans and specifications were



A representation of the bullets that were screened out.

then developed by a USACE performance-based contracting approach. Performance criteria included removal of lead contaminated to achieve cleanup criteria of 250 mg/kg under the MTCA guidance. Performance of bullet removal was specified by requiring treated soil portions to contain <0.1 percent bullet. Treated soil was required to also meet the Federal RCRA Hazardous Waste and State Dangerous Waste criteria. Recycling of the bullet waste stream was also encouraged.

The contract for the cleanup was awarded to TPA-CKY, an 8(a) MARC contractor with the USACE Seattle District in late 2004. Construction began in May 2005 and was completed in July 2005.

A power screen was used to generate three waste streams: Plus 1 _ inch, between 1 _ and 7/16 inches, and less than 7/16 inch. The 1 1/2” plus size gravel waste stream (about one third of the total volume) was clean and was left on site. Bullet fragments in the 1 _ - to 7/16-inch waste stream had enough steel that a magnet could be used to remove the fragments. The fragments were sent to a recycling facility and the remaining material left on-site. Soils passing the 7/16 inch screen were treated with 4 percent EnviroBlend to reduce leachability. The treated soil was then hauled to an active range on the installation and used to construct berms. The berms were



The treatment setup where the Enviroblend was added.

shaped per Fort Lewis Range Control specifications and hydroseeded. Physical location of the berms were surveyed using a GIS system and will be retained in the Fort Lewis Public Works Master Planning documents. Compliance of soil remaining in place was measured real time using the XRF and a statistically-based approach.

Total construction cost for this approach was approximately \$800,000. A more standard dig and haul approach was estimated at \$1.5 million, since soils would have required disposal at a hazardous waste landfill.

This combination of the Triad work strategy during characterization and cleanup, innovative cleanup solutions, and a performance-based contract resulted in the Public Works savings of approximately \$1 million. In addition, documentation of the implementation of this type of approach creates a knowledge base with the regulatory community such that future soil remediation at other sites can easily utilize a similar approach.

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Community conservation works at Fort Huachuca

Because of Arizona's unique geographical location, ecosystems, and climate, water is a hot commodity in the Grand Canyon State.

And to Soldiers training in the desert, water is even more vital.

This means that for installations like Fort Huachuca, located in southern Arizona, water conservation is a top priority.

At Fort Huachuca, water conservation is about more than compliance with regulatory discharge requirements and providing safe drinking water to the more than 11,000 U.S. Army and civilian employees and family members who live and work on the installation. Like other Department of Defense installations, Fort Huachuca has obligations beyond its boundaries. In this case, it is to be a good neighbor to the local population and the Upper San Pedro River, home to several federally listed endangered species, which are also dependent on water.

However, with the help of policy, technology and the community, Fort Huachuca is addressing water management issues head on.

"Initially, we started reducing our water pumping just to save energy. But what we found was there were some sensitive species in a nearby river, and our pumping actions and those of the people off post could contribute to reducing water flow in it someday," said Gretchen Kent, who serves as Chief of the Fort Huachuca Army Garrison Plans, Analysis, and Integration Office. "So, as good citizens, we started cutting back so we could share more water with the river."

Fort Huachuca implemented strict water use guidelines for post residents – families can only water their lawns two months of the year, and of those two months, only two hours a day, two days a week.

"If you are found watering out of hours, you're issued a citation. Three citations, and your unit gets to pay the cost to move you off post and you must pay for your own water," said Kent.

Fort Huachuca has a long list of successful and creative water conservation projects. For example, treated effluent is used irrigate the installation's golf course and excess water is used to recharge groundwater through basins at the installation's East Range. Detention basins have been built in the community, both on and off the installation, to efficiently recharge urban runoff water. Staff also initiated several demolition projects for abandoned WWII buildings, which allowed the installation to conserve water by capping off the old, leaky water lines.

The use of innovative technology is also a key component to Fort Huachuca's success. The installation installed artificial turf to lessen the installation's dependence on water resources. In addition, they installed a rainwater catchment system, or "drinker," in a waterless area to help sustain local wildlife that need reliable sources of water. The installation even uses specially designed appliances, including showerheads, urinals and front-loading washing machines, to further reduce its reliance on water resources.

But the installation's commitment does not stop at their fence line. Fort Huachuca also incorporated cooperative and community-focused activities into its water conservation program.

Fort Huachuca is one of 21 member agencies and organizations that make up the Upper San Pedro Partnership established in 1998, and is one of the six funding partners. The goal of the partnership is to ensure the water needs of the present and future population are met while protecting the watershed. The partnership serves as a platform to advocate water conservation activities in the area. Its priorities include the development of water management and conservation plans that identify actions that will help meet the Partnership goal, the identification of the hydrologic conditions necessary for a healthy sub-watershed, and the creation of opportunities for collaboration with Mexico and the public to further support the watershed.

Further, a dynamic Fort Huachuca program called Water Wise and Energy Smart, or WWES, supports activities that relate to education on water use reduction. This includes the provision of literature or related water conservation products, submission of service orders, audits or inspections of how water is used, recommendations on reduction in use, and assistance in the planning or execution of landscape renovation projects. WWES also has a web site that outlines tips for water and energy conservation. It can be viewed on line at <http://huachuca-www.army.mil/index.html>.

Funded by Fort Huachuca in cooperation with the University of Arizona Cooperative Extension, WWES also reaches into Fort Huachuca's school system. Water and Energy Conservation Educators are available to visit Fort Huachuca schools at no cost to enhance curriculum related to water conservation and the environment. Educators assist teachers with specific curricula about energy ➤



Fort Huachuca has installed artificial turf at this baseball field as a means to lessen the installation's dependence on water resources.



Fort Huachuca's Water Wise and Energy Smart, or WWES, supports activities that relate to education on water use reduction and targets. It has a specific program geared toward school age children.



Fort Lewis sets precedent by eliminating Title V Air Operating Permit

by Rena Ely

On July 28, 2005, the Puget Sound Clean Air Agency (PSCAA) Board of Directors unanimously approved General Regulatory Order No. 9185. The order allows Fort Lewis to manage air emissions as a synthetic minor rather than a major source of air emissions — setting a precedent for military installations never before seen until now.

“This accomplishment was made possible by [Fort Lewis] sustainability initiatives,” said Mr. Alan Butler, PSCAA engineer. “[These initiatives] have actually reduced emissions to such low quantities that Fort Lewis has created so much room for growth that they are nowhere near hitting their limits.”

Since implementing the Installation Sustainability Program in 2002, Fort Lewis has demonstrated steady progress in its 25-year goal of reducing air emissions by 85 percent. And while each new initiative has contributed to reaching the fort’s sustainability goals, nothing to date has had as broad an impact as the PSCAA’s approval to operate under General Regulatory Order No. 9185.

“The single most significant environmental success that has occurred in my two plus years at Fort Lewis, and we have had many, has been PSCAA allowing us to cancel our Title V Air Permit and operate as a synthetic minor source of air emissions,” said Steve Perrenot, Fort Lewis’ director of Public Works.

Title V Air Operating Permits are legally enforceable documents that permitting authorities issue to large air emission



Col. Michael K. Stephenson

“These permits cost Fort Lewis an additional \$30,000 to \$40,000 per year to maintain” said environmental engineer, Terry Lee, “and, until now, required regularly self-reporting any permit violation regardless of its severity.”

General Regulatory Order No. 9185 allows Fort Lewis the flexibility to resolve compliance issues internally as well as streamline their documentation process so that operators can do their primary mission more effectively. The installation is still required to monitor and maintain emissions data, which is subject to inspection by the PSCAA at any time.

According to Butler, “the limiting of Fort Lewis’ emissions to minor source levels allows the installation to minimize regular compliance as operations consistently fall below the threshold of many new and restrictive regulations that are currently being written by the EPA.”

Fort Lewis Environmental staff has taken a proactive approach instituting sustainable operations designed to go beyond

sources that have the potential to emit over 100 tons of any single air emission annually. Most large military installations have traditionally fallen into this category.

compliance with regulations. They are constantly looking for innovative ways to reduce emissions, such as converting boilers from heavy, high-sulfur fuel oil back-up, to light, clean burning, low-sulfur distillate fuel oil.

In addition, the switch to the use of paint containing Low Volatile Organic Compounds, Chemical Agent Resistant Coatings contributed to a significant decrease in air emissions. Other measures include education and outreach campaigns to curtail open burning, and increased usage of alternative fuel and neighborhood electric vehicles.

“Because Team Lewis stringently enforced the EPA rules on open burning and was able to reduce our air emissions significantly over the past two years, we have been rewarded for our efforts,” said Col. Michael K. Stephenson, Garrison Commander. “We have also demonstrated that we have the capability and capacity, environmentally, to take on more Soldiers at Fort Lewis if the Army needs us to.”

Thanks to this installation’s hard work and challenging sustainability goals, Fort Lewis did not merely achieve regulatory compliance – it far exceeded it, saving the government thousands of dollars and setting a new precedent for other installations to follow.

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and water designed to satisfy one or more Arizona state standards in math, science and/or language arts. They conduct classroom presentations, provide materials, and arrange field trips for students.

As a result of these collective efforts, Fort Huachuca has been able to cut its

water pumping from the aquifer by 50 percent, and overall consumption by even more.

Misha Turner, the Water Program Manager for the US Army Environmental Center, advocates Fort Huachuca’s approach to water conservation.

“There are few installations that have water issues on this level,” noted Turner.

“But the creative projects and approaches Fort Huachuca has taken to address its issues and its efforts to collaborate and involve the community make this effort much more comprehensive and therefore, that much more effective,” said Turner.

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Repopulation of local flora and fauna helps conserve water

by Andrew Stamer

An Army depot in Germany is putting the finishing touches into re-naturalizing a stream that will help protect the water supply.

The project at the 284th Base Support Battalion in Giessen, Germany, has two functions. One is to refashion the stream to its original condition and the other is to conserve the water and life in the area where the stream cuts through the base.

Water running through the depot will be preserved due to a process called flood desynchronization because the additional vegetation along the stream's banks hold back the water for release later, said Patrick Cagney, a biologist from the U.S. Army Corps of Engineers, Europe District.

Adding vegetation, which is a portion of the project, will conserve the waters viability and make it a better place for life. It will also prevent the stream's banks from eroding and running off into the water.

A team was formed to re-naturalize the 350 meters of the stream that pass through the depot, to include the City of Giessen, IMA-Europe (Installation Management Agency-Europe), the 104th Area Support Group, the 284th Base Support Battalion, and the Corps of Engineers' Europe District.

"There is a regulation within the State of Hessen, that once the use of a stream changes and you no longer need it, then you have to re-naturalize it or restore it, as close as you can, back to the original condition," said Cagney of the stream that was once used to feed a steam plant.

It was something the DPW wanted to do alongside the German authorities, and asked for help from Europe District.

"We had a good working relationship with the host nation since the beginning," said Thomas Cahn, chief, Environmental Management Office, 284th Base Support Battalion Directorate of Public Works.

In years past, it had been fashionable to take small streams and make them linear and line them with concrete, said Cahn.

Weirs (low dams) were also put in place in these streams, which obstructed fish movement, said Cagney.

Though these cosmetic features may

have seemed like good ideas at the time, it has turned out they weren't so good for these streams – causing them to flow too fast and overflow very easily, said Cahn, which is not good for water conservation.

"The water itself is in very good condition," said Konstantin Gross, environmental engineer, Environmental Management Office, 284th Base Support Battalion Directorate of Public Works, because no waste water is running into the stream.

The water's condition is a major factor and contributor in re-naturalizing the stream. Without the clean water, the task would be much more difficult, said Gross.

"Only a very small population of special kinds of fish can live in here, under this condition," said Gross.

Streams that have been lined with concrete and have had blockages put in become "sterile areas," said Cagney. That is one reason why the concrete is being replaced with local rocks and stones and local vegetation is being replanted along the banks.

The process of getting back to a functional condition takes effort.

Curves will be put back into the stream and it will be widened. Removal of the concrete will also help the water's ability to seep into the banks and ground and rocks will give a place for fish to hide, said Gross.

All of these factors will also help contribute to a much needed element for life – oxygen. The increased surface area allows the water to become more oxygenated, said Gross. The increase surface area also increases the humidity in the air with evaporation, which, in turn, will increase the plant population and increase the quality of the air as well.

"Our first thing is to get fish and the second thing is to let local flora and fauna re-establish," said Cahn.

While only a select few species of fish are able to live in this habitat now, after re-naturalization, it should be habitable for 10 to 12 different kinds, said Gross. More insect species will also be able to inhabit the area.



A backhoe is used to remove dirt and concrete and to widen the banks of a small stream running through the 284th Base Support Battalion in Giessen, Germany.



Local rocks and stones are put along the banks, while local vegetation is also being planted to help keep the banks from eroding into the stream and conserving the water's viability.

"You build up a place where different species can live. Some may come from upstream and some may come from downstream," said Gross.

It may take a few years for all these plants and animals to repopulate this portion of the stream, but projects, such as this one, are something the Corps of Engineers does as part of being good stewards to the environment, said Cagney. The repopulation of local wildlife will help keep the water in good condition.

"It really was a homegrown effort from the City of Giessen and ... the BSB. Without their help, we couldn't have done it," said Cagney. "I think it is a project that people enjoy working on."

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Unexploded ordnance removal project for Basic Combat Convoy Course construction at Camp Bullis

by Tim Bohannon

What if the area in which you planned on building was contaminated with potentially deadly Unexploded Ordnance (UXO)? In early 2005, that was the exact problem facing the U.S. Air Force Education and Training Command (AETC) and the U.S. Army Camp Bullis in San Antonio, Texas. The construction of the Basic Combat Convoy Course (BC3) training complex had been planned for some time, but the issue of UXO contamination at the planned construction site had yet to be resolved.

The BC3 complex is to be used to train Air Force security personnel in convoy escort operations. The training will support Operation Iraqi Freedom and Operation Enduring Freedom. Protecting convoys has been and remains critical to the overall success of our nation's efforts in Iraq and Afghanistan.

UXO exists in areas such as Camp Bullis that were previously used by the military for artillery training, bombing practice and ground ordnance operations. UXO can take the form of explosive or practice projectiles, bombs, hand grenades, landmines and other types of ordnance used for training (as well as battlefield ordnance). The UXO items, which lie on the surface or are hidden below the ground surface, needed to be removed before the construction of the BC3 complex could safely begin.

When faced with the challenges of building the BC3 complex on land contaminated with UXO, the Air Force turned to the U.S. Army Corps of Engineers, specifically the Munitions Response Team of the Southwestern Division. In 2003, the Team had effectively and efficiently executed a similar UXO removal project for the construction of the Military Operations in Urban Terrain (MOUT) complex at Camp Bullis. The 25-acre MOUT construction site was heavily contaminated with UXO, and the removal project cleared ten 75mm High Explosive projectiles as well as over three-hundred 75mm shrapnel projectiles from the site. At 130 acres, the BC3 site is larger than the MOUT site and similarly contaminated with UXO items.

To satisfy the Air Force's aggressive and demanding construction schedule, the Munitions Response Team moved quickly to review the design specifications, collaborate with the Air Force design team concerning construction needs, and develop an approach that would meet the schedule and safely remove the UXO to an appropriate depth to allow construction to proceed. Since there was no time to perform a standard investigation into degree and extent of site contamination prior to the removal, information about the contamination level found at the nearby MOUT site was used to plan the BC3 site UXO removal action.

The Munitions Response Team promptly hired a UXO contractor (MKM Engineers) who mobilized to Camp Bullis on January 10, 2005. With the Air Force Red Horse Construction Squadron right on their heels, the UXO contractor began the removal of UXO items from the BC3 site. The Munitions Response Team had to coordinate site activities on a minute-by-minute basis with the Red Horse team due to the required 700 foot safety zone associated with the UXO removal activities. When any non-essential personnel entered the safety zone, all UXO work had to cease. Therefore to remain on schedule, strict schedules and coordination had to be carried out at all times.

On February 22, 2005, the UXO team performed the last of their explosive demolition operations. In less than two months, 89 high explosive projectiles were destroyed, over 2000 expended 75mm shrapnel projectiles were removed, approximately 547 potential UXO items were explosively vented and over 13,000 pounds of ordnance related scrap metal was removed and recycled. The UXO removal project was completed on time, under



Subsurface anomaly investigation.



Preparation for venting of unfused UXO/MEC.

budget and with no injuries.

The 130 acres was turned over to the Air Force Red Horse Squadron and construction of the Basic Combat Convoy Course began. The U.S. Army Corps of Engineers Southwestern Division Munitions Response Team is proud of our contributions to the effort to construct a training facility needed to accomplish our nation's goals in Iraq and Afghanistan. For additional information, please contact Tim Bohannon, U.S. Army Corps of Engineers Fort Worth District, at (817) 886-1850, or e-mail: Tim.P.Bohannon@swf02.usace.army.mil.

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From Brostrom to Bay View – the 20th anniversary of Fort Ord's 2667 project

by Thomas Petersen

Déjà vu? The recent Army-wide flurry of activity to provide interim (manufactured) buildings to house the force is not entirely unprecedented. It has a familiarity to those who helped create a 220 home neighborhood at Fort Ord two decades ago and who, on Sept. 1, 2005, celebrated the 20th anniversary of the construction of Brostrom (now Bay View) Park.

This is a U.S. Army Corps of Engineers success story that has certainly been the testing ground for many of today's successful programs, including the Residential Communities Initiative (RCI). It began in 1984: The return of the 7th Infantry Division from Korea brought with it housing challenges which would continue for years in the expensive Monterey Peninsula community housing market.

The Director of Engineering and Housing, Col. Fred Meurer (currently City Manager for the City of Monterey and occasional guest speaker at Corps training seminars), was challenged by the Army Chief of Staff to provide additional on-post housing within a year. (MCA projects "in the pipeline" would eventually provide another 2,500 homes in the next few years, but the Soldiers and their families were there now!)

The process for the fast-track production of housing was Section 2667 of Title 10, USC (This statute, subsequently modified, has become the basis for the Army's innovative Enhanced Use Leasing (EUL) Program). Its application at Fort Ord was to lease 50 acres, a process which would allow a private developer to site 220 Fleetwood single- and double-wide manufactured homes and rent them directly to junior enlisted families for affordable rents. This was proposed by the developer and approved by the Army.

The lease was based upon a competitive RFP which included five criteria; site design, site engineering, timeliness of beneficial occupancy, initial rental rates and a formula for increases over the lease-term,

and optional facilities. The government emphasized that the target for this housing was for lower-graded enlisted personnel and informed prospective developers of applicable housing allowances. Rent structure was only one of the factors that would be used to select the successful developer. This emphasis on community facilities has, through RCI, been formalized in the Community Development Management Plan (CDMP).

Homes were manufactured by Fleetwood, Inc., at its Woodland, Calif., factory, trucked to Fort Ord where they were installed on foundations that were being prepared concurrently by the successful proposer, Ray Roeder, doing business as the RINC organization. The first families were able to move in four months from the start of construction, a record for Army family housing which presumably still stands. All homes were occupied by the end of 1985.

The park included laundromat facilities, RINC admin offices and a community center. The only protection offered to RINC was that, in the absence of military tenant demand, he could rent to nonmilitary personnel in the order specified in the lease. This feature was put to use after the Fort Ord closure as government civilian employees enjoyed first option to rent, followed by all potential tenants with no government affiliation.

The park remained 100 percent occupied by military personnel, with extensive waiting lists (managed by the Fort Ord Housing Office) from 1984 until the closure of Fort Ord over a decade later.

The Team—If you talked today about this project to any of the project development team about their recollections of



Home Sweet Home at "Brostrom" Park.

working together, a common thread would be the quality of the teamwork and the enthusiasm for breaking new ground. Under Sacramento District Real Estate Chief Morgan Wheeler and his Realty Specialist, Nicole Gauthier, the Corps creatively crafted a lease to the requirement at hand. An RFP was developed and "on the street" within 30 days of DA directive to proceed. Bill Reichsmuth, the overall DPW POC (who later became a colleague of DPW Fred Muerer in the City of Monterey), energized and coordinated all the necessary input from within the installation. The RINC organization, in turn, assembled an all-star cast; Lance Fry, an experienced residential park manager, was chosen to oversee construction, and Pamela Fry became the Office Manager.

Overcoming resistance to change — Tom Peters, the "In Search of Excellence" author (and onetime keynote speaker at the Professional Housing Management Association Professional Development Workshop), has reminded us, time and again, how essential it is to overcome resistance to change to assure the success of any significant new idea. The 1985 Brostrom Park manufactured housing project at Fort Ord certainly fit this model.

Born of a mission-driven urgency to house families of the 7th Infantry



(continued from previous page)

Division (Light), the process was simplicity itself. Take an existing law (Title 10, USC, Section 2667) and apply it to a project significantly larger than ever previously contemplated to create housing services for Army families. Construction and leasing of the housing would be performed by the developer, mostly in accordance with the well-established California codes.

And yet the cultural resistance was formidable. The Army (largely through less than positive experience with "trailer park" life outside many larger posts) had developed a bias against mobile homes which carried over to manufactured housing - a bias which is present today in the Housing Market Analysis (HMA) process: A mobile or manufactured rental home is, in 2005, still not counted as adequate community housing.

Resistance to the Brostrom Project also came from within the Corps hierarchy. It was a given that it would take some convincing to overcome the fear that the 2667 approach would fail - but it came as a surprise to encounter various individuals (including within the Pentagon leadership) *who were afraid that it would succeed!*

Simply put, the concept of an alternative to traditional MCA construction of family housing and the 4-5 year "requirements identification to beneficial occupancy" cycle was considered by some to be a threat to the way they had always done business. Beneficial occupancy in four months (yes, four months) instead of four years seemed to "red flag" the entire MCA bureaucratic process. Someone had perhaps invented a better mousetrap.

Fortunately, the project had its "heroes" who stepped up to support the project, both from the top (General John A. Wickham, Army Chief of Staff) and, at the installation level, Seventh ID Commander Major General William H. Harrison. MG Harrison was instrumental in convincing Forces Command to support the project. Once FORSCOM weighed in with their unequivocal staff support, it was clear sailing.

A final technical/cultural barrier to be overcome was in regards to codes and

inspections. A Corps project without a FAR-based contract and volumes of federal specifications to enforce? Actually, the sole federal code to be enforced was that which took effect in California in 1976. National Manufactured Home Construction and Safety standards, a uniform building standards enforced by HUD, applies to 97 per cent of all homes constructed in California factories

The leasing authority did not require compliance with the Davis-Bacon Act, and this did not go unnoticed. Eventually, Congressional pressure on the Army led to a conscious decision to discourage the use of 2667 for major projects.

Looking back at these barriers, it seems that many improvements from 2667 "lessons learned" have been a long time in coming. It is only with the current RCI that the Corps has finally accepted the applicability of local codes and standards over any federal construction regulations or policies. (RCI Standards Update #2: "New construction or major alterations must be completed in accordance with local building codes and standards.")

Market economics at work

The residential rental property vacancy rate in Monterey County, Calif., was holding steady at close to one per cent in the early 1980s. Construction of new rental units was severely constrained by water availability, sewage treatment capacity, political constraints on development, and, ultimately, the high cost of construction.

The Army, by proposing to develop Fort Ord land, was able to introduce key solutions to all the challenges faced by off-post developers. By subsidizing the market cost of land (charging \$1 for leaseterm for the 50-acre site) and making available excess well and sewage treatment capacities, significant subsidies were put in place to contain the pass through cost to the future Soldier family tenants.

In 2005, the Department of Defense was finally successful in eliminating all Out of Pocket expenses for rental housing. This predictability of BAH has, of course, become a key pillar on which the RCI rests. Such was hardly the case in 1985; the quarters allowance was unpredictable (arbitrarily

approved by Congress each year) and there was no assurance of its keeping up with area rental cost inflation.

Forerunner of RCI

Ray Roeder brought to the project a knowledge and appreciation of tenant concerns from his lifelong experience with the manufactured housing parks. He convinced the Army of the value of a laundry room for tenants and a community center as the social and administrative center of the park. The focus on partners jointly establishing a plan for common use facilities like this is now a formal part of the CDMP process in RCI.

Before and After

Barely ten years into the 25-year lease came the first major test of the survivability of the project. Fort Ord closure was announced under BRAC and the transition began from military to government employees (and ultimately to civilian tenants). Occupancy remained at 100%, and the park became Bay View, a housing area of choice for the Seaside and Marina communities.

More recently, in 2003, Roeder successfully completed long-running negotiations with the government which allowed the purchase of the government's residual interest in the 50 acre site and to proceed with his longer-range plans to continue its current use as a well-established and very-popular housing community, providing affordable housing to the adjacent city of Seaside.

The concept of private housing, built and maintained by the revenue stream of BAH, has grown from a small local initiative to a multi-billion dollar program which will, this year, encompass over fifty per cent of the Army family housing inventory.

The acceptance of private sector builders and managers as the best source of providing housing for our Army families has grown from a local initiative to the Army plan under RCI.

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Building on hallowed ground

by Chris Augsburger

For the 200 peaceful acres that have served as an official military gravesite for a century and a half, time has taken its toll. Arlington National Cemetery, the hallowed ground for historical figures in world history like John F. Kennedy, Oliver Wendell Holmes Jr., Thurgood Marshall and veterans of all the nation's wars, will run out of space by 2025, according to Katherine Welton, Baltimore District program manager for the cemetery. The cemetery ranks among the most visited sites in the capital, but these popular and revered structures are also showing their age, according to Welton.

This year, however, Baltimore District began a series of projects to address these two problems.

Construction began in the spring on a project called Land Development 90, which expands the acreage for ground burial by about 40 acres, allowing for 20,000 to 30,000 new gravesites.

"This is one of the biggest construction efforts we've done here at the cemetery, and we've had to be very inventive in how we deal with the drainage," said Welton.

Because the new land sits next to a major roadway and mass transit system, developing a drainage system for the space required a bit of engineering ingenuity. Welton and her team resolved the problem with a revolutionary new system called microtunneling. "We're using a microtunnel system rather than a standard jack and bore system for stormwater outfall," said Welton. "It allows us to go under Route 110 and the Metro, resulting in minimal, if any, settling," she said.

The Corps will encounter similar stormwater issues in another land development job slated to begin in 2008 that will expand the cemetery by 26 more acres. This expansion will consist of an in-ground interment area and columbaria-like niches in the surrounding wall.

The Corps' work at Arlington does not stop with creating new space. It encompasses other projects aimed at improving existing facilities that have worn down over the years, such as the Memorial Amphitheater Reception Building and the wall surrounding the cemetery.

Work to repair the reception building

represents the Corps' first design-build project at Arlington. It will address problems in the structure's roof, which have caused rainwater damage throughout the building, as well as a leaking, in-wall drainage system, and flooding in the women's restroom and the lower level crypt chapel.

"We were a little cautious about undertaking Arlington's first design-build project with a renovation of a historic building, but the past year has proved that it was the way to go," said Welton. "The true nature of the water infiltration could only be found with doing selective demolition — something that could not have been done if the building was open for use."

The Corps expects to finish the work in the reception building later this year, and the work on Land Development 90 by next spring.

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The U.S. Army Corps of Engineers began work in March 2005 to refurbish and repair the amphitheater reception building. (Photo by Chris Augsburger)



A contractor grades 40 acres of open land for new interments. The project, which is called Land Development 90, will open in 2007 and provide 20,000 to 30,000 new gravesites. (Photo by Chris Augsburger)



ACSIM revising, consolidating Army regs on Installation Management

by Philip R. Columbus

The Office of the Assistant Chief of Staff for Installation Management is nearing completion of a massive effort to revise and consolidate Army regulations affecting installation management. In the first phase of the effort, nine regulations from the Facilities and Housing Directorate have been edited, revised, and merged into one document. The revision has completed its internal review within OACSIM and will soon be staffed Army-wide.

The Deputy Assistant Secretary of the Army (Installations and Housing) directed this action following the organization of the Installation Management Agency. The formation of IMA required the revision of all Army Regulations to reflect the new reality of how the Army would manage and fund installation operations.

AR 420-1, Army Facilities Manage-

ment, will initially contain revisions of AR 420-10, Management of Installation Directorates of Public Works; AR 420-18, Facilities Engineering Materials, Equipment, and Relocatable Building Management; AR 420-49, Utility Services; AR 11-27, Army Energy Program; AR 415-15, Army Military Construction Program Development and Execution; AR 210-15, Housing Management; AR 420-90, Fire and Emergency Services; AR 420-70, Buildings and Structures; and AR 420-72, Transportation Infrastructure and Dams. The next phases will incorporate regulations from additional Directorates within OACSIM, the Chief of Engineers, and Chief of Army Reserves.

The new regulation fully incorporates the Installation Management Agency and its responsibilities. Also clarified are the roles of MACOMs that have retained com-

mand and control of installations. It features consolidation of roles, glossary entries, references, and appendices. Once reviewed Army-wide, the final document will be fully web-enabled. In addition to links to Army publications, references to documents and standards that are publicly available will also be provided.

In addition to the current revision, OACSIM plans to simplify the regulation. Currently, a significant portion of the regulation consists of procedural information which has accumulated within the current regulations over the years.

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Army study on source zone assessment and remediation

In early 2003, in an effort to obtain an unbiased scientific opinion, the U.S. Army Environmental Center (USAEC) asked the National Research Council (NRC) to study the technical and policy issues associated with dense non-aqueous phase liquid (DNAPL) source zone remediation. USAEC helped NRC formulate the objectives of the study, provided funding, and gathered remediation data from Army installations.

The completed report, titled *Contaminants in the Subsurface: Source Zone Assessment and Remediation* provides the most current, technically defensible information about source zone remediation and includes recommendations from the panel members on whether, under what conditions, and to what extent source remediation should be part of a ground water remediation strategy.

The report includes a discussion of the ability of various technologies to meet cleanup goals in a variety of hydrogeologic settings and represents a significant step forward in understanding the state of the science of source remediation and the related goals of life-cycle cost and risk reduction.

A copy of this document can be found at <http://www.nap.edu/catalog/11146.html>. For more information on the U.S. Army Environmental Center, see <http://aec.army.mil/usaec/>.

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CALL FOR

ARTICLES

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with POC (name, title, office) and author (name, phone, e-mail) information no later than **October 28, 2005**.



"The Army Suggestion Program (ASP) is designed to enhance morale by providing soldiers and civilians the opportunity to voluntarily take part in the improvement of the Army."

LTG James J. Campbell, Director of the Army Staff

Suggestion Program enhances quality of life and mission readiness

by Yi, U-Nan

How many times have you had an idea that could make your job a lot easier, a little safer, and more economical and effective? If a brainstorm suddenly hits, why not submit a suggestion?

The Army Suggestion Program (ASP) gives you an opportunity to help your installation, community, and unit. Great ideas improve the way the Army conducts its business and, ultimately, ensures readiness. In a memorandum to Army organizations, Lt. Gen. James J. Campbell, Director of the Army Staff, said, "I strongly support the Army Suggestion Program as a vital enabler to obtain involvement of all Army personnel in maintaining this great organization. Past suggestions submitted by our military and civilian employees have resulted in significant benefits to the Army. Likewise, I request leadership's active support in the ASP as an opportunity to make a difference that lead to improvements for the Army."

The ASP is a key tool that can be used to enhance well-being initiatives, nurture an environment receptive to quality-driven customer service and to improve operations during armistice and mobilization. If adopted, the "suggester" could be eligible to receive a cash award. The ASP is an incentive program that captures and implements the good ideas of military members and civilian employees. It invites the workforce to look for innovative ways to meet the many challenges of the new century – and beyond. With this as our starting point, let me tell you how easy it is to submit a suggestion.

Submitting a Suggestion

Submitting a suggestion is now easier than ever. The proponent of the ASP, the vice director of the Army Staff, Strategic Management and Innovations Branch, has created a web-enabled system that provides greater ease of submitting suggestions and quick turnarounds for the staffing, review, and evaluation of suggestions. The website is accessible through Army Knowledge

Online (AKO) at <https://armysuggestions.army.mil>. Automating the Army Suggestion Program permits a streamlined, "suggester" and "evaluator-friendly," paperless process. It also provides the Army with a historical database of suggestions and evaluations, thereby allowing the sharing of good ideas throughout the service department.

Civilian employees and active military members may participate in the program. A suggestion presents a solution to a problem, offers a benefit to the government, eliminates redundancies, increases productivity, and improves safety, working conditions, and morale. Suggestions that do not offer a viable solution or are simply complaints, illogical, vague; or they merely point out typographical errors in regulations are ineligible to participate in the ASP.

Creativity and thinking "out of the box" are essential elements to preparing a worthwhile suggestion. The best suggestions come from military members and civilian employees who regularly perform a specific task or function; they can readily point out obsolete practices, duplication of efforts, unsafe working conditions, or other inefficient and ineffective methods and procedures.

Having a suggestion on your mind is half the battle. You now have to logically transfer the idea from your mind to the ASP website. Succinctly state the current practice. Then, clearly write the suggestion. Provide enough details and facts to fully explain the problem or situation and the proposed solution. You may attach drawings, pictures, tables, charts, graphs or any other presentation media that will help the evaluator to better understand your suggestion. You should also include benefits, such as dollars or time saved.

Remember, you have to "sell" your suggestion to an evaluator. Give enough information to understand the problem or situation at hand, and the proposed workable solution.

The individual submitting a suggestion



Yi, U-Nan stands in the main foyer of the HQ KORO building.

has a sincere interest in improving the way the Army conducts its business. Submitting a suggestion is only part of the process, the idea has to be reviewed by an objective evaluator.

An evaluator is a subject matter expert in the specific discipline addressed in the suggestion. The evaluator is asked to use his/her specialized background to carefully read, review, examine, and comment on the merits of a suggestion.

How an evaluator reviews and comments on a suggestion has an impact on the person who submitted the idea as well as potential future "suggesters" and the Army as a whole. If an evaluator displays a positive attitude, then this will encourage others to take their responsibilities as evaluators seriously. Additionally, an encouraging corporate climate could promote the submission of more meaningful suggestions -- worthwhile ideas that can make a difference in way the Army operates during armistice or during contingency.

Evaluators should work closely with the ASP coordinator at each of the installations. They should look for reasons to adopt the suggestion, or for ways to modify the idea so that it will work. However, the integrity of the evaluation should not



Changes to standards for managing mercury-containing equipment

On August 5, 2005, the Environmental Protection Agency announced a new final rule entitled "Hazardous Waste Management System; Modification of the Hazardous Waste Program; Mercury Containing Equipment", 70 Federal Register 45507. This puts in place Federal regulations which allow mercury-containing equipment, such as manometers, barometers, and mercury switches, which are otherwise regulated as hazardous waste, to be managed under less stringent but equally protective regulations known as "universal waste" standards.

Though the rule is only immediately effective in a small number of states not authorized to administer the RCRA program, this is the first step toward encouraging nationwide adoption of similar standards. Because RCRA authorized state programs are required to be at least as stringent as federal RCRA requirements, it was necessary for the federal standard to change before states could follow suit.

The net effect of managing mercury-containing equipment as universal waste is expected to increase recovery and recycling of mercury because waste can be accumulated for longer time periods and transferred from handler to handler for consolidation.

Mercury-containing equipment typically exhibits a hazardous waste characteristic due to the mercury. However, when man-

aged as universal waste, handlers do not need to count mercury-containing equipment for purposes of determining hazardous waste generator status; have longer accumulation timeframes; can transfer mercury-containing equipment to another handler without using a hazardous waste manifest, transporter, or permitted treatment, storage, and disposal facility (TSDF).

On the other hand, owners and operators of "destination facilities" that recycle, treat, or dispose of universal wastes are subject to full hazardous waste treatment, storage, or disposal facility management standards.

The new rule defines mercury-containing equipment as "a device or part of a device (including thermostats, but excluding batteries and lamps) that contains elemental mercury integral to its function." Thus this category includes thermostats, which were already allowed to be managed as universal waste, but is expanded to include other types of mercury-containing equipment.

The rule addresses management of mercury in ampules or open housings in mercury-containing equipment, mercury ampules removed from equipment, open housings removed from equipment and immediately sealed, and ancillary parts of mercury containing equipment that may have mercury in them, such as valves. Any waste generated from handling of mercury-containing equipment, such as spill residue or equipment remaining after ampules or

mercury housings have been removed, must be evaluated to determine whether it is hazardous waste. If determined to be hazardous waste, the handler becomes the generator and must comply with all applicable hazardous waste regulations.

The rule includes provisions to protect human health and the environment including prevention of releases of mercury vapor. Requirements include:

- Containerization of leaking mercury-containing equipment, intact mercury-containing equipment with open housings, ancillary equipment, ampules removed from mercury-containing equipment and sealed housings removed from mercury-containing equipment.
- Sealing of housings containing mercury immediately upon removal from equipment.
- Containerization of equipment showing evidence of leakage, spillage, or damage that could cause leakage.
- Labeling of containers.

For complete details on requirements of the new federal rule, a copy of the Federal Register announcement may be viewed at: <http://a257.g.akamaitech.net/7/257/2422/01jan20051800/edocket.access.gpo.gov/2005/pdf/05-15437.pdf>.

For technical questions, please contact the USACE HTRW Center of Expertise at (402) 697-2559. **PWD**

(continued from previous page)

be compromised. Evaluators should thoroughly and objectively review and analyze suggestions based solely on their intrinsic values and merits.

Evaluators should not reject an idea because it is contrary to regulations, rules, or practices. They should be able to explain why the idea is unworkable, ineffective, or impractical. If an idea has merit, but regulations are in the way of its adoption and implementation, then the ASP Coordinator will forward the idea to higher command echelons for review and disposition.

The ASP enables military members and civilian employees to take an active part in the way the Army operates. The Army has benefited by past suggestions. Therefore, suggesters and evaluators help the Army to remain a viable force.

The ASP website makes submitting suggestions an easy process. All it takes is a little time to describe the current procedure, write an alternative method, and state the benefits of adopting the proposal. If an idea is adopted, then the suggester may be eligible for a cash award. Suggestions that are complaints, nebulous, or simply point out typographical errors are

ineligible to participate. Evaluators are key components to the Army's continued success. They help the Army to reap the benefits of good ideas that conserve resources or save lives on the modern battlefield.

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PWD



Using SIRRA to assess regional encroachment risks

by Natalie R.D. Myers

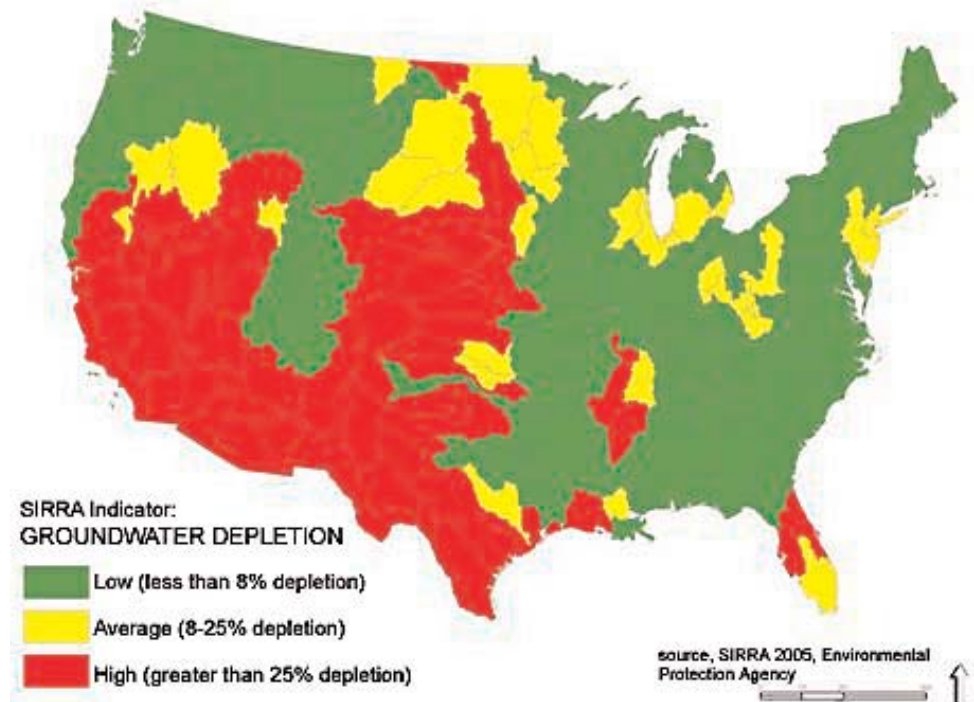
Declining water and energy supplies increasingly threaten mission activities at military installations, where availability of these resources often depends on regional conditions. The Sustainable Installations Regional Resource Assessment (SIRRA) tool helps gauge regional sustainability for military installations.

This web-based analysis tool was developed by the U.S. Army Engineer Research and Development Center's Construction Engineering Research Lab (ERDC-CERL). It uses nationally maintained data sets to compile data on 50 indicators in nine sustainability issue areas: air; energy; urban development; threatened and endangered species; locational issues; water; economics; quality of life; and, infrastructure. Each issue area is composed of a set of indicators. The SIRRA tool provides the actual numerical "score" and also depicts sustainability related to each indicator by using a red/amber/green classification that illustrates high/medium/low vulnerability.

For example, the water issue area includes level of development; ground water depletion; flood risk; low flow sensitivity; and water quality indicators. Energy indicators include electrical grid congestion; electrical reserve margin; renewable wind, solar, and biomass energy; electrical price structure (deregulation); and net metering.

A unique characteristic of SIRRA is a mapping function that graphically depicts regional sustainability strengths and vulnerabilities. Military installations are subject to regional sustainability pressures and trends. The SIRRA maps graphically show what is occurring in the vicinity of installations with respect to water and energy.

For example, an installation's watershed may receive a low vulnerability rating for water quality indicators. However, conditions may vary in adjacent watersheds. Looking at the bigger picture, it may be more beneficial for the installation to work for stricter state-wide water quality standards to promote healthy water supplies for long-term sustainability as opposed to lim-



iting efforts to better practices on-post.

Similar scenarios hold true for energy indicators. By looking at the larger region, installation decision-makers can quantify impacts that adjacent communities may have on vital resources. This visual framework helps installation, local, and regional planners collaborate on decisions, supporting joint efforts. Such cooperative dialogue is critical to heading off potential regional encroachment issues.

SIRRA has been applied to several different types of planning and analysis scenarios. These include support for installation sustainability planning; regional planning; stationing changes; force transformation; and base realignment and closure analyses.

The SIRRA tool was recently applied to Fort Stewart, Ga., as part of a modularity master planning charrette to evaluate the region's capacity for absorbing new troops. In this scenario, the region was generally characterized as an ideal location for an increased Soldier/family population. How-

ever, while weather conditions are conducive to training, the region might not necessarily be able to sustain the environment and the mission.

Sustainability issues with respect to increasing troop strength at the installation were evaluated using SIRRA. Energy indicators reflected high vulnerability to natural gas price variability, natural gas imports, and petroleum imports. These conditions relate to limited supplies and high local market demands. Applying specific knowledge of Fort Stewart to the analysis showed that the installation relies on biomass energy. This displaces significant amounts of natural gas consumption and gives Fort Stewart a better than average energy reliability and sustainability rating. Water supply appeared sustainable inside Fort Stewart; however, larger regional maps showed high vulnerability due to urban development and decreasing water quality in adjacent watersheds.

SIRRA has also helped to evaluate potential sites for a new bombing



Army Real Property Inspection Database offers 24-hour accessibility

by Claud Reindl

A recent issue of the *Public Works Digest* contained an excellent article by Mike Dean (Office of the Assistant Chief of Staff for Installation Management) concerning the inspection and maintenance of bridges and dams including safety, legal, and liability issues. The article is a worthy reminder that we must meet our statutory inspection requirements. With personnel changes and reorganizations at the garrison and higher levels within the Army, it can become arduous to maintain continuity for inspections.

Wouldn't it be great to have one location at which Public Works professionals could find current inspection data along with points of contact, and policy and technical links? Fortunately, the Engineering Knowledge Online (EKO) website already has these capabilities. The Installation Management Agency Northwest Region, with the assistance of the Construction Engineering Research Laboratory (CERL), is developing facility inspection databases, collectively known as the Army Real Property Inspection Database, or ARPID.

ARPID is not another software system. It can be thought of simply as an electronic file cabinet, with each "drawer" covering inspections for a given type of facility. The advantages of such a database include 24-hour accessibility by all who are responsible

for facility inspections, the generation of status reports for management use, and no loss of current data due to changes in personnel or reorganizations.

The ARPID databases will be directly accessible through the EKO website. The initial effort will be to gather information on the required statutory inspections for bridges and dams. The long term plan after capturing data on these inspections is to expand ARPID to include such data as the building structural safety inspections required in AR 420-70, Buildings and Structures, data on airfield inspections and railroads.

ARPID is not to be confused with the Installation Status Report (ISR) or the Real Property Inventory (RPI), since these two systems contain different or very much more detailed data than we need. However, the RPI is the basis for facility data in ARPID, since the RPI is the most accurate and basic facility database available.

To be of value, ARPID must be easy to use and helpful to the garrisons for real property management and planning activities. As inspection data becomes available, it will be a simple process to update the records. The website software allows for attaching reports, spreadsheets, pictures, etc. to individual facilities, such as a specific dam or bridge. Links can be provided to

Army regulations, technical manuals, or basic websites to help the user retrieve policy and technical information pertinent to the given facility type in question. Flexibility is a key advantage to the database. We can keep the basic data spread sheets format identical from installation to installation, but each garrison can decide what additional information they want via file attachments. This is analogous to having a hard copy data summary sheet in the same format for each type of facility, but the individual file folders can vary as to content.

ARPID will be the Army's central repository for storage of facilities inspection data; today, for inspections driven by law, and tomorrow to encompass all facilities inspections.

POCs at the Installation Management Agency Northwest Region (IMA NWR) are Claud Reindl, (309-782-8264), e-mail: claud.reindl@us.army.mil or Tor Brunso, (309-782-0686), e-mail: torkild.p.brunso@usace.army.mil. The CERL POC is Chuck Schroeder, (217-373-6726), e-mail: charles.g.schroeder@usace.army.mil.

Claud Reindl is a general engineer within the Public Works Division at IMA NWR. Tor Brunso is the Corps of Engineers Liaison Officer for the IMA NWR. Chuck Schroeder is the EKO site administrator. **PWD**

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range in the western United States. Three counties were considered for the new facility. A comparison was easily made between the counties through evaluations of sustainability indicators in SIRRA.

Future enhancements of SIRRA will include features to conduct sustainability analyses on a watershed basis; provide scoping support for National Environmental Policy Act (NEPA) analyses; and support regional sustainability analyses that will correlate indicators as a means to

predict the impact of alternative outcomes.

SIRRA alone does not provide a final "go/no-go" answer. However, it does contribute to the complex prediction process by identifying regional characteristics. Sustainability is driven by the actions of a set of regional stakeholders rather than by individual players. The SIRRA tool can provide invaluable guidance to reduce the time and cost of determining baseline conditions and establishing sustainability goals and programs specific to a sustainability issue.

SIRRA is part of the Fort Future technology suite designed to help installations and units plan for future requirements. Access to SIRRA is available through the Fort Future website: <https://ff.cecer.army.mil/ff/sirra.do>, or for more information, please contact Elisabeth Jenicek at ERDC-CERL, (217) 373-7238, Elisabeth.M.Jenicek@erdc.usace.army.mil.

Natalie R.D Myers is a Pertan contractor at ERDC-CERL involved with the development of SIRRA. **PWD**



New software improves central plants and thermal loop analysis

by Jim Dirks and Bob Dahowski

A new release of the Facility Energy Decision System (FEDS) software will soon be available. Significant advancements are being incorporated into the software with this release. The most significant area of improvement, developed with funding from the Installation Management Agency (IMA) Southeast Region (SERO) energy program, is a greatly expanded central energy plants and thermal loops module. SERO has used FEDS to complete site-wide energy assessments at 15 Army installations over the last 3 years. These assessments determined how energy is consumed at the site, identified the most cost-effective energy retrofit measures, and calculated the potential energy and cost savings.

FEDS 6.0 will now enable more detailed analysis of any number of central energy plants and their associated loops and can determine:

- The total load from all connected buildings and other central plant equipment, and changes tracked throughout the technology optimization process.
- The value of steam, hot water, or chilled water delivered to each building, considering central plant equipment types and efficiencies, source fuel costs, auxiliary power requirements, O&M costs, loop losses, and other parameters.
- The cost effectiveness of various decentralization options including:
 - Which individual technologies served centrally should be replaced with distributed technologies,
 - Which building sets should be decen-



tralized,

- Which thermal loops of a central energy plant should be abandoned with all attached buildings becoming decentralized, and
- Which central energy plants should be abandoned with all attached loops becoming abandoned and all attached buildings becoming decentralized.

This central plant and thermal loop analysis occurs automatically in conjunction with optimization of building energy systems. In addition to central plants and thermal loop analysis, FEDS is a software tool that quickly and objectively identifies building energy improvements that maximize savings. Due to the powerful inference engine, with limited user input, this program can:

- Develop a building prototype and engineering parameters.
- Model central energy plants and thermal loops.
- Calculate electrical demand and energy consumption.
- Determine potential retrofits and their cost effectiveness using federal life-cycle cost analyses as required in 10 CFR 436A and OMB Circular A-94 or assuming ESPC funding.
- Provide detailed analysis of single buildings or large installations with many buildings.
- Put you well on your way to meeting Executive Order 13123 requirements.

FEDS determines the optimum set of

cost-effective retrofits from a current database of hundreds of proven technologies. These include retrofits for heating, cooling, lighting, motors, building shell, and hot water. Replacement or modification considerations vary from complete replacement to functional enhancements to fuel switching. Optimization can be targeted to a single end-use, single building, or entire installation, and retrofit cost data can be modified to better represent costs at your site.

As with previous versions, FEDS 6.0 has been developed at the Pacific Northwest National Laboratory with the support of the Army and a number of other federal agencies. FEDS 6.0 marks a substantial step forward in the continued evolution of the FEDS software. Beyond the major central plant improvements, other enhancements to this new version include:

- Advanced building geometry capability – enabling detailed zonal specification of building geometry. ➤



FEDS training

FEDS software is provided at no charge for use on federally funded projects (or private projects that are part of federal programs) and those funded and directly performed by an agency of a state government. Copies of the software can also be purchased for other use. To obtain copies of the software, visit the FEDS web site or contact the Energy Efficiency and Renewable Energy Clearinghouse (800) DOE-EREC.

FEMP conducts FEDS training workshops, distributes the FEDS software, and provides technical assistance. Workshops provide hands-on experience and in-depth information on using the software to best meet your needs. For more information on workshops, visit the FEDS web site www.pnl.gov/FEDS. To register for workshops call the FEDS workshop registration (509) 372-4368.



New and improved Army energy and water data collection and reporting tool

The Department of Defense is required to report energy consumption and progress toward achieving energy reduction targets to DOE and Congress. For many years, the Headquarters Redesignated Army DUERS Data System (HQRADDS) has been used to meet this requirement.

In early August, HQRADDS was replaced by the Army Energy and Water Reporting System (AEWRS). Like HQRADDS, AEWRS contains Army installation energy and water consumption data, and each installation is responsible for inputting data into the system. AEWRS, however, has enhanced features such as the capability to generate automated reports (many of which are available in Excel format) on an installation, major subordinate command, MACOM, or total Army basis. Various government offices for energy conservation and other decision-makers can then access this information.

AEWRS is a self-contained application that does not require any software to be downloaded to the user's computer. AEWRS is also easy to use and navigate, and includes these features:

- Simplified login.
- Multiple record display.
- Automated unit conversion.

- Selected reports available in Excel format.
- Enhanced Help capability.
- No reporting of mobility fuel products.

Web-based training on AEWRS was provided to over 110 data reporters in July. The training tutorial is available online at <http://hqda-energypolicy.pnl.gov/training/aewrs.asp>. A listing of the questions and answers from the training sessions is also available at that site.

Future enhancements to AEWRS include making all reports available in Excel format, incorporating graphs, and interfacing with other systems such as ISR, IFS, NOAA, and FAS.

OACSIM is planning enhancements to AEWRS with the addition of an Engineer Data Base. This database will contain Region- and installation-specific energy- and water-related information that will be password-protected and useful for generating reports—such as the Annual Energy Report, and for general data tracking. Examples include ESPC, UESC and ECIP projects, installation characteristics (e.g., contact information, servicing utilities, etc.), renewable energy sources/projects and commodity purchasing data.

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New Army Energy Program communication and data tools

The Army's Office of the Assistant Chief of Staff for Installation Management (OACSIM) has added two new communication tools: the Army Energy Program website and the Army Energy Program newsletter. The Army Energy Program website contains up-to-date information on Army energy policies and programs. Topic areas include: Campaign Plan, funding and financing, awards, new technologies, and training and workshops, as well as hundreds of links to other useful sites. See the website at <http://hqda-energypolicy.pnl.gov/>

The Army Energy Program newsletter provides alerts of activities and accomplishments of the Army Energy Program as well as summarizes the latest useful information from the world of energy and energy/water efficiency. The newsletter is distributed quarterly via e-mail and is also available on the website at <http://hqda-energypolicy.pnl.gov/newsletter/>

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- New weather data – more than 400 weather data files covering several new data formats and over 60 additional weather locations.
- Replace on failure – the ability to force building technology or envelope retrofits or the abandonment of thermal loops and central plants.
- Enhanced occupancy definition – including 4-day workweeks plus more flexible seasonal occupancy modeling.

- Radiant and infrared heating technologies – modeled as existing and retrofit technologies.
- Enhanced output – including energy intensity and thermal loop details.

Together, these improvements make FEDS 6.0 more powerful and flexible than ever, and it is still just as easy to use. For a more information on what FEDS can do for you, along with a more complete listing of what's new in FEDS 6.0, please visit the FEDS website at

www.pnl.gov/FEDS.

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*Jim Dirks, (509) 372-4272, e-mail: jim.dirks@pnl.gov, and Bob Dahowski, (509) 372-4574, e-mail: bob.dahowski@pnl.gov, are responsible for the development of the FEDS software at Pacific Northwest National Laboratory. **PWD***



2005 Tri-Service Cost Engineering Workshop and Conference leverages change

by Kim Gillespie

Cost engineering is a difficult, but critical function in the engineering and construction professions. Adjustments for variables such as inflation are made, but sometimes unexpected market demand or other uncontrollable events can drastically change costs.

Despite these types of difficulties, the U.S. Army Corps of Engineers continues to find ways to better account for and make adjustments for these types of variables. This year's theme was "Levering Changes within the Cost Engineering Community."

According to Dwight Beranek, deputy director of Military Programs, Corps Headquarters, the bi-annual Tri-Service Cost Engineering Workshop and Conference provides a timely opportunity for cost engineering professionals to learn from each other about the latest trends, industry standards and new information technology. Beranek provided the keynote address for the conference that focused on cost engineers' forecasting. "It is so important for cost engineers to better forecast what the appropriate costs are for a project," Beranek said.

Beranek made two suggestions for cost engineers: "Cost engineers need to stay involved throughout the project, and they need to be constantly aware of the various forces that drive construction costs," he emphasized. Mark Shore, chief, Automated Systems Branch, Cost Engineering Division, Huntsville Center, echoed Beranek's sentiments. "We've seen the price of steel rise 40 percent in just a few short years, while inflation costs for material, labor and equipment were only adjusted about two to three percent per year based on DoD guidance," Shore said.

Demand for concrete has caused a similar rise in its prices. "We've seen the price of concrete increase about 10 percent," Shore said. Both Beranek and Shore agree that getting cost right and closely following

market trends will help adjust for these types of changes. "I also recommend that you notify the customer as early as possible when you see that the current costs estimates are beginning to rise above programmed amounts."

Conference presentations ranged from "Army Transformation Process: MILCON vs. Industry Standards," to "Tsunami Relief Efforts," to "Formerly Used Defense Site (FUDS) Cost to Complete Overview." Huntsville Center's deputy for programs and technical management, Dr. Michael Stovall, provided one of the Army Transformation briefings.

"Army Transformation and Modularity is probably one of the most important topics for Corps cost engineers right now," Shore said. Another hot topic at the conference was cost estimating needs for Middle East construction.

"Estimating projects there (Iraq and Afghanistan) requires different methods," Shore explained. Raymond Lynn, chief, Cost Engineering, Corps of Engineers Headquarters, is working with Huntsville to provide the tools necessary to work virtually within the Corps and especially to support the Global War on Terrorism in the Middle East.

One of the most significant events of the conference was the release of MII, the Corps' newest cost estimating software. MII computer-based training demonstrations were also conducted at the confer-



ence. "A Suite CD was issued to all government attendees, and a computer-based workshop was held," Shore said. Huntsville Center developed the data and database for the cost estimating software Tri-Service Automated Cost Engineering System (TRACES), which supports Corps cost engineers, as well as the cost engineers at the Air Force and Navy, and the Programming Administration and Executing (PAX) DD Form 1391 Processor System used for submitting military construction/funding requirements.

Because of the Corps role in Tri-Service software development, Shore and his Corps counterparts take the lead in organizing the conference and workshop held every other year. This year's conference was held in New Orleans June 28-30. "We had 122 participants, which is the largest attendance we've had for the conference," Shore said. Shore estimated that about one-quar- ➤



Register for Real Property Master Planning course

The Installation Support Training Division (ISTD) in Huntsville, Ala., has vacancies in the following FY06 course session:

CRS # 075, Master Planning
Session: 06-01
Dates: 05-09 Dec 05
Location: Portland, Ore.
Tuition: \$2,100.00

This course is an introduction to Real Property Master Planning for planners and Real Property Specialists at Army installations and Corps of Engineers district levels.

The goal of this course is to make planners more effective by providing them with the information, understanding and tools they need to operate within the Army Real Property Master Planning system. For non-planners, this course provides an overview of how an installation's planning is performed and how their organizations fit into the process.

Course Focus:

- AR 210-20, Master Planning for Army Installations
- Present the planning process/methodology in general and its application to the Real Property Master Planning process
- Role and relationship of real property planning to the Army's Planning, Programming, Budgeting and Execution System (PPBES)
- Explain the structure of the Army and its installations and how and where the facility planner fits in
- Teamwork and coordination
- Explain how to establish/manage the Real Property Planning Board
- Overview of sustainable development concepts

Course Credits: 2.5 CEUs, 25 LUs, and 25 PDHs

For more information about attending this course session, please call Sherry Whitaker, 256-895-7425 in the Registrar Division, Huntsville, Alabama. To enroll in the course, FAX a DD 1556 or MIPR to 256-895-7469. Credit Cards are accepted.

POC is Beverly Carr, Course Manager, 256-895-7432 or email: Beverly.carr@hnd01.usace.army.mil **PWD**

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ter of this year's participants were from the U.S. Navy, which also has a significant number of cost engineers.

"The Navy has its own cost estimating software, but the databases we use have the same information," Shore noted. About one-eighth of the attendees were from various other organizations. "Because we support the Air Force for its cost estimating needs, Air Force representation at the conference is limited."

But the tri-service spirit is strong. Shore noted that a finalization of the 2005 Base Realignment and Closure (BRAC) will bring more cost estimating needs. "Construction modifications, new construction, even cleanups all increase with the changes resulting from a BRAC," Shore said.

In addition to the wide range of presentations and workshops, cost engineers can also take the cost engineering exam to receive their cost engineering certification.

"This year we had four engineers to take the test," Shore said. The certification exam is administered for the Tri-Service cost engineering community of practice and is available to test and certify cost engineers for the Army, Air Force and Navy.

"Cost engineering is a complicated skill," Beranek said. "DOD uses our fore-

casting to put together its requests for appropriations and funding from Congress, so we are being held accountable."

Kim Gillespie is a public affairs officer at the U.S. Army Engineering and Support Center in Huntsville, Ala.

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2006 Public Works Digest Schedule

Issue Due	Theme	Articles
Jan/Feb	BRAC Update	Dec 30, 2005
Mar/Apr	Housing Issues	Feb 24, 2006
May/June	The Environment	Apr 28, 2006
Jul/Aug	Facilities Engineering	Jun 30, 2006
Sep/Oct	Energy and Water Conservation	Aug 25, 2006
Nov/Dec	Annual Report	Oct 27, 2006



Army holds annual Energy Forum

The Office of the Assistant Chief of Staff for Installation Management (OACSIM), in coordination with HQ Installation Management Agency (IMA), held its annual Army Energy Forum (Forum) August 18-19 in Long Beach, Calif., at the conclusion of the DoD/DOE/GSA-sponsored Energy 2005 Workshop and Exposition. Over 80 Army and federal agency staff participated in this year's Forum which was organized and managed for OACSIM by the Department of Energy's Pacific Northwest National Laboratory.

The highlight of the Forum was the presentation of awards to this year's winners of the 27th Annual Secretary of the Army Energy and Water Management Awards. Award winners were presented their plaques by Bob Sperberg, Chief, Facilities Policy Division, OACSIM. (See related article on the award winners in this issue of the [Public Works Digest](#)).

Don Juhasz, Chief, Utility & Energy, OACSIM, who provided an overview of the world's energy situation combined with several of his classic stories, opened the Forum. Don LaRocque, Chief, Public Works Division, HQ Installation Management Agency, provided an outstanding summary of IMA's energy related activities and progress. Brad Gustafson, Program Manager, Federal Energy Management Program, Department of Energy explained the impact on federal agencies of the recently passed Energy Policy Act of 2005.



Public Works Division Chief Don LaRocque updates participants on IMA's energy-related activities.

Other presentations included a summary of programs, progress and challenges from the IMA Regional offices that attended and the National Guard Bureau. Participating regions were SERO (providing entertaining insights), PARO (with positive program reports), KORO (with a very humorous update) and EURO (providing the cultural slice).

Additional special presentations by invitation from industry included Electrical Rate Analysis and Natural Gas Risk Management Strategy delivered by Ken Kincel of Decision Analysis Corporation and Scott McCain from Booz-Allen-Hamilton in the Thursday morning segment. Doug Dixon from PNNL, Alex Zhivov from CERL and Graham Parker from PNNL presented an electrical rate case study, an example of

long-range energy management planning, and a broad view of new, emerging and underutilized technologies that will cost-effectively save energy and water for the Army with demonstrations of the technologies by Graham.

Dave Williams, Hank Gignilliat, and Don Juhasz, all from ASCIM's Energy Team, provided presentations on the annual Army Energy and Water Reporting System (AEWRS), the proposed Utility & Central Energy Plant Modernization Program, the status of the Energy Conservation Investment Program (ECIP), and a discussion of changes to Army energy and utilities related policies and regulations.

A significant portion of the time in working sessions was spent on reviewing the progress on the development of the Army Energy and Water Campaign Plan for Installations (Campaign Plan) to include a surprise visit by a pseudo high-ranking four-star dignitary during "Operation Dog" hosted by Jim Paton and Don Juhasz from ACSIM. Attendees participated in breakout groups to review the five Campaign Plan initiatives and the associated action items for implementation of the initiatives. Comments on the action items will be incorporated into the next draft of the Campaign Plan. (See related article on the Campaign Plan in this issue of the [Digest](#)). The Forum agenda, presentations and photos are available for downloading at: <http://armyenergy.pnl.gov/forum.stm>.

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Workshop participants enjoy taking part in "Operation Dog."



Maj. Gen. Johnson selected as Corps deputy, Maj. Gen. Rochelle selected as IMA director



Maj. Gen. Ronald L. Johnson



Maj. Gen. Michael D. Rochelle

Maj. Gen. Ronald L. Johnson, director of the Installation Management Agency, has been selected to become the deputy chief of engineers and deputy commanding general for the U.S. Army Corps of Engineers, Washington, D.C. Maj. Gen. Michael D. Rochelle, commanding general of the U.S. Army Recruiting Command, Fort Knox, Ky., has been selected to become the next director of the Installation Management Agency.

Gen. Peter J. Schoomaker, the chief of staff of the Army, announced the change Aug. 16. The date for the change of director has not been announced.

Johnson has been IMA director since Aug. 9, 2004. Before his current assignment, Johnson served as commander of the Gulf Region Division, U.S. Army Corps of Engineers, while dual-hatted as U.S. deputy director to the Program Management Office, Coalition Provisional Author-

ity, Baghdad, Iraq.

Johnson also has served as director of Military Programs and G3 of the Corps of Engineers, responsible for policy, program and technical functions in the execution of over \$9 billion of design, construction and environmental programs for the U.S. Army, U.S. Air Force, Department of Defense, other Federal agencies and more than 60 nations. Other recent assignments were as commander of the Pacific Ocean Division, U.S. Army Corps of Engineers, and as assistant commandant, U.S. Army Engineer School and deputy commander, Fort Leonard Wood, Mo.

Johnson is the recipient of the 2003 Black Engineer of the Year Award for Professional Achievement in Government Service.

Rochelle assumed command of the U.S. Army Recruiting Command Jan. 7, 2002. As commanding general, he is responsible

for recruiting quality young men and women to serve in the Active Army and Army Reserve. Under his direction, five recruiting brigades conduct recruiting operations throughout the United States, Puerto Rico, the Virgin Islands, Guam, American Samoa, and at U.S. facilities in Germany and Asia.

A native of Norfolk, Va., and a graduate of Norfolk State University, Rochelle was commissioned as a Regular Army Officer in 1972. Rochelle served as operations officer, professional development officer, and ultimately as deputy chief, General Officer Management Office, Office of the Chief of Staff Army, the Pentagon. Assignments include command of the U.S. Army Garrison and installation at Fort Monroe, Va.; the senior military assistant to the deputy secretary of Defense, and as the special assistant to the deputy chief of staff for Personnel. **PWD**



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