

Public Works

D I G E S T

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U.S. ARMY INSTALLATION MANAGEMENT COMMAND

IMIGOM

Oahu Army Natural Resources Program Outreach brings volunteers onto Army lands in Hawaii for tours and to help staff with conservation work like planting native plants. Photo by Kim Welch. Page 28



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From the Editor:

The *Public Works Digest* started life as the *DEH Digest* in May 1988. To celebrate its 20th anniversary, the publication underwent "renovations" and is sporting a fresh look — an updated cover design, corresponding motif changes on the inside and full-color printing throughout. Plus, thanks to our wonderful contributors, this issue is also jam-packed with excellent articles on topics that concern the Army Public Works community every day. Please dive in and enjoy your encounter with the *Digest*.

Mary Beth Thompson



Environmental Transformation

by Maj. Gen. Merdith W.B. (Bo) Temple

A rmy Transformation has challenged Soldiers, civilians and contractors to embark on a new way of doing business, to seek ways to take industry and government best practices and turn them into force multipliers. For the U.S. Army Corps of Engineers, Military Construction Transformation has been most apparent in how we've changed our Military Construction program.

Base Realignment and Closure 2005, the Army's troop restationing, modularity and Grow-the-Army plans presented our Military Construction program with a wide array of challenges and opportunities. This means more than \$40 billion in Army Military Construction is required to meet these needs over the next five years. We realized that to be able to execute this huge construction mission, we had to change our processes, procedures and practices in order to provide facilities better, faster, less expensively, safer and greener. In short, we transformed.

And now, we're doing the same with our environmental programs. USACE is transforming its reimbursable environmental programs to ensure we are providing our customers with the consistent, efficient and effective services and products they expect and deserve.

Our goal is to align ourselves to execute our environmental mission by better supporting our customers. We will take advantage of the assets, workforce capabilities and resources found within the USACE Environmental Community of Practice to focus on national program initiatives while strengthening the execution of the Corps' environmental programs. We've coordinated this transformation message with all our environmental customers, including the Army Secretariat, to ensure we're meeting



Maj. Gen. Merdith W.B. Temple
Photo by F.T. Eyre

their expectations and will continue that coordination throughout our transformation.

This initiative is part of our continuing USACE Environmental Transformation program. Although we are currently focused on the Environmental Quality program (in partnership with the Installation Management Command's Army Environmental Command), this effort is an outgrowth of previous Environmental Transformation work.

To ensure we have maximized environmental services, met customer needs and cut costs, USACE embarked on the transformation of several functions. This led, in brief, to the following actions:

- In 2004, we created the Contract Acquisition Working Group, which reviews environmental contract requirements and facilitates collaboration between districts/regions to reduce contracting costs and ensure contract availability and capability worldwide.
- In 2006, we transformed the Formerly Used Defense Sites program, which regionalized the program management and execution, reduced the number of districts involved in the program, and secured efficiencies and increased effectiveness.
- In 2006, we established a Military Munitions Support Services strategy that took a comprehensive look at the various munitions services we were providing and established governance that is enhancing

efficiencies and effectiveness.

- In 2007, we merged the Hazardous, Toxic and Radioactive Waste and Military Munitions Centers of Expertise into the Environmental and Munitions Center of Expertise under the operational control of the U.S. Army Engineering Center, Huntsville, creating a synergy between Huntsville and Omaha District, which better serves our military and civil customers on environmental and munitions remediation and responses.

The EQ program, with its compliance, conservation and pollution prevention services, is the next function to transform. It's moving from a compliance-based approach to a more performance-based, sustainability paradigm. The program includes new supporting business practices, such as strategic sourcing, to leverage the buying power of the Army to maximize available funding. The EQ transformation concept represents the maturation of the environmental management of the Army's air, water and land assets. It's moving away from the traditional environmental mission area of compliance into the holistic, integrated planning approach embodied in the *Army Strategy for the Environment* with its focus on sustainability.

The Corps' efforts are designed to support IMCOM's efforts in this regard and to ensure that capabilities found within the Corps can supplement those found throughout the Army. Our new Center for the Advancement of Sustainability Innovations, located at the Construction Engineering Research Laboratory in Champaign, Ill., focuses the value of our Engineer Research and Development Center expertise, technologies and partnerships toward helping the Army achieve more sustainable facilities and operations.

ERDC's Construction Engineering Research Laboratory, with funding provided by the Army Environmental Command, is developing a construction and demolition waste management training program that will be applicable to both military ➤

Acronyms and Abbreviations:

EQ	Environmental Quality
ERDC	Engineer Research and Development Center
IMCOM	Installation Management Command
USACE	U.S. Army Corps of Engineers



Transforming the Army's Environmental Quality Program

by Col. Michael P. O'Keefe

Army Transformation represents a deliberate, strategic initiative to shed old concepts and processes so that we can successfully face an era of persistent conflict while laying the foundation for a lasting peace in the future. This Transformation represents the Army's most significant change in a generation; not since the transition from the Vietnam-era draft Army to our professional, all-volunteer Army have we seen as such change.

This change is complicated by the fact that we must be prepared for decisive engagement worldwide while we fight and win the protracted war on terror. Our Army has responded magnificently to this challenge.

Meeting this challenge will be assured only through the deep commitment of every member of the Army's uniformed, civil service and contractor forces. The operational Army has dedicated itself to Transformation, and our battlefield successes from the caves of Afghanistan to the streets of Baghdad testify to that fact. That



Col. Michael P. O'Keefe
U.S. Army photo

focus is now institutionalized in doctrine as the recent Field Manual 3.0, "Operations." This new direction is a revolutionary departure from past doctrine.

Those of us in the generating force of the Army are also being called upon to transform, to start a new direction. Our senior leadership has challenged us to better support our warfighters, to adapt and fully exploit technology, and to improve our installations' business processes. The Army created the Installation Management Command to answer that call for change. However, the creation of that command — as the Installation Management Agency — five years ago was just the beginning.

The environmental community has a chance to take this opportunity to drive change to transform our environmental quality program. You have nurtured the ethic of environmental stewardship within the Army so that it now has become an essential part of Army readiness and quality of life. In fact, your successes in moving beyond compliance to a mission-focused program have been the next logical steps in continuous process improvement.

However, to use military terminology, we haven't used our tremendous scope of effort and outstanding expertise to create "force multipliers." Instead we have a lot of "eaches" — individual successes providing value at different locations but not working together to become a force multiplier. We need to compliment grass-roots efforts with enterprise-wide solutions that move the environmental program forward for the best interests of Soldiers, their Families and the long-term mission.

Programmatic or enterprise-wide solutions are force multipliers. For example, the Army's Installation Restoration Program has been able to put more than 50 percent of its funds onto performance-based contracts. That change in acquisition strat- ➤

Acronyms and Abbreviations

IMCOM	Installation Management Command
ISO	International Standardization Organization

(continued from previous page)

construction and facility reduction programs for Army installations and Corps districts.

We also are continuing to transform how the Corps provides EQ and other environmental program services by:

- optimizing regional environmental support capabilities and restructure our headquarters to achieve consistent, efficient and effective services for our reimbursable customers;
- developing standard business processes for customer costs and to enhance our suite of contracting tools;
- seeking opportunities to better use liaisons and virtual teams when working with customers;

- implementing annual regional and national listening and exchange workshops with our customers; and
- continuing to support the Army's Small Business goals.

Because the Corps' environmental programs are diverse, we feel that to be more consistent, effective and efficient, we need to look at managing these programs regionally. This approach will leverage our districts' talents better and enhance the environmental services our nation expects during disasters and in support of warfighters.

We're working with IMCOM to transform the EQ program by October with initial operating capability in early fiscal year 2009. In the future, we will continue to transform other reimbursable environ-

mental services that we provide such as the Defense Environmental Restoration Program and Superfund.

You will be seeing more about all of these transformation initiatives in the coming months as we work them with our partners. We're looking to the future with our continuing transformation initiatives to make our environmental programs more consistent, efficient, effective and sustainable. We appreciate the terrific partnership and assistance we have received from our partners and customers and look forward to continuing to serve in a more environmentally sustainable way. Essayons!

Maj. Gen. Merdith W.B. Temple is deputy commanding general for military and international operations, U.S. Army Corps of Engineers.



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egy has allowed the program to redirect almost \$88 million from management costs to project work and roughly \$300 million of cost savings for direct reinvestment to site cleanup.

We have also addressed the preservation requirements of 54,000 historical buildings through centralized Armywide compliance actions. Innovative strategies cut the traditional cost of the environmental impact statement process in half for the programmatic Grow-the-Army study, and did it in record time.

Sustainability planning and execution is also a force multiplier and a critical component of transformation. By incorporating long-term sustainability goals in our strategic planning we are able to leverage critical resources to meet environmental and mission needs.

For example, we protected 81,000 acres from development around 23 installations, thereby limiting encroachment and incompatible land use. Back in 1999 at Fort Polk, La., 4,003 housing units were retrofitted with geothermal heat pumps, low-flow shower heads, compact fluorescent lighting and attic insulation, resulting in more comfortable Family housing and reducing CO₂ emissions by 22,400 tons per year at a reduced cost than other forms of heating.

In Hawaii, solar-powered Army Family Housing started providing 30 percent of community electric needs from photovoltaics in 2007, and solar hot-water heaters have reduced energy demands by 40 percent. At Fort Leonard Wood, Mo., 112 nontactical vehicles are using B20 biodiesel. An additional 209 vehicles are using E85, an ethanol/gasoline blend, on post.

Now, perhaps our greatest challenge in transforming to a sustainability-focused Army is to take great efforts at individual installations and better propagate those solutions. We will focus on spreading good ideas as well as on creating enterprise-level solutions that use IMCOM's "throw weight" to

help take these efforts to the next level.

Environmental quality transformation, therefore, must change our current business model to one which leverages the buying power of IMCOM to maximize the funding available and emphasizes the use of best business practices and innovations emerging from industry. We are in the initial stages of piloting the strategic sourcing concept for the acquisition of effective and efficient environmental products and services.

In part, environmental quality transformation is a maturation of the environmental management of the Army's air, water and land assets. Yet, it must also be a bold move toward the holistic, integrated planning approach that is embodied in the Army's sustainability strategy. By proactively applying enterprisewide innovations in an integrated way, we can create remarkable strengths as a "team of teams."

The adoption in 2001 of the International Standardization Organization 14001 Environmental Management Systems standard highlights the Army's recognition of the need to have a systematic and formal approach to the management of environmental risk. Since that time, progress continues to be made, with a focus on all installations achieving full conformance with ISO 14001 by the end of September 2009. Effective environmental management systems will also help installations achieve long-term sustainability goals and balance oftentimes conflicting resource requirements.

So, we must not hesitate to leverage our capabilities throughout our installation management enterprise to create a greater agility for our environmental program overall. By doing so, I believe the environmental quality program will achieve revolutionary results enabling the long-term sustainability of our installations and mission.

Sustainability awareness now resides in every facet of our installation and unit operations, from industrial operations to

live-fire training, from Family housing areas to our landfills. Strategic sustainability planning was born out of our installations' need to solve the problem of diminishing resources while supporting the Army's warfighting mission.

The Army defines sustainability for itself in terms of mission, environment and community, and IMCOM is the point organization for fostering a sustainability ethic and supporting sustainable practices for the Army. Sustainability touches every aspect of what we do on a daily basis, and sustainability awareness is an essential component of Army Transformation.

At the end of the day, business processes that synchronize and leverage grass-roots efforts with enterprise solutions will accelerate our progress toward sustainable installations. Done right, it is not just an evolution of environmental quality – it is transformational. And it is needed now to position our installations to support Soldier and Family readiness for generations to come.

Col. Michael P. O'Keefe, is the commander, U.S. Army Environmental Command. 

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5 ways to institutionalize sustainability into the Army

by Douglas A Warnock

Army sustainability is a national security imperative. The choices the Army makes today will affect its ability to function in tomorrow's global security environment of decreasing resources and increasing demand for those resources. To the Army, sustainability means using available resources wisely so they do not become depleted or permanently damaged for future generations, thereby compromising future mission requirements.

Sustainability impacts the institutional and operational missions of the Army, and implementing sustainability makes good business sense. This article discusses five ways the Army may institutionalized sustainability.

1. Vertical and horizontal approach

For the Army to achieve sustainability, it must take a holistic approach — vertically and horizontally — to inculcate sustainability operationally and institutionally. Vertically, the Army must take a “top-down” and “bottom-up” approach.

Top-down includes the promulgation of policy and direction from Headquarters, Department of the Army down through command channels. Institutionally, the top-down approach includes: HQDA, Army Commands, Army Service Component Commands, Direct Reporting Units, installations, garrisons and depots. Operationally, the top-down approach includes: the numbered armies, corps, divisions, brigades and battalions that conduct full spectrum operations around the world. A bottom-up approach occurs as installations and operational units execute sustainability initiatives with results of their successes and failures reported up the chain of command.

A cross-functional approach is necessary to institutionalize sustainability horizontally as well. This includes, but is not limited to, organizations and activities from: the G-1,



Douglas A. Warnock
U.S. Army War College photo

G-2, G-3/5/7, G-4, G-6, G-8; the assistant chief of staff for installation management; the chief of engineers; the assistant secretaries of the Army for Manpower and Reserve Affairs, Installations and Environment, Civil Works, Acquisition, Logistics and Technology; and Financial Management and Comptroller; the judge advocate general; the director, Army National Guard; the chief, Army Reserve; the surgeon general; the chief of Public Affairs; the director of the Army staff at HQDA and their respective counterparts at the lower echelons.

2. Training

The Army should integrate sustainability training into Army command leadership courses. Applying sustainability principles requires a new type of manager who is multiskilled, performs successfully in a results-oriented organization and is committed to life-long learning.

Skill sets of Soldiers and civilians will need to include sustainability concepts at the earliest opportunity. Examples of opportunities for Soldier and civilian education on sustainability principles are: the U.S. Military Academy, Basic Combat Training, Advanced Individual Training, Warrior Leadership Course, Basic Officer Leaders Course, Captains Career Course, the Civilian Education System and the senior officer and enlisted service schools.

Sustainability training for more senior level officers and noncommissioned officers should be offered at: the General Officer Installation Commander's Course; the Gar-

ison Precommand Course; the Directorate of Plans, Training, Mobilization and Security Course; the Garrison Command Sergeant Major Course; the U.S. Army War College and the Civilian Education System Intermediate and Advanced courses.

In addition, the Army should integrate sustainability principles into the Warrior Ethos and Army Values. The Warrior Ethos forms the foundation for the Soldier's spirit and total commitment to victory, in peace and war, always exemplifying ethical behavior and Army values. Applying sustainability principles to the Warrior Ethos and Army Values will better the personal and professional lives of our Soldiers and make the Army a better and even more respected institution.

3. Resources

The Army has enormous buying power, which it should leverage across its full spectrum of operations to include acquisition of sustainable weapon systems, green procurement, renewable energy, tactical and nontactical alternative fueled vehicles, and facility design and construction.

The Army should commit resources — funding and manpower — towards sustainability. The Army should provide funding for a sustainability program manager for each installation/garrison and operational unit, e.g. numbered corps, divisions, brigades and battalions as appropriate. The Army should provide dollars for a Sustainability Investment Fund.

The SIF should be used to provide seed money for and investment in sustainability projects such as solar power and alternative fuels, technology to design sustainable weapon systems and platforms, green building initiatives, Energy Star purchases, water savings projects and the *Army Sustainability Awards* program.

Moreover, installations and operational units realizing cost savings from sustainability initiatives should be able to, fully or partially, endow the savings back into the SIF, reinvest in other sustainability projects or ▶

Acronyms and Abbreviations

HQDA	Headquarters, Department of the Army
SIF	Sustainability Investment Fund



Sustainability: a personal commitment

by Melissa Iwamuro

When people are introduced to sustainability, two frustrations emerge. Most find the definitions too all-encompassing, and they want to know what real world impact can be realized on an individual level.

The *Army Strategy for the Environment* describes sustainability as “a sustainable Army [that] simultaneously meets current as well as future mission requirements worldwide, safeguards human health, improves quality of life and enhances the natural environment.” Sustainability means proactively planning for the future to ensure the long-term viability of the mission. It is an environmental management goal shift from preventing pollution and compliance to *sustaining our resources*.

These resources include:

- Facilities – the built environment
- Environment – the natural infrastructure
- Human – the workforce

On a personal level, sustainability is best realized in how everyday activities are accomplished at work, home and play.

For example, when you create a docu-



Melissa Iwamuro
Photo by S. Hayashi

ment at work, take a moment to think about how that paper came to be. What energy did it take to produce that piece of paper? What energy did it take to harvest the raw materials and transport them to a paper production plant, process them and get the finished product to the store? What energy did it take to get it from the vendor to your workplace and for you to process it to create your document? And when you're done with it, where does it go? What effort and energies were expended in each of those steps?

Although somewhat daunting, examina-

tion of the system within other systems gives an appreciation for that piece of paper. Giving thought to what it costs our planet to produce something helps people to examine and try to reduce the waste involved in their work. It makes them conscious of the resources involved and what long-term effects unsustainable practices will have on generations to come.

With this type of consciousness, everyone can contribute to the effort to reduce unsustainable practices that add up to a real world difference in natural resource consumption.

Take the eco-footprint quiz at <http://www.myfootprint.org/> to see what your personal impact is on the earth. Look for ways to reduce your waste. Some examples are:

- Know what you are personally using in natural resources and how they are produced and disposed of.
- Walk to lunch or meetings instead of driving when possible.
- Turn off the lights in areas used intermittently and change lighting to compact fluorescent lighting or other low-

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invest in other initiatives to enhance quality of life issues for Soldiers and Families.

4. Collaboration

The Army should collaborate with its sister services and other U.S. government agencies. Collaboration would offer an extraordinary opportunity for partnerships and information exchanges among all interested parties.

The Army, Navy, Marine Corps and Air Force share similar challenges to sustain their respective missions and operations today and into the future. Moreover, each service and interagency enjoys a certain amount of congressional support where a collaborative effort could realize synergetic benefits for all parties.

The Army should also participate with the Environmental Protection Agency

in its Laboratories for the 21st Century program to advance sustainable design concepts in high technology laboratories and facilities. In addition, the EPA has programs, policy tools and incentives to assist the Department of Defense and the other agencies to be good stewards of the Earth's resources and to make sound sustainable choices.

5. Strategic communications

The Army should develop a robust strategic communications plan. A strategic communications plan provides the directional framework needed to effectively communicate targeted messages to key internal and external audiences.

HQDA should develop a sustainability white paper and an informational brochure from the secretary of the Army and the chief of staff of the Army. Finally, Army

senior leaders should include the Army's sustainability efforts in their speeches, messages and briefings.

Achieving a sustainable Army will not take place overnight. However, the Army must move out today and institutionalize it, as there is an obligation to protect and preserve resources for future generation of Soldiers. All of us are, in affect, “leasing” the Earth today, and it is incumbent on the Army to be stewards of the resources for which it is responsible.

For more information on Army sustainability, visit the web site www.sustainability.army.mil.

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Community portal rejuvenates Defense environmental program

by Douglas B. Taggart and John R. (Rod) Dolton

Imagine the challenges associated with managing processes and data, communicating with, providing training for, and tracking and assigning roles for nearly 1,200 people spread across the country and its territories all trying to work within one government program. In the past, this huge task was accomplished using the telephone, e-mail and spreadsheets, making the Defense and State Memorandum of Agreement Program a paper-intensive effort that was cumbersome, clumsy and sometimes inaccurate. The administrative processes often frustrated its customers.

The DSMOA Program, established in 1986, is a federal grants program authorizing the Department of Defense to obtain the assistance of states and territories in executing DoD installations and Formerly Used Defense Sites environmental clean-ups. The program's goal is to expedite environmental remediation at Defense Environmental Restoration Program and Base Realignment and Closure installations by fostering cooperation between the DoD and the states and territories.

After signing a DSMOA with DoD, a state or territory applies for a cooperative agreement, which must be renewed every two years, to obtain financial assistance for its activities and services eligible under



The portal has been well received by the DSMOA community with an average of 120 daily users. Graphic courtesy of USACE Environmental and Munitions Center of Expertise

DSMOA. During the two-year cycle, more than \$80 million in DERP and BRAC environmental restoration dollars are reimbursed to states and territories via these agreements.

In the early 1990s, the Department of the Army was chosen lead agent to execute the DSMOA Program and delegated its execution to the U.S. Army Corps of Engineers. In 2003, Headquarters, USACE assigned that role to the Environmental and Munitions Center of Expertise. In addition to assuming the management role, the DSMOA Team took the initiative to rejuvenate the program using a web-based community portal as the centerpiece for the improvements.

Combining the desire for more effective and cost-efficient customer services, a keen understanding of processes, and the knowledge and power of automation, the DSMOA Team improved numerous administrative processes and developed and

deployed a variety of automated tools. The portal was developed over the past three years in a phased approach, so as not to disrupt DSMOA business.

The first primary objective was to electronically streamline the cooperative agreement application process. The six-step process, which extends over a year, provided the window of opportunity for the team to automate it during the application period. The online application process began in earnest in the summer of 2007 with Step 1 — states and territories indicating they wish to participate in the program.

Following the initial acceptance, the DSMOA Team succeeded in developing new online tools for each of the subsequent steps for a new 2008–2010 cooperative agreement to be issued in July of 2008. The complexities included:

- Step 2 development of more than 2,000 online state and DoD installation joint execution plans involving online

Acronyms and Abbreviations	
BRAC	Base Realignment and Closure
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DSMOA	Defense and State Memorandum of Agreement
JEP	joint execution plan
USACE	U.S. Army Corps of Engineers

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energy-use lighting in areas where lighting stays on for prolonged periods.

- Use the duplex printing feature to print documents or print documents only if you absolutely have to.
- Use recycled products to reduce the burden on natural resources.

For the Army, sustainability means being able to maintain the mission while simultaneously balancing the need for facilities, and environmental and human resources. Sustainability at the individual level is best enacted as a personal ethic.

Your impact as an individual is limited only by the actions you are willing to take. Start by learning more about sustainability

today at <http://www.sustainability.army.mil/>.

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Corps merges 2 cleanup centers of expertise

by Debra Valine

The U.S. Army Corps of Engineers combined two centers of expertise to form the Environmental and Munitions Mandatory Center of Expertise. The new CX, part of the U.S. Army Engineering and Support Center, Huntsville, Ala., joins the Hazardous, Toxic and Radioactive Waste Center of Expertise, based in Omaha, Neb., and the Huntsville Center's Military Munitions Center of Expertise.

The EM CX provides technical support to USACE, the Department of the Army and the Department of Defense on all issues involved with responses to environmental concerns, including hazardous, toxic and radioactive waste, military munitions and any constituents associated with military munitions.

The CX comprises more than 60 technical specialists including environmental, process, cost and chemical engineers; com-

pliance specialists; health physicists; geologists; explosives safety and environmental safety specialists; chemists; industrial hygienists; risk assessors; legal counsel; and program and project managers. Details about specific services and points of contact can be found on the EM CX web site, <http://www.environmental.usace.army.mil/>.

The EM CX provides high quality engineering, scientific and explosives safety support to environmental remediation, munitions response and compliance programs around the world. CX employees work with customers to attain solutions that benefit, protect and sustain the environment.

Four divisions make up the new CX. The Environmental Sciences, Environmental Compliance and Management, and



Dave J. Becker (right) of the EM CX talks to the operator about extraction well performance during a Remediation System Evaluation for a West Virginia project. Photo courtesy of U.S. Army Engineering and Support Center, Huntsville

Environmental Engineering and Geology divisions are located in Omaha. The fourth division, the Military Munitions

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coordination among more than 1,200 individuals;

- Step 3 state budget estimate development for each of the JEPs by the 52 participating states and territories;
- Step 4 online review and approval of those estimates by DoD, Army, Air Force, Navy, Defense Logistics Agency and FUDS components;
- Step 5 submission of state cooperative agreement applications; and
- Step 6 award of the state cooperative agreements.

The new automated process provided tremendous improvements over the former paper process, and saved time and money. Development and deployment was ahead of schedule and within budget.

The portal is easily accessible to all participants and provides the DSMOA community members with a wide range of capabilities. The portal capabilities include: comprehensive document management, real-time financial data, online training, invoice submission capabil-

ity, work-flow management, automated reports, auto e-mail notifications, JEPs, state budget estimates, DoD financial approvals and online cooperative agreement applications and awards.

As a result, there is now a transparent source of relevant, accurate information with customer-friendly directions to maintain up-to-date records of cooperative agreements and other DSMOA information.

The portal's value to the DSMOA Program can be measured in many ways, especially by the firsts that have been achieved. The automation effort connects the entire DSMOA community for the first time. By identifying more than 1,200 participants and their roles and responsibilities, the DSMOA Team created an invaluable resource that solves many communication problems.

DoD can now instantaneously communicate with the entire DSMOA community. This valuable resource is leveraged by DoD to assist in achieving the environmental remediation mission.

Congress requires DoD and the DSMOA Program to track all funding separately, requiring the team to manage 32 unique funding sources including: Army, Army BRAC, Air Force, Air Force BRAC, Navy, Navy BRAC, FUDS, Defense Energy Support Center, Defense National Stockpile Center and Defense Logistics Agency. Due to the development of the DSMOA financial database, for the first time, the financial data for each two-year cycle is available in a centralized location on the portal and can be easily and accurately queried for the annual report to Congress.

The DSMOA Team instituted a unique solution to past DSMOA business processes, creating a model for how federal agencies interact and do business with states and territories.

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(continued from previous page)

Division, is in Huntsville. Even though most employees will continue to work out of Omaha, they will be Huntsville Center employees. The director is based in Omaha, and the deputy director, who is dual-hatted as the Military Munitions Division chief, is located in Huntsville.

“Now having an integrated CX organization addressing both MEC (munitions and explosives of concern) and MC (munitions constituents) will make it easier,” said Kevin Coats, the acting director of the EM CX at the time of the merger. “We are organizing to be effective in completing the HTRW component of the Installation Restoration Program and settling in for the long term in addressing the Military Munitions Response Program element.”

HTRW history

The HTRW CX had its roots in the advent of the Environmental Protection Agency’s Superfund Program in 1980. The EPA turned to the Corps to provide design and construction oversight of hazardous waste cleanups under the Superfund Program. Headquarters, USACE chose the Missouri River Division to be the Superfund Design Center. Omaha and Kansas City districts were the lead districts for design, while geographic districts performed construction oversight.

With the passage of the 1986 Superfund Amendments, Congress added the Defense Environmental Restoration Program, which brought in requirements for DoD environmental cleanups. During the next four years, the missions grew large enough that other divisions needed to get involved.

“Since the programs were growing, Headquarters, USACE decided to decentralize the design function for DERP and Superfund,” Coats said. “This at the same time as making a strategic decision that a centralized technical QA (quality assurance) function would be created using Missouri River Division staff.”

For more than two decades, the HTRW staff dedicated itself to providing quality assurance and technical transfer support to Corps districts nationwide. They exper-

rienced many successes, supported many customers and worked on many programs.

“Our handling of the Formerly Utilized Sites Remedial Action Program was a huge success,” Coats said. Congress tapped the Corps to take over the program from the Department of Energy. The CX, under the general direction of Headquarters, USACE, transitioned the program from DOE.

The HTRW CX also used its expertise overseas by establishing the first Field Force Engineering Environmental Support Team in Iraq.

Military munitions history

As public access to land formerly used to train Soldiers in the use and handling of military munitions has increased over the past 50-60 years, so has the potential to encounter unexploded ordnance. To assist DoD and the Army in addressing this concern, in 1990, Headquarters, USACE established the Engineering and Support Center, Huntsville as the Ordnance and Explosives Center of Expertise and Design Center.

Since that time, terminology has changed. The Ordnance and Explosives CX became the Military Munitions CX and now the Military Munitions Division of the EM CX.

The Military Munitions Division played a critical role in assisting Headquarters, USACE to develop formal response policy and implementing guidance where none previously existed. The division has worked closely over the years with all service components, including the Base Realignment and Closure office, as well as state and federal regulatory groups.

Acronyms and Abbreviations	
CX	center of expertise
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DOE	Department of Energy
EM CX	Environmental and Munitions Mandatory Center of Expertise
EPA	Environmental Protection Agency
FUDS	Formerly Used Defense Sites
HTRW	Hazardous, Toxic and Radioactive Waste
USACE	U.S. Army Corps of Engineers

Good working relationships have been developed with the DoD Explosives Safety Board, the Army’s Technical Center for Explosives Safety, Headquarters EPA, the Interstate Technology and Regulatory Council, the Association of State and Territorial Solid Waste Management Officials and the National Association of Ordnance Contractors. These relationships increase communications and allow for open discussion of varied perspectives on the common goal to reduce the hazards associated with unexploded ordnance to the public.

“Huntsville Center began supporting the munitions cleanup problem in the 1980s after the death of two boys in the San Diego, Calif., community of Terisanta,” said Brad McCowan, a FUDS program and project manager. The CX developed the policies and procedures that the Corps uses to perform ordnance cleanups and investigations on FUDS, Base Realignment and Closure sites, and active installation range clearance operations.

During the 1990s, the CX developed mentoring materials and began the process of training and supporting Munitions Response Design Centers and Munitions Response Remedial/Removal Districts. USACE now has four conventional Munitions Design Centers, one Chemical Warfare Materials Design Center, seven Regional Business Centers and 14 FUDS project management districts that the CX supports.

The merging of the Military Munitions CX and the HTRW CX into the EM CX creates a synergy that better serves USACE entities, stakeholders, customers, the Army and the nation with an all-encompassing approach to environmental and munitions response and remediations.

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Right-sizing monitoring efforts for the long haul

by David J. Becker

Many installations conduct environmental, e.g., ground water or surface water monitoring, at ongoing cleanup actions or disposal sites that will continue for many years. These efforts represent a significant investment of Army resources — tens to even hundreds of thousands of dollars per year. As more sites have reached remedy-in-place status, there is increasing emphasis on assuring such long-term monitoring is conducted in an efficient way.

Optimization of the monitoring program can mean significant savings — often 20 percent or more in cost reductions are common. In addition, the data collected are better focused on supporting decisions to be faced in the future.

Long-term monitoring optimization is simply a matter of assuring that the monitoring data collected is adequate to meet the decision needs with the necessary level of confidence; no more, no less. The optimization includes an evaluation of the necessary sampling frequency and location network to assess redundancies and data gaps. In addition, the evaluation may assess the analytical protocols, field sampling methods and data management approach. The evaluation results in recommendations for changes that may decrease or, in some cases, increase the level of monitoring effort.

Many sites have inherited a monitoring program that reflects the site characterization phase of the project. By conducting LTMO, sampling frequency and location network may be reduced without a loss of information needed to make decisions about the operation of an engineered cleanup effort or the need for contingent actions.

In some cases, there are areas where uncertainties in the site contaminant concentrations are significant or where sam-



A contractor samples water for the Spring Valley project in Washington, D.C. Photo courtesy of U.S. Army Corps of Engineers, Baltimore District

pling frequencies do not provide adequate early warning for needed actions. For these cases, additional wells or more frequent sampling may be needed in portions of the study area.

To help guide the optimization efforts, the Environmental Protection Agency and the U.S. Army Corps of Engineers Environmental and Munitions Center of Expertise have jointly issued guidance addressing this need, *The Roadmap to Long-Term Monitoring Optimization*.

This document offers an overall approach to LTMO and provides references and links to useful tools, including public domain software. This guidance is available at <http://cluim.org/download/char/42-r-05-003.pdf>.

Though LTMO analyses can be conducted by experienced technical staff using their knowledge of ground water and contaminant behavior, there are software packages to assist with the analyses. Three of the available public domain tools have been developed under Air Force sponsorship, including the Monitoring and Remedia-

tion Optimization Software, available at <http://www.gsi-net.com/software.asp>; Visual Sampling Plan software, available at <http://vsp.pnl.gov/index.stm>; and the Geostatistical Temporal-Spatial software, available at <http://www.afcee.brooks.af.mil/products/rpo/ltm.asp>.

These tools, particularly the MAROS software, have been successfully applied to many sites and results for several sites are available at <http://www.ftrr.gov/optimization/monitoring/ltm.htm>. The GTS software and a new tool, the Summit Envirosolutions LTMO software, are being enhanced and demonstrated under the Department of Defense Environmental Security Technology Certification Program. For more information, see <http://www.estcp.org/technology/ER-Site-Characterization.cfm>.

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Acronyms and Abbreviations	
GTS	Geostatistical Temporal-Spatial
LTMO	long-term monitoring optimization
MAROS	Monitoring and Remediation Optimization Software



PWTBs: Practical information for environmental, facility managers

by Dana Finney

The U.S. Army Corps of Engineers publishes **Public Works Technical Bulletins** that provide useful, hands-on guidance, assistance and technology tips for military installation directors of Public Works and Corps districts. In the past two years, several PWTBs addressing environmental issues have been published.

Need to select native plants for training land rehabilitation? Wondering what type of detergent is best for a washrack? Thinking about deconstruction as an alternative to smash-and-trash?

It's all available on the Whole Building Design Guide web site. You can link to the PWTBs from the Construction Engineer Research Laboratory and Engineering Knowledge Online web sites: <http://www.cecr.army.mil> and <https://eko.usace.army.mil>. Recently published PWTBs include:

PWTB 200-1-40, **Characterizing Demolition Debris for Diversion Opportunities: World War II-Era and Korean War-Era Buildings**, provides guidance for recovering, reusing and recycling building materials typically disposed of as demolition waste; helps installations, Installation Management Command, and Corps districts implement practices to reduce the amount of demolition debris generated in removal of surplus buildings.

PWTB 200-1-44, **Recycling Exterior Building Finish Materials**, explains recycling and reuse options for exterior building finish materials, e.g., roofing and siding, used on Army structures.

PWTB 200-1-45, **Deconstruction of WWII-Era Wood Framed Buildings**, provides case studies and lessons learned on deconstruction of excess or surplus buildings at seven Army installations; offers detailed technical guidance for recovery, reuse and recycling of materials from building deconstruction.



One PWTB offers guidance for recycling deconstructed building materials, like this lumber salvaged from a warehouse at Fort Carson, Colo. Photo courtesy of U.S. Army Engineer Research and Development Center

PWTB 200-1-46, **Water Conservation and Water Efficiency Guidance**, promotes web site featuring current Army and federal guidance documents and links to other information sources related to water conservation and water efficiency; helps installations meet requirements to produce and implement a water management plan; also enables sharing of information from lessons learned within the Army community for determining and characterizing water consumption at facilities.

PWTB 200-1-47, **Guidance to Select Detergents for Use at Army Washracks**, presents results of a washrack detergent evaluation study sponsored by the Fort Benning, Ga., DPW that determined the relative compatibility of several detergents with oil/water separators and biological wastewater treatment systems; helps DPWs select cleaning products for washracks and maintenance cleaning facilities.

PWTB 200-1-48, **Opportunities for Reducing Construction and Demolition Waste from Residential Communities**

Initiative Programs, provides information for recovering, reusing and recycling building materials typically disposed of as demolition waste; enables installations to voluntarily implement practices, with their Residential Communities Initiative partners, to reduce the amount of demolition debris generated by removal of surplus buildings throughout their various construction programs.

PWTB 200-1-50, **Comparison of Solid Substrates for Collecting Military Smoke and Obscurant Chemical Deposition**, offers recommendations to help land managers assess the level of chemical deposition from smokes and obscurants used in military training in an effort to prevent ecological damage to natural habitats.

PWTB 200-1-52, **U.S. Army Installation Floristic Inventory Database**, describes a Microsoft Access database that integrates vascular plant lists from 18 Tier 1 U.S. Army installations in the United States; includes a hyperlink to the web-based database. ➤

Acronyms and Abbreviations

DPW	Directorate of Public Works
PWTB	Public Works Technical Bulletin



Bulletin addresses deposition from smokes, obscurants

by Don Cropek

A new Public Works Technical Bulletin, *Comparison of Solid Substrates for Collecting Military Smoke and Obscurant Chemical Deposition*, provides recommendations to enable land managers to assess the level of chemical deposits from smokes and obscurants used in military training in an effort to prevent ecological damage to natural habitats.

To provide realistic training conditions, military trainers use smokes and obscurants on Army training lands. Any time an S&O is used, an environmental release of an active chemical or compound occurs. Many threatened and endangered species inhabit these same training lands and are protected under the Endangered Species Act.

When data on the effects of the use of S&O is lacking, training may be restricted. The use of S&O as it relates to the survivability of threatened and endangered species and their habitats, including aquatic ecosystems, must be ascertained. To date, no studies have been done that describe a comparison of substrates that collect and release chemicals that deposit from these S&O in the field.

This bulletin investigates various collection media to determine optimal choices for the collection and recovery of the chemical deposition from the most common types of S&O: fog oil, graphite smokes and colored signaling smokes. Installations with training ranges can use this information to design experiments that quantify S&O chemical deposition during realistic training events with the goal of adjusting training events to mitigate potential effects to aquatic threatened and endangered species.

PWTB 200-1-50 can be downloaded from http://www.wbdg.org/cdb/browse_cat.php?o=31&c=215.

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Colored smokes are used for screening troops from view, signaling and marking field positions. U.S. Army photo

Acronyms and Abbreviations

PWTB	Public Works Technical Bulletin
S&O	smokes and obscurants

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PWTB 200-1-53, *Overview of Native Plant Species with Remediation Potential that have Applicability to Land Rehabilitation Objectives*, summarizes native plants that have both remediation potential and land rehabilitation value to address military land management objectives; species can allow land managers to passively address soil contamination by selecting plants that not only fit land rehabilitation objectives but have proven ability to reduce offsite migration of soil contaminants from training lands.

PWTB 200-3-49, *Range Repository and Guidance for Planning and Siting: Environmental Considerations for Military Installations*, provides information on how range design and the environment can influence the siting of ranges on military installations; conveys information encompassing primary environmental factors influencing siting, planning, design, construction, and operation and maintenance.

PWTB 200-4-42, *Selecting Archaeological Sites for Geophysical Survey*, presents practical guidance on how to identify terrestrial archaeological sites that are

good candidates for investigation, including an evaluation of their eligibility for the National Register of Historic Places, using geophysical survey techniques.

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Environmental and Sustainability Awards

Army rewards green success stories

by B. Noël Boyne

Arrmy programs making strides in endangered species protection, historic preservation, waste reduction, environmental cleanup and pollution prevention earned Pentagon recognition in February when the Army announced the winners of its highest honors for environmental stewardship. Five installations, three teams and one individual received fiscal year 2007 *Secretary of the Army Environmental Awards*.

The winners are:

Fort Hood, Texas, exceeded the Army Sustainable Development and Design policy by planning all new construction projects to meet Leadership in Energy and Environmental Design standards, earning them the *Environmental Quality, Non-Industrial Installation* award.

The **U.S. Army Garrison Daegu, Korea**, Environmental Quality Team implemented a successful, Qualified Recycling Program that won the *Environmental Quality, Team* award.

Redstone Arsenal, Ala., won the award for *Cultural Resources Management, Installation*, in part for its efforts to preserve and raise awareness about archaeological resources.

The **Natural Resources Conservation Team, Pennsylvania Army National Guard** won the *Natural Resources Conservation, Team* award, in part for finding a



The Secretary of the Army Environmental Awards program supports the Army's mission to sustain the environment for a secure future. Graphic courtesy of the U.S. Army Environmental Command

way to protect the habitat of the largest known colony of the diminishing regal fritillary butterfly while maintaining its training doctrine and realism.

The **Research, Development and Engineering Command M115A2/M116A1 Simulator Perchlorate Replacement Team** won the *Excellence in Weapon System Acquisition, Team* award for finding a "green" oxidizer replacement for perchlorate, a pollutant used in ground burst projectile and hand grenade simulators.

Camp San Luis Obispo, California Army National Guard protected the feder-


ally endangered red-legged frog by maintaining the environmental health and quality of their lands through erosion-control methods, earning them the *Natural Resources Conservation, Small Installation* award.

When the **Aviation Classification Repair Activity Depot, Connecticut Army National Guard** found a more environmentally friendly chemical-agent-resistant coating system to paint Army aircraft that was just as effective as the old method, they significantly reduced air pollution and groundwater contamination and earned a *Pollution Prevention, Industrial Installation* award.

Fort Ruger, Hawaii, won the *Environmental Restoration, Installation* award for developing its firing ranges into a state park by excavating and cleaning contaminated soil and hydroseeding the land with native grass species.

James G. Arnold, an environmental restoration manager at the Oregon Army National Guard won the *Environmental Restoration, Individual* award after advancing a plan to use new soil-washing technology for range soil remediation and establishing a landfill capping initiative.

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Fort Hood LEEDs Army in environmental stewardship

by Kristin Miller

Fort Hood, Texas, is improving the quality of life of Soldiers and Families living on the installation through environmental planning. As the Army transitions to the U.S. Green Building Council's Leadership in Energy and Environmental Design rating system for military construction, Fort Hood is incorporating LEED criteria into the Comprehensive Army Master Planning System. CAMPS is an interactive, web-based tool

that assists in decision making and builds efficiencies into everyday planning to create and maintain a sustainable installation.

Fort Hood plans to be the first Army installation to build and certify a LEED Silver-level building under the statutory limit of \$750,000 following the release of the Army requirements. The data collected from the LEED building will be analyzed and compared to conventional buildings constructed on Fort Hood.

"Fort Hood is demonstrating that a base can focus on the long term environmental sustainability of its facilities while enhancing their suitability for the Soldiers, civilians, Families and neighbors, and ➤

Acronyms and Abbreviations	
CAMPS	Comprehensive Army Master Planning System
EMS	Environmental Management System
LEED	Leadership in Energy and Environmental Design



USAG Daegu shares green practices with students

by Deborah Elliot

U.S. Army Garrison Daegu, South Korea, is not only dedicated to being good neighbor to its host nation by being good stewards of the environment, but it also is committed to teaching South Korea's future leaders about its "green" programs.

The garrison's environmental quality team sponsored six Kyung Pook National University student interns. The interns spent a total of 1,990 hours volunteering with the environmental staff, working in various environmental media areas such as drinking water quality, hazardous-waste operations and natural resources. The internship program offered students an opportunity to witness and learn about Army environmental practices and culture

first hand and receive college credit.

USAG Daegu's educational outreach did not end with university students. The environmental quality team also provided classroom instruction on garrison environmental activities to the Daegu American High School's Advanced Placement Environmental Science Class. Students learned about environmental technology careers and witnessed a hazardous material spill response exercise first-hand.

"The environmental quality team's work with Korean students supports our efforts to be good stewards of Korea's lands, because these kids will grow up and practice what they learned here," says



Students receive a briefing on land farm operations and soil testing by USAG Daegu's Environmental Division and U.S. Army Corps of Engineers personnel. Photo by Kim Chom Tong

Davis D. Tindoll Jr., director of the Installation Management Command, Southeast Region. "Our team is showing our host nation that we can successfully protect their lands and share our practices with others to ensure environmental well-being in Korea long after we're gone." ➤

Acronyms and Abbreviations

USAG	U.S. Army Garrison
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reducing potential pollution impacts from its daily activities," said Thomas W. Easterly, commissioner, Indiana Department of Environmental Management.

Buildings that meet LEED sustainable construction standards typically consume 30 percent less energy and use 20 percent less water than the average. LEED buildings also must comply with American Society of Heating, Refrigerating and Air Conditioning Engineers Standard 62.1-2004, designed to improve ventila-

tion for indoor air quality, and therefore human health and productivity.

LEED construction efforts are part of the installation's Environmental Management System, which focuses on air quality, energy management, pollution prevention and water quality. Fort Hood's EMS determined that these environmental quality aspects most affect the mission and quality of life of the installation's Soldiers and other inhabitants.

Through its EMS, Fort Hood is also making strides in waste reduction. Fort Hood analyzed its various waste streams and then implemented reuse and recycle initiatives that saved 3 million gallons of water and recycled 1 million gallons of hazardous waste.

Although the environmental team is responsible for environmental compliance, everyone at Fort Hood has a responsibility to the Army's environmental program. Formal training sessions and briefings were given to Soldiers, Families, civilians and contractors ensuring environmental awareness across the installation and


helping to reduce the overall environmental impact.

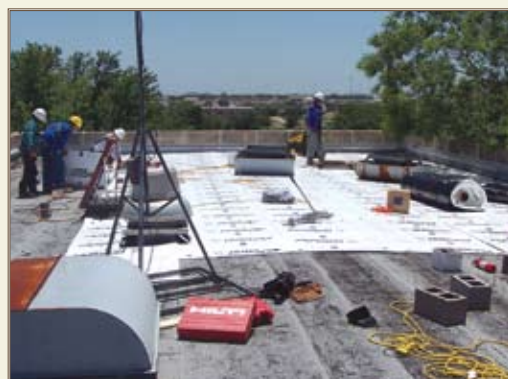
The environmental team at Fort Hood is diligent in ensuring that new and returning personnel are educated and updated on the environmental requirements of their organizations and that all community members have the opportunity to learn about and practice sound environmental stewardship.

Serving the needs of more than 240,000 people, Fort Hood is making environmental responsibility fun. Communitywide events such as Earth Day, Science Day and Texas Recycles Day help educate hundreds of Families each year.

Its waste reduction, public awareness and green building efforts earned Fort Hood the *Secretary of the Army Environmental Award for Environmental Quality, Nonindustrial Installation*.

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Workers construct a LEED building at Fort Hood. Photo by Christine Luciano



Redstone preserves local history

by Deborah Elliot

At Redstone Arsenal, Ala., students of all kinds — young and old — can touch and see ancient Indian artifacts or help recover the remains of a 19th century homestead. That's because, in addition to being the home of the Army's aviation, missile and space commands and NASA's Marshall Space Flight Center, Redstone Arsenal is also the home of nearly 1,000 archaeological sites, 418 of which are potentially eligible for listing on the National Register of Historic Places.

These archaeological sites were identified during a comprehensive survey that is part of Redstone Arsenal's award-winning cultural resources management program. Knowing where the precious artifacts were buried or located on the 38,000-acre arsenal was the first step in preserving them for posterity.

"Back in the day, we would have surveyed a little bit of the area at a time prior to specific construction projects or other activities that would impact those areas," said Daniel J. Dunn, Redstone Department of Environmental Management's Cultural and Natural Resources Branch chief. "But since the mid-1990s, we changed our strategy to surveying the entire installation. In so doing, we have a more comprehensive picture of what we've got."

If having the big picture is the first step, the next step is figuring out how to preserve the sites that can still contain important new information, especially since Redstone Arsenal is a military installation.

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One of garrison's most successful environmental programs is its Qualified Recycling Program. By aggressively recycling highly reusable materials such as wood and plastic, and hazardous materials such as batteries, the garrison has increased its landfill diversion rate by 250 percent in just two years.

The environmental quality team is also eliminating the risk of contamination in the local community's drinking water sup-

Dunn and his staff worked out an innovative programmatic agreement with the Alabama State Historic Preservation Office that allowed them to capture the cultural details of historic sites and preserve representative samples of the sites without having to preserve each and every artifact in place.

The result is a win-win situation for the community and the Army. The history of the Redstone Arsenal area is documented in detail for the community, and obstacles to mission support activities being conducted at the Redstone Technical Test Center and other tenant agencies are removed for the Army.

"Redstone Arsenal's work to develop a programmatic agreement and implement creative mitigation strategies through consultation is to be highly commended," said Kelly Yasaitis Fanizzo, a specialist with the Advisory Council on Historic Preservation.

The cultural resources staff has also worked on a memorandum of agreement that covers almost half of the arsenal's historic buildings. The agreement streamlines the process that determines how Redstone can renovate or demolish certain classes of old buildings that qualify as historic places simply due to their age. At Redstone, this class of buildings includes 383 World War II-era ammunition storage igloos.

The human element in the cultural resources management program extends

ply and soil by upgrading or removing fuel oil above- and underground storage tanks. To date, it has salvaged 30 above-ground tanks from Camp Hialeah and replaced another 48 aging tanks.

Contracts awarded in 2007 replaced an additional 26 tanks and began the work of converting from a fuel-oil system to natural gas, resulting in the removal of the remaining 32 heating-oil underground tanks at Camp Carroll. In total, USAG Daegu has reduced the number of its underground storage tanks by 90 percent.



Redstone archaeologist Ben Hoksbergen demonstrates pre-historic fire-making technology to local students at the garrison's April 2007 Earth Day celebration. Photo by Emmett L. Given

from state and federal agencies to the local community. The Redstone Cultural and Natural Resources Branch organized a volunteer archaeological excavation for Alabama Archaeological Society members and civilian Department of Defense employees and their families.

Local schoolchildren were also able to watch a demonstration archaeological dig and learn about archaeological conservation when the installation established an Indian Education/Archaeological Resources Outdoor Classroom. The center piece of the outdoor classroom is a full-size replica of a Late Mississippian Period wattle-and-daub house constructed by Redstone staff and volunteers.

The outdoor classroom and Redstone's yearly Earth Day celebrations give local schoolchildren and the surrounding

The environmental quality team took the *Secretary of the Army Environmental Award* in the *Environmental Quality, Team* category, in part, for its commitment to the environment through education and sustainable initiatives.

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Fort Indiantown Gap provides refuge for rare butterfly while training Soldiers

by Deborah Elliott

When it comes to military training in Pennsylvania, there's no better place than the Army National Guard's Fort Indiantown Gap. The installation is the key training center for 18,000 Pennsylvania guardsmen each year. Soldiers aren't the only inhabitants at the installation, however; it turns out that there is no better place for the rare, regal fritillary butterfly.

In fact, Fort Indiantown Gap supports the largest regal fritillary population east of the Mississippi River. The regal fritillary butterfly, a Pennsylvania state species of concern, exists there because of the installation's grassy ranges, but those grassy ranges provide the Army's only live-fire, maneuver training site in the state.

Therefore, the installation's natural resources conservation team has the challenge of protecting this beautiful insect while providing the landscape in which National Guard Soldiers train for war. And, the team has met this natural resource challenge so successfully that it earned the Army's highest honor for environmental stewardship in 2007, the *Secretary of the Army's Environmental Award for Natural Resources Conservation*.



The largest documented population of the regal fritillary butterfly is protected at Fort Indiantown Gap, Pa. Photo by Joseph Hovis

Every acre of the post is needed in some way to support realistic training for National Guard Soldiers.

"If we could, we'd just set the grassland aside for the regal fritillary butterfly," said John Fronko, environmental program manager for the Pennsylvania Army National Guard, and leader of the natural resources conservation team. "Since land is a finite resource around here, though, we put our heads together and found a win-win solution for our Soldiers and our butterflies."


One solution is virtual mine fields. Fronko said the installation avoids mechanized training on 219 acres to preserve butterfly habitat by assigning some of that area as virtual mine fields in training exercises.

"That way we are still able to maintain realism and meet our training doctrine requirements at the same time," he said.

Another solution to keep the regal fritillary butterfly off of the endangered species list is transplanting a colony of the butterfly elsewhere in the state. The Gap's natural resources team is working with the Nature Conservancy to introduce the butterfly at Gettysburg National Military Park.

In addition to the regal butterfly, the natural resources team manages 96 other state species of concern on 17,000 acres of the most biologically diverse ecosystems in the state, including forest, grassland, scrubland, savanna and wetlands.

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community the opportunity to attend lectures and demonstrations that outline the history and importance of cultural resources.

Redstone's archaeological initiatives earned a *Secretary of the Army Environmental Award for Cultural Resources Management*. Their efforts showcase the respect the Army has for the community and archaeological conservation.

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Research command crafts environmentally safer training grenades

by Stephen Rochette

Two of the Army's simulation devices just got greener. Thanks to the efforts of U.S. Army Research, Development and Engineering Command's Perchlorate Replacement Team, the ground burst projectile simulator and the hand grenade simulator will be constructed using more environmentally friendly materials.

The M115A2 ground burst projectile simulator and the M116A1 hand grenade simulator will now be produced without perchlorate, an energetic



Four M116A1 simulators mimic an attack on a convoy. Photo by Cpl. Jeremy Ross 



Camp San Luis Obispo defends endangered species

by B. Noël Boyne

Ecosystem management at the California Army National Guard's Camp San Luis Obispo has staved off land erosion and given endangered species a fighting chance. The camp is home to three federally endangered species, seven federal species of concern and 13 California Fish and Wildlife Department species of concern.

One of the federally endangered species, the California red-legged frog, has disappeared from 70 percent of its historic habitat due to the introduction of exotic predators like bullfrogs and to habitat destruction. The camp is trying to protect the species on post by maintaining the environmental health and quality of its lands, which includes the habitat of the frog.

Land preservation efforts are so successful that the camp was excluded from government critical habitat designation procedures for the endangered frog.

"The Army is held to a high standard when it comes to protecting endangered species," said Maj. Nicole Balliet, the post's



The California red-legged frog is one of three federally endangered species protected at Camp San Luis Obispo. Photo by Jen Moonjian

natural resources manager. "We've put together an integrated natural resources plan that is so protective of the California red-legged frog's habitat that the U.S. Fish and Wildlife Service doesn't require us to set aside land just for its survival."

Land erosion is also a major problem when it comes to the survival of endangered and sensitive species. To address land erosion, Camp San Luis Obispo employs a water conservation and sediment control program. These measures help restore the natural habitats of the species that live at the

camp by stabilizing and preserving the land.

Through its Dairy Creek Erosion-Control Project, the camp increased native vegetation and tree plantings to combat erosion. A specific beneficiary of the erosion-control project is the federally listed endangered steelhead trout. Erosion control mitigates sedimentation in the camp's waterways, which can interrupt the trout's lifecycle, but erosion isn't the only danger to endangered species at Camp San Luis Obispo.

The sharp and spiny purple star and wooly distaff thistles can threaten the federally endangered Chorro Creek bog thistle by encroaching upon its habitat. These thistles can also cause injury to animals and troops. Manual and chemical removal by certified personnel has reduced the abundance of these offensive plants and made life a little easier for Soldiers and for species of concern at the camp.

In an indirect, but important, effort to guard its sensitive species, the installation hosts tours for community leaders and adult organizations. These tours educate ►

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composition used for the flash, bang and whistle effects of the simulators. Instead, they will contain a material comprising black powder, aluminum and silica sand.

The simulators are used throughout the Army and the Department of Defense to prepare Soldiers, sailors, Marines and airmen for the rigors of combat by simulating the stress and confusion of hand grenade and artillery explosions.

The Office of the Secretary of Defense has actively sought opportunities for the reduction of perchlorate in training munitions, because it can be a health concern if it gets into the ground water supply.

The M115A2 and M116A1 represent the majority of perchlorate use on training ranges. Replacing perchlorate in the simu-

lators would go a long way toward keeping the chemical out of groundwater supplies at Army installations and in surrounding communities.

Transitioning to a new energetic composition for simulation munitions is unprecedented.

"In the past, research has been unable to identify an environmentally benign energetic material for munitions without losing consistent, acceptable performance," said Bill Ruppert, assistant program director for the Perchlorate Replacement Team. "Our research has proven we can eliminate the dependence on perchlorate without sacrificing any capabilities of the devices."

Because of their efforts, the RDECOM Perchlorate Replacement Team — which includes members from the U.S. Army Armaments Research, Development and Engineering Center Pyrotechnics Branch; the Edgewood Chemical and Biological

Center; the Army Research Laboratory and the Army Environmental Command — has been named a recipient of the *Secretary of the Army Environmental Award*. The team has also been nominated for two presidential awards.

RDECOM plans to apply the research to future projects and replace perchlorate in more simulators, including the M117/M118/M119 family of booby-trap simulators and the M274 smoke-signature practice warhead.

"This program is just the beginning," said Ruppert. "The results of this research will be leveraged in dozens of other weapons systems."

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Acronyms and Abbreviations

RDECOM	Research, Development and Engineering Command
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Connecticut Guard finds 'green' paint

by Deborah Elliot

A new coating system the Army can use to paint aircraft and other equipment performs better than the standard system — and it is safer for human health and the environment. This breakthrough comes after two years of research and testing conducted on trivalent chromium-based primers and sealers by the Connecticut Army National Guard at its 1109th Aviation Classification Repair Activity Depot.

Chromium has long been used in paint to create dense, protective coatings. This is especially important to the Army, which needs to cover its equipment with paint that can resist corrosive chemical agent. However, chromium in its hexavalent form is a known carcinogen. Although the Army has used chromium 6-based paint safely to protect and extend the life of its expensive equipment, it was open to trying something that wasn't so potentially harmful both to human health and the environment. The question was, what else is there?

Now they know. It's a different kind of chromium-based paint that uses chromium 3 instead of chromium 6.

Willingness to find a new paint system turned to resolve in 2006 when the Occupational Safety and Health Administration released more stringent regulations for permissible exposure limits of chromium 6. That's when the 1109th AVCRAD, which plays a major role in aircraft maintenance for the Army, decided that finding a green alternative to the standard chromium 6 paint system was better than upgrading its air filters to meet the new requirements.

The maintenance team at the 1109th AVCRAD initiated a rigorous hunt for a suitable replacement. What they found was a water-based, chemical-agent-resistant coating system that exceeds the performance of the old system. The replacement coating system leaves a smoother finish coating and is more resistant to fading and chalking, which minimizes the need for cosmetic painting.

The new chromium 3-based coating system is safer because it reduces the use of hazardous materials and the release of potentially harmful air emissions. It also significantly reduces the harmful chemicals that are present when disposing of paint stripping waste.

The new chromium 3-based painting system is a leap forward for the Army.

"AVCRAD's willingness to test and demonstrate the viability of alternative aircraft primers will help eliminate the Army's use of chromium 6, resulting in significant protection of human health and the environment," said Dana Arnold, chief of staff for the Office of the Federal Environmental Executive. "The Office of the Federal Environmental Executive applauds AVCRAD for helping the Army to meet [an Executive Order] while achieving its mission."

Partnering with the U.S. Army Avia-



A painter applies a chromium 3 primer to a Blackhawk helicopter. Photo by Paul Simmons

tion and Missile Command, the 1109th AVCRAD initiated and now manages the effort to promote use of the new paint system in both military and private organizations.

The Connecticut Army National Guard's work represents a significant improvement that can be applied to the Department of Defense and the civilian community, said Mal McLeod, a program manager with the Army Corps of Engineers and an awards judge.

"The CTARNG program is an excellent example of focusing on the mission and implementing more sustainable methods to get it done," McLeod said.

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Acronyms and Abbreviations

AVCRAD	Aviation Classification Repair Activity Depot
CTARNG	Connecticut Army National Guard

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the community about the camp's efforts to protect endangered species and prevent habitat destruction through erosion. These tours help to alleviate misconceptions about training impacts on installation lands and educate participants about the importance of environmental stewardship and endangered species protection.

"The Natural Resource Team shows

how a small installation with limited financial resources can use existing natural resource programs and imagination to enhance mission and the environment" said Thomas Vorac, a forester with the U.S. Army Environmental Command and one of the awards judges.

Camp San Luis Obispo's efforts to protect endangered species has earned a *Secretary of the Army Environmental Award for*

Natural Resources Conservation. The camp's efforts stand as a real-world example of the Army's goal to sustain the environment for a secure future.

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Hawaii Guard restores famed landmark

by B. Noël Boyne

With exceptional planning and management, the Hawaii Army National Guard at Fort Ruger took only four months to restore Diamond Head Crater to its pristine natural condition in preparation for its conversion to a state monument.

For decades, Diamond Head Crater has been the first natural feature that nearly 7 million visitors a year see on approach via ship or airplane to the Hawaiian Islands. Located in Honolulu and part of Fort Ruger since 1909, the Diamond Head Military Complex was used by the Hawaii Army National Guard for pistol and rifle training. Over the decades, this training has left tons of ammunition fragments deposited in the soil of the firing ranges.

In a concerted effort to leave Diamond Head in better condition than when it was given to the U.S. Army, the Hawaii Army National Guard undertook a comprehensive cleanup program to prepare Diamond Head for its conversion to a state monument. In a matter of months and without once closing the park to the public, the Hawaii Army National Guard Diamond Head restoration staff removed and recycled more than 14 tons of particulate metal and cleaned 30,000 tons of soil using a soil washing machine powerful enough to thoroughly wash the soil after only one pass through the system.

“The soil washing equipment our team used was extremely efficient,” said Capt. Charles J. K. Neumann, environmental officer. “Our equipment reduced our need to tap into fresh water resources because it actually recycled the water and reused it over and over again throughout the whole project.”

Invasive plant species were also removed to promote native vegetation growth. Since prescribed burn techniques are forbidden in the area, the Guard restoration staff manually dug up the offensive plants so as not to impose impacts on the environment by using chemical pesticide sprays.

The community surrounding Diamond Head Crater never had to worry about the restoration project affecting their daily lives, because the Guard restoration staff worked directly with its Diamond Head neighbors to accomplish the cleanup with minimal effects on traffic, noise and dust. The restoration project also used local small businesses to assist with the process, pumping resources back into the community.

“The HIARNG Diamond Head Crater Installation project is an outstanding




Viewed from Diamond Head’s summit, the processing equipment is at work on the floor of the dormant volcano’s crater. Photo by Dean Norwood

example of a well-thought-out, coordinated and executed cleanup effort to restore prior military ranges to beneficial reuse,” said Kenneth Wiggins, Cleanup Division, U.S. Army Environmental Command, an awards judge.

The Guard’s fast-track cleanup project and community outreach earned them the *Secretary of the Army Award for Environmental Restoration, Installation*.

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Acronyms and Abbreviations

HIARNG	Hawaii Army National Guard
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Arnold uses analytical skills to reduce environmental risks

by B. Noël Boyne

Through the careful analysis and innovative thinking of one man, a puzzling mystery was solved and one of the most challenging cleanup projects in the Oregon Army National Guard was put on the fast track. James Arnold, the environmental restoration manager for the Oregon Guard, is known for his analytical expertise when it comes to difficult cleanup projects.

At the Oregon Guard’s Army Aviation Support Facility #1, he was called in to solve an underground storage tank mystery. Environmental staff found a legacy World War II Navy underground storage tank system was leaking fuel into the ground

even though the system’s components had been removed decades ago.

To solve this mystery, Arnold put together a phase two environmental baseline study in combination with historical data research and analysis. Based on the data results, he then used hydraulic push probe equipment to rapidly assess and delineate contamination levels in soil and groundwater around the system’s tanks and fuel dispensing hydrants.

Arnold conducted historical research to determine the location of the sample points and obtained Oregon Department of

Environmental Quality concurrence. The historical research revealed that the former storage tank’s components were located in the path of current active flight lines, requiring Arnold to coordinate with the state aviation office.

He improved the site characterization technique by cooperating with local small business utility companies to avoid high-profile fiber optic lines, and he used an air knife system to create drill holes that would not cut utility lines. When the borehole ➤

Acronyms and Abbreviations

DEQ	Department of Environmental Quality
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Fort Bragg receives first Army Sustainability Award

The Secretary of the Army recognized Fort Bragg, N.C., as the winner of the first *Secretary of the Army Sustainability Award* March 26. This new award, together with the *Secretary of the Army Environmental Awards*, recognizes outstanding sustainability initiatives by Army installations/activities and individuals. These initiatives enable the Army to meet current and future needs while improving its ability to organize, equip, train and deploy Soldiers.

Tad Davis, deputy assistant secretary of the Army for environment, safety and occupational health, noted that many Soldiers, civilians and contractors routinely accomplish sustainability successes worthy of recognition.

“From our installations to our forward operating bases, the Army is working to establish sustainability as a long-range vision that enables the Army to meet its mission today and into the future,” Davis said.

Fort Bragg received the award for installation/activity. The post piloted the first

installation sustainability program for the Army in 2000. Over the next four years, Sustainable Fort Bragg served as the blueprint for the *Army Strategy for the Environment*, setting the benchmark for the Army’s sustainability values. The strategic planning process at Fort Bragg is the starting point for fostering an installationwide Army sustainability ethic.

“Soldiers must have the land, water, air and energy resources they need to train, a healthy environment in which to live and the support of local communities and the American people,” Davis said. “We are building green, buying green and going green to advance the triple bottom line of Army sustainability: mission, environment and community, plus cost savings, innovation and collaborative solutions.”

Paul Wirt, chief of the Environmental Management Branch at Fort Bragg, received the award for individuals. Wirt was one of the original participants in the earliest Army discussions on how to incorporate the principles of sustainability at military instal-

lations and volunteered Fort Bragg to be the pilot installation for the new initiative. He was also a key contributor to the *Army Strategy for the Environment*.

“Fort Bragg has been the Army’s leader over the last eight years in the drive to become a sustainable installation and integrate the triple bottom line into all facets of our garrison operation,” Wirt said. “These awards recognize the efforts of the entire garrison staff to embrace a vision for a truly sustainable community.”

Nominations were evaluated against five criteria: fosters a sustainability ethic; leverages partnerships; strengthens Army operations and minimizes impacts and total ownership costs; drives innovation; and has potential Armywide applicability.

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From an Army news release. Erin McDermott, community resource coordinator, Directorate of Public Works, Fort Bragg, N.C., contributed to this story. 🌱

(continued from previous page)

was clear, the hydraulic probe finished the drilling to complete the soil and groundwater sampling. This process allowed optimal borehole placement, and it was demonstrated that contamination levels were well below risk-based concentrations, allowing Arnold to institute “No Further Action.”

When he’s not solving pollution mysteries, Arnold helps other Oregon Army National Guard camps with environmental challenges. At Camp Withycombe, Arnold sped up the Oregon Guard’s largest cleanup project by implementing a soil-cleaning procedure that processed and cleaned more than 75 percent of the range’s soil.

Cleaning the majority of the soil reduced the need for soil removal, which usually takes more time. In addition to speeding up the restoration, the soil-cleaning process clarified and recirculated the water within the treatment system, which reduced the camp’s wastewater.

Further demonstrating his commit-

ment and flexibility, Arnold established an asphalt landfill capping initiative at Camp Rilea. His reason to cap the landfill was to avoid its complete removal, which would have meant demolishing the maintenance facility and disrupting weapons training and qualification on the adjacent range.

Because Arnold developed studies that identified only a low level of residual contaminants that posed no adverse risks to human health or the environment, asphalt capping was a viable alternative.

Capping



Jim Arnold collects location coordinates of a groundwater monitoring well with a handheld Global Positioning System unit. Photo by Mary Jane Jacobsen

the landfill with asphalt prevented possible rainwater infiltration and leachate generation, which could cause environmental concerns in the future. The capping also provided a new parking lot for the maintenance facility.

Arnold coordinates Oregon Army National Guard environmental restoration efforts closely with the Oregon DEQ.

“Jim is a very good technical manager,” said Bob Williams, DEQ project manager. “He knows a lot about the cleanup process and how we do things at DEQ, so it’s been very helpful for me to work with him.”

For his efforts to reduce risks to the environment and human health at the three installations, James Arnold took the award in *Environmental Restoration, Individual*.

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Sustainability in hazardous waste: How to be proactive on a reactive budget

by Justine E. Dishart

Sustainability is about meeting the needs of the present without compromising the ability of future generations to meet their needs. This objective requires creating an enduring, mutually respectful balance between the needs of ecosystems and the economic, or “mission,” needs of the people within them. To do this, a proactive approach is needed to find better ways of doing business that take into account long-term impacts.

This seems like a lofty goal when funding levels are meeting only about 65 percent of requirements. At that level, it’s “mission-critical” only, and all those nice-to-do and proactive projects get cut. Pollution Prevention accounts have dwindled so much that there has even been talk of eliminating the funding category altogether.

This situation doesn’t mean the end of the Pollution Prevention Program, because there is actually a better way to implement proactive initiatives. In 2003, Fort Irwin, Calif., decided to try an alternate way and, five years later, can say that it works.

Fort Irwin’s foray focused on hazardous waste and hazardous material management. The post had the usual problems managing hazardous substances, but the ones that really gave pause were the ever-growing volume of hazardous waste and the out-of-control costs associated with disposing of it. Add to that the lack of funding to implement pollution-prevention projects to reduce that volume, and the result was a big problem for both the present and the future.

To develop a sustainable solution, the post had to change its approach to problem solving. It had to step outside its standard operational paradigm and take a risk. The solution was to create and implement a

new program built on a goal-oriented platform with little direct control, instead of the normal requirements-type platform with stringent controls. Initially, this made everyone nervous, and there was a great deal of skepticism, but the Hazardous Substance Reduction Program was born.

The HSRP’s defining factor is that pollution prevention is not just a “nice-to-do thing;” it is integrated, at the core level, into every aspect of daily activities. The HSRP is also quite sustainable, because it contains the flexibility to adapt to change. Need for change is apparent because of unified data tracking across functional areas. Costs are predictable because the top end is fixed, and program focus is on reduction.

So, just how well did it work? Fort Irwin was able to stop the upward volume and cost trends for disposal. In fact, over the five year period, it:

- reduced its hazardous waste disposal volume, both state and federal, by 44 percent;
- decreased offsite disposal of oil/water separator waste by 100 percent by instituting on-site bioremediation;
- increased on-site recycling rate for all items brought to the hazardous waste yard for disposition up to a high of 82 percent;
- decreased the volume of items that had to be shipped off post for disposition by 39 percent;
- sent 49 percent of the remaining items that require off-site shipment to a recycler, generating revenue for the Qualified



The Fort Irwin Bioremediation Landfarm is permitted to treat soils contaminated with petroleum, oils and lubricants that come from spills that occur during training exercises and from sediment removal at washracks. Photo by Justine E. Dishart

Recycling Program; and

- combined many previously disjointed and separately contracted activities under this program, reducing contract and government labor costs by \$800,000.

The HSRP program is built around a performance-based contract. Fort Irwin specified boundaries that the contractor had to stay within to ensure that basic regulatory compliance elements were met. Beyond those, the contract didn’t specify how things were to be done. Instead, it specified the program goals.

Fort Irwin built in an incentive program that was tied to meeting benchmarks in pursuit of its goals, and it tied receipt of the incentive not just to the contractor as a corporation but to the lowest level of employees working on the site. The incentive is only \$50,000 — \$25,000 every six months. This amount means very little to a large corporation, but it means a great deal to an individual who makes about \$16 an hour.

In this fashion, the post gained a “bottom-up” enthusiastic buy-in for pursuit of program goals. The employees share their enthusiasm with the customers, who also benefit from reduced disposal costs and increased QRP revenue. After all, the ground level is where an effective

Acronyms and Abbreviations

HSRP	Hazardous Substance Reduction Program
QRP	qualified recycling program



Kaiserslautern discovers intriguing surprise at cleanup project

by Claudia Weber, Uwe Dannwolf, Vincent J. Grassi and Mary Kay Foley

Environmental technology has sometimes been called an art form. Since investigators often encounter surprises during site investigation, environmental specialists must be flexible and creative when assessing contaminated sites. One such surprise was discovered during subsurface investigations for a contaminated groundwater site at U.S. Army Garrison Kaiserslautern, Germany.

During the late 1980s and into the 1990s, USAG Kaiserslautern performed subsurface investigations of limited scope at an active storage depot, which has been heavily used since World War II. A number of groundwater monitoring wells were installed on this 260-hectare site, and most wells showed signs of chlorinated hydrocarbon contamination.

Extremely complicated geology at the site makes investigation and cleanup particularly challenging. The site sits on red sandstone, which has naturally occurring vertical and horizontal fractures. Geologists and other technical specialists believed that contamination would travel through this fracture network in the sandstone.

In 2000, USAG Kaiserslautern created a working group with host-nation regulators to address contamination at the site. Germany was interested in initiating cleanup at the site because the city's drinking water wells had shown small chlorinated hydrocarbon concentrations below the drinking water standard.

The partnership with the host nation led to initiating a historical review study, creation of a groundwater model and the



Permanent measuring devices were used in the groundwater monitoring wells at USAG Kaiserslautern. Photo by Uwe Dannwolf


development of a joint remedial strategy. More than 30 groundwater wells were drilled into the three groundwater bearing layers underlying the site. The deepest wells were 170 meters deep.

The next project phase was to incorporate the results of the groundwater investigation, which included detailed analyses such as geophysics, groundwater isotope studies and stream flow measurements, into the existing groundwater flow model. Using isotope studies to determine the chemical fingerprints of the contamination led to the delineation of 10 separate source areas of contamination.

This information was incorporated into a groundwater fate and transport model. The study results produced a priority list of the source areas, including those that needed to be addressed immediately and others that were lower priority due to their insignificant effect on the drinking water wells.

process control it had used in the past, but it found letting go and accepting a little more risk paid big dividends.

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A remediation pilot test at the largest source area was initiated in 2004. After a small test field was installed, molasses was added to the wells to stimulate biodegradation. Unfortunately, the molasses traveled too fast, not permitting biodegradation due to the short contact time. Worse, the molasses traveled so fast that it moved outside the test zone and could not be found.

The assessment team realized they must go back to the drawing board to

more accurately assess the subsurface conditions. Further studies were necessary. The team conducted a detailed geologic analysis at the site, including input from leading German and U.S. universities, using new experimental analytical methods. The analysis included permeability and porosity tests.

The surprising result was that the sandstone itself had numerous small pores that were a greater factor affecting contamination migration than the large fractures. Contamination actually "soaked" into the rock, like a sponge. Sandstone has the capability to store tons of contaminant and enough permeability to slowly release this contaminant over time.

This discovery proved that the original theory that sandstone allowed contaminants to travel only through the fractures was incomplete. Furthermore, this natural phenomenon had a significant impact on the success of the remedial technology.

Using this new information, the team reevaluated the site and completed another technology screening and quantitative risk assessment. The risk assessment addressed technical risks and public acceptance, ➤

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pollution-prevention mindset starts and grows.

This structure may not work for other installations. Each facility considering such a change would have to evaluate their unique set of circumstances. It wasn't easy for Fort Irwin to give up the strict

Acronyms and Abbreviations

ISCO	in-situ chemical oxidation
USAG	U.S. Army Garrison



Demolishing old bunkers reduces Katterbach carbon footprint

by Jo Anita Miley

Striking a balance between building necessary facilities to support the mission and helping to maintain a pleasant and healthy environment can be done. The U.S. Army Engineering and Support Center, Huntsville's Facilities Reduction Program has proven that.

The FRP team is completing a large scale demolition project in Urlas, a small military community in Katterbach, Germany. The team is tearing down 18 old bunkers to build 138 housing units for American Soldiers and their Families while meeting strict German requirements for reducing the U.S. Army's carbon footprint.

In the past, the heavily guarded site was used for military training, and the bunkers stored ammunition for the 1st Armored Division. Since the division's withdrawal, the bunkers were used to store old furniture and equipment.

With the increased focus on global warming, many governmental agencies are examining ways to reduce their greenhouse gases as environmental issues gain traction, according to Norman Cotter, program manager, Installation Management Command, Europe Region's Engineering Division. Cotter works closely with contractors and project managers on the Urlas project to ensure all environmental measures are taken.

"There is an increased focus on military construction and its effect on our environment on the international level," Cotter said. "Governments in other nations are examining each building effort more closely in an effort to protect what little space is left to build on. They want to preserve their natural resources and protect plant and animal life whenever possible. We [Americans] don't want to do anything that will upset this balance either."

In Germany, for new construction, agencies are land-locked to spaces available, Cotter explained. The lack of land requires the U.S. Army to come up with innovative ways to meet the needs of its growing military community.

"Getting rid of the bunkers and creating housing areas was both creative and environmentally friendly," he said.

Demolition began Feb. 11, and workers are recycling 60 percent to 65 percent of the concrete and asphalt, stone, steel, grass and soil from the bunkers and surrounding area. In adherence to strict German construction laws, the materials cannot simply



German contractor BG Werning/Weibrauch use heavy equipment to demolish concrete portions of an old bunker at Urlas, Germany. Photo by Norman Cotter

be sent to a landfill. Recycling these materials is a very large effort. The team has compiled more than 20 different mounds of contaminated and uncontaminated material. The uncontaminated materials will be used for recycling purposes.

"The large stone chunks must be crushed into smaller stone that will be reused for the foundation of road construction, and concrete is crushed into even smaller particles that will be completely recycled," Cotter said. Each bunker housed massive steel walls that are being sold on the open market. The German government has even found a use for the grassy soil that encompassed the bunkers; it will be remixed to spread over the entire site as ▶

Acronyms and Abbreviations

FRP	Facilities Reduction Program
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health, safety, security and compliance issues, and measured those risks in terms of consequences if they were to occur. This risk assessment and technology screening indicated in-situ chemical oxidation as the preferred alternative.

ISCO is a remedy using permanganate, a disinfectant commonly used to prevent fouling in drinking water distribution systems and waste water treatment plants. The remedy involves injecting perman-


ganate into the contaminated groundwater.

A pilot study to test this technology will start this summer. The new test field is much larger than the old test field. It will be operated in a hydraulically controlled environment to control the fast fracture flow phenomenon, the source of the problems in the initial pilot test.

The assessment team predicts ISCO technology will successfully remediate this extremely challenging site and may be

adaptable to other Army and Air Force sites in the area with similar geology.

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Coming to Fort Leonard Wood: Hydrogen-powered shuttles

by Dana Finney

Fort Leonard Wood, Mo., commuters will have a way to travel within the local community that avoids the high cost of gas and also benefits the environment starting in June. Two shuttle buses equipped with hydrogen-fueled internal combustion engines will begin making regular trips between the fort and the nearby towns of St. Robert and Rolla. Best of all, the commuting cost is minimal thanks to a pretax benefit to Defense employees.

The bus service functions as a rural test bed that helps the U.S. Department of Transportation wrestle with the technical, safety and public-perception issues of putting a new fuel infrastructure in place — new stations, new rules for emergency responders, new public concerns and other challenges. DOT turned to a partner, the Defense Logistics Agency, which, as the Army’s fuel provider, is interested in the same issues involving a hydrogen-based infrastructure.



Commuter buses powered by hydrogen will shuttle Fort Leonard Wood personnel to nearby St. Robert and Rolla. Photo by John Sheffield

With a congressionally funded project to demonstrate hydrogen-powered vehicles within the Department of Defense, DLA asked the U.S. Army Engineer Research and Development Center to work with the Missouri University of Science and Technology and Fort Leonard Wood to provide commuter buses and a stationary hydrogen refueling station.

“Hydrogen-fueled ICEs have many advantages over gasoline engines, including high efficiency, all-weather operation and near zero emissions of regulated pollutants and greenhouse gases,” said Frank Holcomb, project leader at ERDC’s Construction Engineering Research Laboratory. “They can also be easily hybridized for further gains in fuel efficiency.” ➤

Acronyms and Abbreviations	
CERL	Construction Engineer Research Laboratory
DLA	Defense Logistics Agency
DOT	Department of Transportation
ERDC	Engineer Research and Development Center
ICE	internal combustion engines
Missouri S&T	Missouri University of Science and Technology

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topsoil prior to construction.

Thad Stripling, the FRP program manager, oversees funds for the Urlas project. Stripling stressed the impact of the savings.

“Following the strict environmental guidelines set forth by the host country will play an important role in the successful completion of our mission,” Stripling said. “The Germans are giving us discounts and incentives to protect their environment, and these savings allow the Army to provide high-quality facilities for the American troops and their Families.

“Recycling and reusing materials allows us to reduce our project costs,” he said. “Reducing our project costs allows the program funds to go further, and we get more done with less.”

Demolition at Urlas ended in May, and the housing construction project will begin late this summer. The project is one of

many that serves a requirement to change this former troop training area into a suburb-type community by 2020.

This effort will take place in several phases that are largely driven by a focus on environmental protection and reducing their carbon footprint, said Dave Shockley, chief of the Programs Integration Branch at Huntsville Center.

“Understanding what the best removal methods are and then going the extra mile to ensure they’re used produces amazing results,” Shockley said. “It sounds too good to be true, but making projects more environmentally friendly has driven facility reduction costs down — way down.”

The FRP involvement beyond the continental United States continues to grow and expand to meet the Army’s mission requirement. At the same time, the program works to find new and improved ways of recycling and reusing materials and reducing the construction and demolition waste stream.

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What is a carbon footprint?

A carbon footprint is the total amount of greenhouse gases produced both directly and indirectly in the delivery of a product or service. It’s expressed either as equivalent tons of carbon dioxide or tons of carbon.

These greenhouse gases act like a blanket, trapping heat near the Earth’s surface and warming the planet. A true carbon footprint includes carbon dioxide, methane, nitrous oxide and hydrofluorocarbons.



California Guard makes sustainability everyone's mission

by Wanda Johnsen

The California National Guard integrates sustainability with its strategic plan, action plans and environmental management system. At the same time, the CNG takes action to meet or exceed Executive Order 13423, *Strengthening Federal Environmental, Energy and Transportation Management*, goals and California executive orders related to energy conservation, climate change and greenhouse gas reductions.

Acronyms and Abbreviations

CNG	California National Guard
HUB	Headquarters Update Briefs

How is the CNG's approach different from the many Army installations that either have a sustainability plan or are in the planning process? From the outset, the CNG aligned its sustainability planning effort with its strategic plan so that progress on reaching its sustainability goals could be tracked and reported to senior leadership at its monthly Headquarters Update Briefs.

The Adjutant General, CNG, Maj. Gen. William H. Wade II, tasked the directors of the G-3, G-4, Surface Maintenance and Installation Management to lead their respective sustainability planning teams, implement the resulting sustainabil-

ity goals and action plans, and report their progress to the HUB. Another difference is the involvement and support of CNG's J-5 director and staff, who are actively facilitating the planning process.

In early February, the CNG directors, key staff and stakeholders held a workshop to develop sustainability goals and supporting objectives. Wade, along with Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health Tad Davis and Secretary of the California Environmental Protection Agency Linda Adams, kicked off the workshop.

During the two-day workshop, the four directors led four teams to accomplish ➤

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The commuter buses that will serve Fort Leonard Wood are two Ford E-450 models with supercharged 6.8-liter V-10 engines. They are being leased with a \$500,000 in-kind donation from Ford Motor Company. The service has been phased in over the past year with a standard diesel bus making runs from the fort to three area towns since May 2007.

Around the same time, Missouri S&T began operating the two hydrogen buses at its Rolla campus to gain a sense of their performance, maintenance needs, fueling requirements and other characteristics. The hydrogen fuel initially is being provided by an Air Products Mobile Hydrogen Fueler at Rolla. The plan is to install a semipermanent refueling station once a site and permits are secured.

"The Gas Technology Institute had a mobile steam methane reformer that we obtained with a lease and partial purchase agreement," said John Sheffield, professor of mechanical and aerospace engineering at Missouri S&T. "It's trailer-mounted with a compressor, and we'll add storage vessels on a skid external to the trailer along with a dispenser. We also plan to use a photovoltaic panel to power the electrolysis system, which means the fueling

station will operate partially on renewable energy."

Hydrogen-powered ICE vehicles represent another step forward in U.S. industry efforts to find alternatives to fossil fuels. Hydrogen is made either through a process known as "electrolysis," in which water — the most abundant natural resource on Earth — can be split into hydrogen and oxygen by electricity, or through a process of "reforming" natural gas with steam. With either process the hydrogen released is captured and stored for use as fuel.

While the challenges of converting an oil-based infrastructure to one for hydrogen are well recognized, cultural obstacles exist as well.

"Everyone remembers the Hindenburg disaster," said Sheffield about the German hydrogen-filled zeppelin that caught fire in 1937 and was widely covered in the news media "In more recent years, we've seen other accidents, such as an ethanol hybrid car crash that the responders were afraid to touch.

"But we also went through a steep learning curve in the early 20th century when building the infrastructure to support refineries and gas stations," he said.

"We can apply those lessons learned to hydrogen as a fuel source."

As part of bringing the hydrogen-powered bus service to Fort Leonard Wood, a representative from Ford trained operators, code officials and first responders on how to safely handle the fuels, regulate the production and sale, and respond to a potential accident. That training was completed in July 2007 for attendees from Rolla and St. Robert.

The E-450 buses will operate at the fort through December 2009, or about 18 months of commuting. During this time, Missouri S&T will collect operating data to assess bus reliability and long-term performance.

Another goal of the project is to expose DoD personnel to hydrogen-fueled vehicles.

"Educating the public about these renewable energy technologies will be critical to eventually reducing or ending our dependence on imported oil," said Holcomb.

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the planning effort for: airfields, training lands and support operations; transportation and maintenance; buildings, infrastructure and utilities; and materials and procurement. At the end, the teams had identified 23 goals, 70 supporting objectives and the initial metrics for each goal.

Goals included: expanding resource conservation measures; increasing use of alternative fuels and renewable energy; increasing recycling rates; improving “green” procurement; reducing or eliminating waste, toxicity and emissions; and meeting or exceeding Leadership in Energy and Environmental Design Silver building standards.

Sustainability is not a new concept for the CNG. During the February workshop, each team identified multiple existing initiatives that contribute to CNG’s sustainability. For example, the Air National Guard uses solar panels to generate renew-



The California Air National Guard uses solar panels to generate renewable energy. Photo courtesy of 114th Fighter Wing, Fresno

Selected CNG Sustainability Goals & Objectives

Goal	Supporting objectives
Reduce petroleum consumption	<ul style="list-style-type: none"> • Increase fuel efficiency of vehicles • Maximize vehicle occupancy for fleet vehicles • Increase use of video teleconferencing and telephone conferencing to reduce travel
Increase energy efficiency	<ul style="list-style-type: none"> • Reduce energy intensity (use/square foot) • Reduce energy consumption • Reduce greenhouse gas emissions associated with energy use
Electronic stewardship	<ul style="list-style-type: none"> • By calendar year 2011, manage 100 percent of all electronic equipment using smart life-cycle management • Integrate electronic stewardship into Information Management Support Council • Sustain purchasing 95 percent of Energy Star-compliant equipment and operate 95 percent of Energy Star features

able energy. The Army National Guard recently won a *Secretary of the Army Environmental Award* for integrating environmental management into military training at Camp San Luis Obispo. (Editor’s note: see article on page 18.)

Wade addressed sustainability in his column in the March *Grizzly*, CNG’s monthly magazine.

“I want to stress that sustainability is not just another environmental program,” Wade wrote. “Sustainability is a California National Guard operational program.”

He directed that action plans be prepared that make sustainability an everyday activity and requirement.

“Collectively, we can reduce environmental impacts while simultaneously improving our mission readiness,” he wrote. “We will all personally check — and actively participate in — the progress of this vitally important program.” He committed himself to push for funding of the action plans.

To read the full text of Wade’s commentary, go to: <http://www.calguard.ca.gov/publicaffairs/Pages/GrizzlyMagazine-March2008Edition.aspx>.

In March and April, the teams worked independently to refine their goals and objectives and to develop action plans using

the strategic plan format. Each action plan includes specific tasks, milestones and metrics with assigned responsibilities and also identifies critical resources and critical coordination. All four teams reconvened in April to refine their draft action plans and brief their proposed action plans to the deputy adjutant general and senior leaders. A formal out-brief to Wade was scheduled for May.

The Sacramento Environmental Commission, a joint body with members appointed by the County of Sacramento and the cities of Sacramento, Folsom, Isleton and Galt, recently selected the CNG for an *Environmental Recognition Award* for providing leadership toward the protection and enhancement of the environment in the greater Sacramento community.

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Impacting their world: Schweinfurt Energy Saving Program

by Kai Battenberg

U.S. Army Garrison Schweinfurt, Germany, aims to constantly reduce its impact on the environment and to develop in a sustainable manner. Special emphasis is placed on reducing energy consumption and production of carbon dioxide, the major contributor to global warming, and thereby counteract the process of climate change.

Not only does the environment benefit from saving energy, but the Energy Saving Program also saves the garrison and the U.S. Army valuable financial resources, particularly as energy prices have risen considerably.

Energy-use reduction is one of the garrison's strategic goals and also one of the significant aspects of its Environmental Management System. To achieve this goal, the garrison undertook a multitude of instruments, initiatives and infrastructural improvements

Building assessment campaigns

Various building assessments were conducted by the Environmental Division. First, the garrison implemented a thermographic imaging program. Infrared pictures of about 30 buildings were taken to assess energy losses attributable to inadequate building materials or components. Representative building types — motor pools, troop buildings, schools, gyms and housing — were selected and surveyed to obtain a meaningful picture of the building situation at USAG Schweinfurt.

The Environmental Division and the Pollution Prevention manager built on the significant results of the thermographic imaging to conduct more building surveys and *blower door* studies. *Blower door* is a method of density measurement in which positive pressure is induced in a structure to identify structural weaknesses. As with thermographic imaging, the findings will



USAG Schweinfurt's Energy Savings Program included thermographic analysis of buildings. Composite of photo by Kai Battenberg (AMEC Earth&Environmental) and thermographic image by CPWeber GmbH

be used to prioritize upgrades to building insulation and thus reduce energy consumption, operating costs and costs due to structural damage.

Lowering building temperatures by just one degree Celsius saves an average of 6 percent of annual energy use, which would achieve savings of more than \$400,000 each year for the garrison. As an additional benefit, the program results can be used to identify potential health hazards, such as mold formation, and to minimize health risks.

Solar panels for hot water

The installation of solar panels for hot water is particularly cost effective for high-water-use locations like gyms, hotels and barracks. By installing solar panels, 50 percent to 65 percent of the energy demand for hot water can be saved, which, in turn, reduces emissions of CO₂. At USAG Schweinfurt, solar panels for hot water were installed on one gym, realizing energy savings of 136 megawatt-hours and CO₂ savings of 15.4 tons each year.

After reaching the break-even point of 4.68 years, monetary savings of \$14,500 will be achieved per year. The installation of solar panels for hot water is planned for a second gym, further contributing to energy-use reduction.

Ceiling fans

Heat rises by thermal lift. In buildings with high ceilings like motor pools, gyms and warehouses, unused heated air builds up under the ceiling. To attain comfortable temperatures in the working floor space, heating must run constantly. To improve heat distribution, ceiling fans will be installed in three appropriate buildings. These fans blow the heat accumulated under the ceiling to the working area below, thus reducing heating demand on the ground.

The temperature difference between the ceiling and the work area will be measured via two temperature sensors — one in the working area and one at the ceiling. If the temperature difference exceeds a preset value, the ceiling fans turn on and move hot air down. Large amounts of heating energy can thereby be saved without loss of comfort for building users.

After reaching the break-even point of seven months, monetary savings of \$12,000 will be achieved per year for these three buildings. CO₂ savings will be 42 tons each year.

Insulated rolling doors

Many motor pools are equipped with old, noninsulated metal doors. For some operations such as warehouses and motor pools, personnel must enter and leave the buildings often with vehicles or equipment. The metal doors are frequently left open during work hours for convenience. Even when doors are closed, heating is constantly lost through uninsulated areas and visible gaps between the doors.

Heat losses through the doors result in significant energy and financial losses. In 2008, old metal doors at selected buildings will be replaced with insulated rolling doors to provide improved insulation and a quick and easy open/close mechanism via remote control or motion detectors to ensure practicability. ➤

Acronyms and Abbreviations

CO ₂	Carbon Dioxide
USAG	U.S. Army Garrison



Corps helps Fort Bragg area envision sustainable region

by Nancy M. Porter

Invited by the Environmental Protection Agency Region 4 and Sustainable Sandhills, the U.S. Army Corps of Engineers conducted four visioning workshops with communities near Fort Bragg, N.C. Corps “visioneers” met with community members from Laurinburg, Wagram, Rockingham and Dunn, N.C., to gather ideas on how to revitalize their downtown areas in a sustainable manner and then connect the visions to a regional plan focused on sustainability.

Sustainable Sandhills is a nonprofit organization that is working with Fort Bragg and the North Carolina Department of Environment and Natural Resources toward a shared vision of regional sustainability. The Sustainable Sandhills region encompasses eight counties and the military installations at Fort Bragg, Pope Air Force Base and Camp Mackall in southeastern North Carolina.

The effort began in 2003. Since then, the Base Realignment and Closure Act of 2005 and other Army initiatives that will dramatically increase Fort Bragg’s military population have come into being. Fort Bragg expects to have an end strength of more than 56,300 soldiers, which will continue to make it the Army’s largest post.

To maintain its legacy and to continue to train troops to standard, Fort Bragg has

integrated long-term sustainable planning into the day-to-day operations of the installation. The Sustainable Fort Bragg vision calls for it to be an installation that will:

- provide Soldiers with the necessary training to ensure mission success without compromising local or regional environmental quality;
- be recognized as a world leader in practicing global citizenship and promoting sustainability values;
- continually seek new technologies, share lessons learned and promote the exchange of ideas within the region and its communities;
- restore and protect these valuable assets for future generations, as nationally recognized stewards of significant cultural and natural resources; and
- be an integral part of a healthy and thriving region where all enjoy a high quality of life and access to vital resource.



Dunn’s community members’ vision connects their town to the Cape Fear River. Rendering courtesy of Nancy M. Porter

Fort Bragg’s vision recognizes that sustainability issues don’t start or stop at the installation boundary. The installation is being a good neighbor, helping to promote the well being of Soldiers, civilians, Families, neighbors and communities by ensuring that the mechanisms that drive the local economies continue to support and strengthen the regional quality of life.

The visioning process, called “Vision-to-Action/Multi-Vision Integration,” involves an innovative interview and visualizing technique using art produced by individuals within a community. It is supported by impartial professional artists and facilitators knowledgeable in sustainable develop- ➤

Acronyms and Abbreviations	
EPA	Environmental Protection Agency
USACE	U.S. Army Corps of Engineers

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Awareness campaigns


There are various approaches to achieve success in preventing pollution — technical improvements such as solar panels or infrastructure improvements such as better building insulation. However, the success of any measure is largely dependent on sensible operating practices, as the benefits of the best technique and infrastructure improvements can be undone by poor user behavior.

The garrison provides awareness campaigns to sensitize people to environmental issues and promote environmentally friendly behavior. These campaigns use training sessions, and environmental flyers and newsletters that are developed and distributed communitywide via e-mail or the command channel.

USAG Schweinfurt is committed to constantly reducing its impact on the environment through saving energy, tens of

thousands of dollars and almost 100 tons of CO2 each year.

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Involving community in Army conservation work

by Candace Russo

What do a hunter, an artist and a high-school student have in common? The Oahu Army Natural Resources Program has learned the answer: they all have a desire to know more about their natural environment and are willing to devote valuable time to this cause. The OANRP also learned that providing educational opportunities to the public is reciprocated by dedicated volunteers providing help to OANRP staff as it works to achieve its mission.

The OANRP, a Directorate of Public Works environmental program, follows a mission to conserve and protect endangered species on Army training lands on the island of Oahu. The work is strenuous,

the goals are impressive, and the staff is small.

Roughly a dozen OANRP staff regularly hike miles of trails across hundreds of acres of land on the island's two mountain ranges. On their back, each person hauls equipment needed for the job: handsaws, pruners, shovels, herbicide and the occasional chain saw.

Hawaii is home to more endangered species than any other state, and 80 percent of Hawaii's endangered species can be found on Army training lands. The OANRP crews spend their days fighting for these plants and animals by controlling invasive weeds, monitoring native plants, building fences or checking rat traps.

The staff considers the work rewarding. Yet, at times, it can also seem over-



The hike into a work site, like this trail into Kaha-nahaiki Forest, is half the fun. Photo by Will Weaver

Acronyms and Abbreviations

OANRP Oahu Army Natural Resources Program

(continued from previous page)

ment and the USACE Environmental Operating Principles.

The Vision-to-Action tool, which encourages sustainable development, is used at open community forums. Participants are encouraged to first listen and obtain diverse individual visions and assessments whatever they might be and then seek to integrate the individual visions into a regional or community vision.

The Corps "visioneers" — James Waddell and Angela Copley of the South Atlantic Division and the author — met with the communities in August. The community members participating in the workshops shared a common theme: to create a destination point to attract Soldiers and their Families from Fort Bragg. The communities' visions included landscaping, businesses that stay open after 5 p.m. to draw customers to their downtown areas, bed-and-breakfasts to accommodate visitors and their architecture preserved through adaptive reuse.

The region has a rich agricultural heritage. Farmers in the area would like

Fort Bragg to allow a farmers market with locally grown produce on post. Residents of Laurinburg proposed using Leiths Creek as a water feature to encourage development.

The region offers connectivity between towns with bike paths and canoe trails. The town of Wagram has canoe landings and is home to a vineyard, which would like to develop tourism by linking other vineyards located along the river with a canoe trail.


Community members from the town of Rockingham envisioned turning the Great Falls Mill into a botanical garden and creating a greenway. Dunn's community members wanted to connect their town to the Cape Fear River and create walking areas and a river park.

Dunn Mayor Dale Snipes asked community members to place their visions in the city hall. The resulting display is an example of Multi-Vision Integration at its finest. It affords the opportunity to look at all the visions and integrate individual visions into a regional or community vision.

Vision-to-Action/Multi-Vision Integration is a collaborative effort between the Corps' South Atlantic Division and EPA Region 4. EPA Region 4 funded the development of the tool as a community involvement initiative to encourage and empower individuals to be proactive at the local and regional levels and take personal responsibility for immediate action in the sustainable revitalization of their communities.

Vision-to-Action/Multi-Vision Integration workshops facilitate information sharing and briefings from various state, federal and local agencies leading to a cohesive community vision and revitalization. Information can be found at: <http://www.epa.gov/ciconference/previous/2007/myvision.htm> or by viewing a PowerPoint presentation at: https://ekopowered.usace.army.mil/ecop/tools_info/.

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whelming given the amount of land and the spread of weeds. Taking control, the OANRP ramped up two of its valuable techniques in 2007: education and volunteers.

The OANRP created an outreach plan that builds on the momentum already established by Oahu's conservation community. Not yet a year into development, OANRP Outreach has coordinated more than 30 volunteer service trips to the forests of the Waianae Range on western Oahu.

The program is structured so that volunteers provide several hours of work, and, in return, OANRP staff provides an interpretation of the area's natural history. Because of this reciprocal relationship, what began with a few people has now blossomed into communication with more than 200 regular volunteers.

This volunteer growth can primarily be attributed to one thing — location. The Army owns some of the most pristine habitat on the island of Oahu.

OANRP Outreach offers opportunities for the public to experience one of only two native bogs on Oahu or one of the last remaining mesic forests in Hawaii. Witnessing plants like a rare lobelia bursting with pink flowers on the summit of Mount Ka`ala, or the striped shells of Kahuli tree snails decorating the leaves of trees in Kahanahaiki Forest are "lifetime firsts" for some volunteers. The OANRP is honored to be able to share these natural wonders with its hard-working volunteers.

Two focal volunteer projects have been restoration efforts on the summit of Mount Ka`ala, the highest point on Oahu, and in the mesic Kahanahaiki forest, located on the north side of Makua Valley.

At Ka`ala, part of a rare bog habitat was overrun with an invasive weed deceptively named "soft rush." Eighty volunteers helped remove 35 large garbage bags of

this sharp and tough invasive weed and then transplanted more than 40 native hapu`u tree ferns.

In Kahanahaiki, OANRP Outreach supervised numerous volunteer service trips to remove weeds and plant more than 500 common native trees, shrubs and ferns to help restore this forest to a more native state.

Participants in these and other projects have been as diverse as the habitats. Groups have included intermediate and high school students from various schools, classes from the University of Hawaii and Kapiolani Community College, as well as a women's group, local scholarship recipients and a hula halau (school).

The general public also participates in several trips a month, bringing familiar faces as well as new volunteers. The majority of OANRP Outreach advertising has been word-of-mouth.

In addition to coordinating volunteer service trips, OANRP Outreach is working to increase awareness about natural resource issues in the military community. OANRP Outreach has added new instruction to the monthly Army Environmental Compliance Officer training curriculum. OANRP Outreach is also introducing young people to career opportunities with the OANRP by attending career fairs and giving career-based presentations. To date, specialists have reached more than 800 stu-



In exchange for their work, volunteers at Kahanahaiki forest are provided an interpretation of critical natural resources found in Makua Valley. Photo by Candace Russo

dents in grades 5-12.

Since October 2007, the OANRP Outreach volunteer efforts have resulted in a total of almost 1,800 volunteer hours on Army training lands. Using the average salary of OANRP field technicians, these volunteer hours translate to roughly \$25,490 worth of free labor.

However, the true value extends beyond a dollar amount. The efforts aid in the restoration of endangered habitats, but they also provide the Oahu community with a rare opportunity to experience areas significant to ancient and current Hawaiian culture and to learn about issues affecting endangered species. This extends knowledge into the community and cultivates a relationship between the public and the Army, the value of which can only be viewed as intrinsic.

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Taking out the trash: 2 million pounds of scrap metal leave Fort Campbell training ranges

by Debra Valine

With much of the 101st Airborne Division deployed to Iraq, Fort Campbell, Ky., Range Division took advantage of the relative lull to repair and replace target systems on the firing ranges. Mike Mazuk of Fort Campbell's Range Division called Plyler McManus of Huntsville Center's Ordnance and Explosives Design Center last September with the challenge of removing ordnance and old armored vehicles from eight selected training ranges.

Work started in late December. By the end of March, more than 2 million pounds of scrap metal had been removed from the ranges.

"We cleaned up old targets and munitions residue out of the impact areas and cleaned ranges so that one, we could get the metal out of the impact area and two, put in new targets so that the Soldiers have something better to shoot at," Mazuk said.

The ranges varied in size from a few dozen acres to several thousand acres. The primary ranges are oriented in such a way that they share a common downrange central impact area into which larger weapons such as artillery are fired. The larger ranges are configured where air and ground units can practice coordinated operations.

Having been shot at for years, or in some cases decades, some of the targets were unrecognizable. Concentrations of munitions debris and unexploded ordnance that had built up around the targets had to be removed before the targets could be scrapped.

"Seeing the variety of target vehicles during an October site visit was like touring a museum of Army vehicles," said Huntsville's project manager William Noel. "Many were recognizable, such as the M-60 tank, the M-113A armored personnel carrier and the 'Gamma Goat' supply hauler. Some were not so recognizable."

One vehicle was so shot-up that only the corners where armor panels were



EOD Technology's scrapping subcontractor, Tyne Earth and Demo, finishes cutting apart the turret of an M-60 tank. Photo by William Noel

welded together still stood above the frame, so there was no way to score a "hit" on it, Noel said. There was an armored vehicle on Range 51 that looked like a massively overgrown armored personnel carrier with what appeared to be a recoilless rifle barrel atop the front. No one could identify it.

"Two OE safety specialists suggested it might be an old Marine Corps vehicle," he said. "So I e-mailed a photo of it to the Marine Corps Museum at Quantico, Va., asking if they could identify it. A couple hours later, we got the answer. It was an LVTP-5, an amphibious landing craft that had a crew of three and could carry up to 34 Marines. That's how big it was."

Ordnance technicians cleared munitions off the surface of the ground to clear a lane to and around each target vehicle so it could be cut apart and removed. The ground under where it stood was then surface cleared so Range Control had a clear location at which to place a new target.

Once the area was cleared, the scrapping subcontractor, Tyne Earth and Demo of

New York, used a cutting torch fueled by a mixture of propane and pure oxygen to cut the targets into pieces. It took only two or three hours to turn the 45-ton remains of an M-60 tank into large pieces of scrap metal, Noel said. Trackhoes fitted with clamps on their booms then lifted the pieces and dropped them into the bed of an oversized dump truck for the trip to the scrap yard.

"When we move the scrap, we work with scrap yards," said John Bobich, the project manager with EOD Technology Inc. of Lenoir City, Tenn., Huntsville's contract partner on the project. "We try to get the best price. It can go from \$100 to \$200 per gross ton."

"The money goes back into our munitions response program," Bobich said. "We buy equipment for future projects. One piece of equipment we are looking at will identify exactly what compounds we have found. It's a good way for us to check ourselves."

Adapting to the training requirements of various military units has required that EOD Technology work for limited periods on certain ranges before moving to another range for a few days, then returning to finish their work on the first range. This flexibility and the quality of the work being performed have made the managers at Range Control very happy.

"We were able to synchronize the efforts of the contractor with training so that I did not have any training impacted by the work of the contractor, and I did not have

Acronyms and Abbreviations

OE	Ordnance and Explosives
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What's up? Texas air officials meet to discuss issues

by Christine Luciano

A typical day in a Fort Hood, Texas, motor pool might involve a 70-ton tank with a 1,500 horsepower engine to move it at 45 mph across country. When these tanks and other off-road vehicles travel over the numerous unpaved and dirt roads throughout the training corridors, they generate large clouds of particulate matter made up of soot and dust.

From a regulatory standpoint, air is number one, and military bases have a variety of operations that release air emissions. Paint booths, motor pools, boilers and off-road vehicles are common sources of emissions.

To discuss looming regulatory issues that may affect them, the Department of Defense Texas Air Workgroup hosted its semiannual session at Fort Hood. Regional environmental coordinators and Texas air program managers from the Army, Navy, Air Force and NASA Johnson Space Center, along with consultants, and state and

federal regulators, came together to discuss air issues.

The regulatory agency for the state, the Texas Commission on Environmental Quality, and Environmental Protection Agency Region 6 gave presentations about the latest legislative environmental proposals that may lead to state rules that affect Texas DoD installations.

“Through direct contact with the TCEQ and EPA, we are able to ask critical questions on environmental proposals that may lead to more stringent regulations to reduce the amount of emissions,” said Thom Rennie, TAWG chair.

The top air emissions at Fort Hood are particulate matter from tank trails and unpaved roads and volatile organic compounds from paints, solvents and fuel. The Fort Hood Air Program is reducing air emissions through several projects and is working with the TAWG to collaborate with other bases to find new technologies to improve air quality.

For a Fort Hood project to reduce emissions, a dust suppressant chemical was applied to three-fourths of a mile on a tank trail. The project will help determine the environmental and cost maintenance benefits. Fort Hood and other installations are also working with state and federal regulators to obtain approval to use a digital opacity camera system to measure stack emissions and fugitive dust.

In another experimental project, a contract paint booth at Fort Hood's Directorate of Logistics is using a car-



Lt. Col. Edward Bohnemann, 1-12 IN battalion commander, speaks inside a Bradley about his Soldiers' daily activities to support mission requirements and environmental compliance to (left to right) Frank Dieck from Lackland Air Force Base, Michelle Walton from Randolph Air Force Base, Steve Hagle from TCEQ, and Gary Goldman from Waco Regional Office. Photo courtesy of Directorate of Public Works, Fort Hood, Texas

bon absorption bio-filter. The bio-filter has microorganisms that will eat volatile organic compounds as they come out of the paint booth.

During the session, the TAWG toured Fort Hood's Classification Unit, 1st Battalion, 12th Infantry of the 4th Infantry Division's motor pool and the Digital Multi-Purpose Range Complex.

“It is important to get the regulatory agencies to see the daily life of a Soldier out in the range and in the motor pool,” Rennie said.

Maj. Robert Magee described a typical day in the motor pool and how 1-12 IN meets mission requirements and complies with environmental regulations. He revealed the motor pool as a potential EPA disaster.

“But with the help of the Environmental Compliance Assessment Team, we train our Soldiers about the environmental regulations and how to be environmentally proactive.” Magee said.

Under the law, DoD bases are required to keep track of emissions, meet certain ➤

Acronyms and Abbreviations

DoD	Department of Defense
EPA	Environmental Protection Agency
IN	Infantry
TAWG	Texas Air Workgroup
TCEQ	Texas Commission on Environmental Quality

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the contractor impacted by the training,” Mazuk said. “It was a win-win situation all the way around.

“The places they went into look really excellent,” Mazuk said. “It projects a better presentation of the land in which to train on so that it doesn't look like piles of junk out there. There is a lot more to do yet, so this won't be the end of it.”

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Species thrive where tanks drive

by Justin Ward

Nature likes order. Sometimes. We know down to the minute when the sun will rise and set each day. We know when asparagus is in season, and we know why apples don't fall up.

But nature also likes disorder. New life that appears after natural disasters like forest fires and landslides suggest a more irregular natural law — one that isn't as uniformly tidy as we humans like with our neat rows of corn and our well manicured golf courses and back yards.

Unlike the uniformity of most other manmade landscapes, military training areas are well known for their crisscrossing tank trails, disheveled heaps of ruptured earth and a grab bag assortment of bogs, pits, puddles and mounds. But in spite of the apparent damage, these areas have been found to provide sanctuary to a diverse and sometimes threatened host of plant and animal species.

Places like Hohenfels and Grafenwöhr — two of the U.S. Army Europe's Major Training Areas — have become vital breeding grounds for diverse biological species that, without the continued disruptions caused by roaring tanks and exploding artillery rounds, would be homeless, according to Mark Mann, U.S.

Army Corps of Engineers, Europe District, environmental project manager.

"It seems counterintuitive," said Mann, who is administering an Installation Management Command, Europe Region contract to study the relationship between measuring biodiversity on these training lands through visual cues and through satellite imagery, "but certain species actually flourish in areas that are disturbed."

The hypothesis behind the estimated three-year study, said principal researcher Steven Warren from Colorado State University, stems from a realization that biodiversity is decreasing because of the human desire to suppress natural disturbances like forest fires, floods, insect outbreaks and migrating herds.

"Our world is becoming more and more uniform," said Warren. But on these MTAs, where nonuniform disturbances in



Despite the apparent destruction caused by military training activities, military training areas around the world are recognized for their biodiversity and for providing refuge for threatened and endangered species. U.S. Army photo

size, shape, duration, frequency and severity occur sporadically, biodiversity is among the highest densities in Europe.

"Different species, including some threatened and endangered species, prefer different conditions," Warren said. Some prefer severely disturbed conditions, while others prefer pristine conditions. And because MTAs tend to have a variety of conditions along this spectrum, these lands appear to provide ideal habitat for a much wider range of species than lands managed more uniformly.

In fact, some species are called "disturbance-dependent," a term used to describe plants and animals that can only thrive in temporary ecosystems free of competing species and predators, such as puddles and ditches created by tanks. These species thrive best in disturbed areas. Eliminate that disturbance, and you may eliminate those species.

This study should be a major advance in curbing the unwarranted criticisms of those who accuse the Army of being a poor steward of the land, Mann said.

"There are people ... who say, 'Get these old mean ugly Army tanks out of our area. ... Let the land be natural, and everything will be back on balance.' Well, ▶

Acronyms and Abbreviations	
MTA	Major Training Areas
USAREUR	U.S. Army Europe

(continued from previous page)

standards and get permits for their activities.

"If a base is over the permit limits, it suffers a potential violation, and, in extreme cases, it could impact the mission of the facility," Rennie said. "From the federal facilities situation, bases are always at the top as far as complying and maybe exceeding requirements of what is required by state and federal law.

"Air is air," he said. "It does not matter if it is Army air, Air Force air or Navy air — the emissions are the same. By getting the DoD bases together and cross service, the Air Program managers can learn from each other."

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Christine Luciano is the environmental outreach coordinator, Directorate of Public Works, Fort Hood, Texas.



Cicindela hybrida (Brown sand-beetle)
Photo by Anders Ohlsson



Gentiana ciliata (Fringed gentian)
Photo by Nathalie Strippe



Bufo calamita (Natterjack toad)
Photo by Martin Sandera



Bombina variegata (Yellow-bellied toad)
Photo by Klaus Bogon

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it's been theorized that, in some areas ... a little disturbance now and then will allow for variation of habitat," he said.

USAREUR's push to maintain native species' habitats on training facilities comes as a result of the Department of Defense's recognition that healthy, diverse ecosystems provide more realistic, sustainable training resources.

"In essence, [USAREUR] is leading the way in understanding the impacts of training on the environment," said Warren.

The motivation also comes amid growing emphasis on the European Union's Natura 2000 legislation, which seeks to protect the habitats of threatened and endangered species across Europe and has classified 77 percent of all U.S. Army training lands in Europe as "special areas of conservation."

"The Natura 2000 legislation assists us by identifying and giving legal status to red list species," Warren said.

Two threatened and endangered disturbance-dependent species thriving on the Hohenfels and Grafenwöhr MTAs are the natterjack toad and the yellow-bellied toad, both on the World Conservation Union's "Red List of Threatened Species."

"If the data show an enhancement in the abundance of some of [these species], it will draw more attention to the effort and to the fact that the Army has unwittingly

become one of the best stewards of the land to be found anywhere," Warren said.

These species find refuge here not only because of their love for disturbed environments, but also because their historic natural habitat along rivers where seasonal flooding scoured the flood plains has all but disappeared due to modern flood control and irrigation practices.

Other species, while not endangered or threatened throughout the world, are threatened in these areas because of the risk of vanishing habitats. Studies conducted at former U.S. Army training areas throughout Germany where tanks once roamed show dramatic shifts in biodiversity due to the loss of heterogeneous disturbance. Recently, the German government undertook initiatives at these abandoned Army sites — many now called Nature Protection Areas — to help the disturbance-dependent species by ripping the soil to produce similar markings caused by tank traffic.

Although these activities temporarily promoted biodiversity, Warren advises against establishing any sort of fixed training schedule at U.S. Army MTAs, despite the waning intensity and frequency of land-based training present in a post-Cold War world.

"The disturbance should vary in space and time in order to maximize biodiversity," he said. "This may have serious repercussions for species dependent on frequent

large-scale disturbance from force-on-force maneuvers. However, the military should not be in the business of scheduling the nature, frequency or intensity of its training to favor specific species."

The contract Mann is administering plans to compare field data from 2008 with existing satellite imagery from 2006 and 2007 to study the training areas in three phases. The studies will measure the current rate of change in the structure of the ecosystem — a concept in ecology called succession — to determine if, where and how quickly the sites are transforming from uncultivated meadows to scrubland to forest.

The intended outcome of this "whole landscape" comparison, Warren said, would be to determine if satellite imagery alone could be used to compare the biodiversity of training areas with surrounding areas around the world.

"The science we are conducting in Germany will eventually pay dividends in the [continental United States military community] as well as build recognition that training impacts can have very positive effects on the ecosystem," Warren said. "This is an exciting opportunity to take the research to the next level."

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Justin Ward is a public affairs specialist, U.S. Army Corps of Engineers, Europe District.





Public works brought up to date in Kansas City

by Mary Beth Thompson

The Army public works community gathered in Kansas City, Mo., April 8-10, for the Public Works Track of the Army Installations Symposium. Speakers from the Installation Management Command, the Office of the Assistant Chief of Staff for Installation Management, the U.S. Army Corps of Engineers and a contractor addressed the group.

Don LaRocque, chief of Public Works, Installation Management Command, discussed Sustainment, Restoration and Modernization.

“Sustainment is one subject, restoration and modernization a separate subject,” LaRocque said. “SRM is a key component of everything we do.”

He described the headquarters philosophy for SRM:

- Headquarters will fund sustainment at no less than the previous year; this year’s initial funding is 75 percent of the requirement. He advised garrisons to get new inventory on the books quickly; when assets go up, requirements go up, and funding goes up.
- Garrisons need to integrate restoration and modernization with Military Construction planning.
- LaRocque works to influence leader priority investment programs toward programs that will be of benefit to facilities. He recommended the same strategy at garrisons.
- Headquarters predicts and resources new mission facilities and requirements and recommends garrisons do the same.



IMCOM Chief of Public Works Don LaRocque addresses the Public Works Track of the Army Installation Symposium in Kansas City. Photos by Mary Beth Thompson

Missions are planned in advance, and unit activations should be known. When they are predicted, IMCOM can obtain resources for them.

LaRocque asked for input on the impact of taking money from sustainment to fund restoration and modernization.

“I need help to build the case — more than just anecdotal stuff,” LaRocque said. He is looking for good, hard data that demonstrates the effects on other facilities categories.

LaRocque reminded the audience that leader-directed funding is provided on a project-by-project basis. No substitutions are permitted.

“I fund the project once, and I walk away from it, and I go look for more money to fund more projects,” he said. “I trust you guys to execute the projects that are funded and execute them correctly.”

He defined “Flagship” projects as work done in buildings left vacant by deployed units. The work is cycled to deployments, not fiscal years, and is easy to market and sell. As deployment cycles continue, there will be more Flagship projects.

LaRocque introduced an initiative called “One Soldier-One Room” that has an SRM tail. It is a strategy to provide two-bedroom, two-bath apartments with walk-in closets, living rooms and kitchens,

and would involve modernizing existing barracks. Noncommissioned officer suites would consist of a bedroom, bath and a kitchen-living area. These could be converted from “1+1E” units where there are sufficient permanent party barracks. This initiative will start in fiscal year 2009.

Legacy unit-operations facilities and motor pools are not suitable for current Army units and equipment, he said. Facilities need to be built or revamped to accommodate them.

LaRocque also discussed the Army Medical Action Plan, stating that Warrior-in-Transition campuses must be sited within walking distance of medical facilities or, if that is impossible, near exercise- and physical fitness-type amenities.

He talked about area development plans and area development guides. Area development plans are two-dimensional and show siting of facilities.

“The area development guide takes this two-dimensional plan and brings it to the third dimension so you can see how you are going bring all your IDG [installation design guide] components to get the look that you desire on the facilities,” LaRocque said.

Paul Volkman, program manager, Energy and Utilities, IMCOM, spoke about energy efficiency and the available programs. ➤

Acronyms and Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
CERL	Construction Engineer Research Laboratory
ERDC	Engineer Research and Development Center
FY	fiscal year
IMCOM	Installation Management Command
MILCON	military construction
POM	Program Objective Memorandum
SRM	sustainment, restoration and modernization
USACE	U.S. Army Corps of Engineers



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“In FY 2007, we spent over \$1 billion in utility costs,” Volkman said, citing rising prices.

“The good news is the hard work you have been doing at the garrisons is paying off in terms of consumption reduction,” he said. “While we don’t have much control over costs, we do have control over consumption.”

The *Army Energy and Water Campaign Plan* is the bible for getting utilities-related funding, he said. Headquarters, ACSIM’s and Headquarters, IMCOM’s programs relate to the plan’s five initiatives:

- Eliminate energy waste in existing facilities;
- Increase energy efficiency in new construction and renovation;
- Reduce dependence on foreign oil and fossil fuels using renewable resources;
- Conserve water; and
- Improve energy security.

Energy and utility programs include:

- Energy Awareness and Conservation Assessments focus on no-cost or low-cost energy savings opportunities; they average about \$1 million in savings.
- The Energy Engineering Analysis Program identifies larger energy savings projects that require capital investment; the average payback is about four years.
- Tariff rate surveys determine if the installation is getting the best tariff and

competitive rates; potential savings of \$15 million have been identified.

- The Natural Gas Risk Management Program is a budgeting stabilization program for natural gas.
- The Resource Efficiency Managers Program provides a certified energy manager to find energy-savings opportunities, with the salary after the first year paid from the savings.
- The Metering Program will install electric meters by 2012, and natural gas and steam meters by 2016; the intention is to add water metering.
- The Boiler Inspection Program inspects large boilers for safety according to code.

Other initiatives Volkman mentioned were: funding start-up costs for Energy Savings Performance Contracts, working with garrisons to expand use of Utility Energy Services Contracts, assessing renewable energy potential at garrisons and developing an Energy and Water Master Plan template.

He introduced three additional speakers. Alexander Zhivov, Construction Engineer Research Laboratory, addressed energy conservation measures in barracks. Dale Herron, CERL, spoke about maintenance facilities and focused on the chronic issue of mold. Richard Young, Food Service Technology Center, talked about energy and water loss in dining facilities, which have five times the energy intensity of other types of facilities.

Mike Schultz, chief, Construction Division, ACSIM, described his role as an enabler.

The FY 2006-07 projects are under construction now, and he and staff members are engaged in the changes that need to be made. For FY 2008 projects, the focus is on awarding the contracts. The FY 2009 projects are being defended to Congress, and the staff reaches back to the garrisons for information to articulate and support those projects.

They are validating the costs of FY 2010 projects. The FY 2011-12 projects are in the installation planning charrette and requirements analysis processes. And discussions are ongoing about what should be in the FY 2010-15 Program Objective Memorandum.

“So, we are touching projects almost on a daily basis all the way from ’05 to ’15,” Schultz said.

While discussing MILCON Program drivers, he talked about relocatable buildings.

“They’re filling a valuable need for us but don’t become attached to them, because we have to get rid of them,” Schultz said. There are projects in the planning stage for replacing 70-75 percent of the relocatables, and the POM will address replacing the remaining square footage still needed.

Focusing on the FY 2010-15 POM, he said that the ACSIM is carrying the message to the chief of staff that, despite the huge MILCON program, legacy facilities that are not part of a significant initiative have not been touched. Some facilities are not sized correctly for their mission or just need to be replaced.

Barry Bartley, program manager, Construction, IMCOM, strongly encouraged the audience to read 10 U.S. Code, chapter 169, sections 2801-2815 and 2851-2853; and Army Regulation 420-1, chapter 4.

“That’s what tells us how to do Military Construction,” Bartley said. “How can we consider ourselves experts at Military Construction if we don’t know the policies ➤



Public Works Track attendees listen to a question posed by an audience member.



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and the regulations that tell us how to do our jobs?”

An example of information that is in AR 420-1 is site approvals, he said.

“Region directors may approve project sites only after a preliminary baseline environmental survey,” Bartley said. “This requirement is not always being met, and a lot of money is being spent after the fact on cleanup of sites that should not have been chosen.”

The Army Facilities Standards Committee sets standards and standard designs. The ACSIM approves waivers to Army standards, and the deputy commanding general, Military Programs, USACE, approves waivers to Army standard designs.

“We made it difficult on purpose, because we want standard facilities,” Bartley said. “It helps us on the programming side; it helps us on the costs side; and Congress knows we are doing our job right.”

Mandatory changes can be approved by USACE and accomplished relatively quickly, but discretionary changes cost time and money. Using standard facilities means there should not be a lot of need for discretionary changes, he said.

“We will entertain them as we need to but please make sure that before you send one up, it’s, in your mind, absolutely something we should do for that project,” Bartley said.

“The scope of a MILCON project can never be increased after Congress has authorized it,” he said. Scopes can, however, be reduced.

Bartley advised garrisons to prepare for possible calls from congressional staffers looking for potential earmarks. He suggested that all those in installation leadership positions have the same list of their installation’s top five to 10 projects they might like to see added to the MILCON program, and that the projects’ DD Forms 1391 be up-to-date and ready to be designed and built in the year of authorization.

He then turned the floor over to Howard Moy and Keith King of Headquarters, USACE, who talked about MILCON Transformation, an expedited process using industry standards and construction methods to build facilities.

Ali Achmar, program manager, Transportation Infrastructure, IMCOM, presented the names of the team members who provide support in managing and executing the program’s objectives. IMCOM regions programs coordinators are:

- Bridges and dams – Joe Fuller, IMCOM-Northeast
- Airfield pavement, – Peter Bosmajian, IMCOM-West
- Railroads – Claude Reindl, IMCOM-West

The Engineer Research and Development Center conducts the inspections and produces the reports. The ERDC employees who lead the teams are:

- Terry Stanton – Bridges
- Tina Holmes – Dams
- Andrew Harrison – Airfields
- Lulu Edwards – Railroads

Bridges and dams are scrutinized for safety and structural integrity. IMCOM airfields and railroads are examined for overall mission readiness.

Railroads are inspected for hazardous conditions. Achmar encouraged installations with railroads to have a certified track inspector. IMCOM provides training on railroad standards and certified track inspectors.

Achmar is developing a plan for alternating inspection of installations by year and a 90-day cycle for the inspections and reports, as well as a follow-on timetable for the installations to prepare and submit their action plans.

Ports are another element of transportation infrastructure, Achmar said. He is working to determine what port features constitute Army facilities.

Tony White, program manager, SRM, IMCOM, reminded everyone that Public Works directors and garrison commanders

are the “owners” of the real property and that the source of funds for a project does not affect that fact.

White said that the SRM project justification should be one short paragraph on DD Form 1391.

“You need to clearly demonstrate that you have a project that needs repair, and you do that by telling exactly what components are failed or failing and what we are going to do to fix them,” he said.

White discouraged use of separate relocatable approval request packages for swing space during repair projects. The swing space requirement and its cost can be included on the 1391, he said, so that when the form is approved, the swing-space requirement has been approved.

“What that means is that the swing space has to be owned and maintained by the contractor during the life of their contract,” he said. Garrisons may not accept the relocatables as a gift at the end of the project, so contractors may not abandon relocatables on post.

He cautioned against submitting a request for a project to repair a “failed or failing” system when the facility is rated green in the Installation Status Report. There are exceptions, notably medical facilities, but these need to be explained.

When repair projects are part of conversions, the repair project approval is contingent on the conversion approval, White said. The conversion request should be attached to the repair 1391 to facilitate the process.

Life, health and safety projects are urgent projects the sudden emergence of which could not have been anticipated and which pose so immediate a threat to the life, health or safety of personnel that their correction cannot wait until the next appropriation cycle. These can no longer be approved by the garrison commander, he said.

The deputy commanding general, IMCOM, approves requests for relocatables, White said. Use beyond six years for the same mission requires the approval ➤



Army names Public Works Awards winners

by John Krajewski

The 2007 *Directorate of Public Works Awards* were announced in March by Lt. Gen. Robert Wilson, commanding general, Installation Management Command. Wilson presented the awards to the winners April 8 during the IMCOM Multi-Functional Training Conference in Kansas City, Mo.

The *DPW Awards* Program recognizes the best of the best in the Public Works business. There are nine awards: seven are individual awards and line up with the major installation Public Works functions; two awards recognize organizations that support the installation DPWs.

The awardees were:

Roderick Chisholm,

Fort Hood, Texas
William C. Gribble DPW Executive of the Year



Roderick Chisholm
Photos by Mary Beth Thompson

Chisholm's leadership was a major factor in guiding Fort Hood through a difficult period that included mobilization and demobilization of deploying units, Army Modular Force transformation and the Army's largest Military Construction program. His ability to view challenges as opportunities led to successful design and award of more than 400 engineer projects totaling \$120 million in urgently

needed construction and repairs. His emphasis on long-range planning resulted in successful completion of a Residential Communities Initiative five-year development plan and an innovative web-based master planning system.

Camille Cole, Fort Bragg, N.C. *DPW Engineering and Planning Executive of the Year*



Camille Cole

Cole was recognized for her leadership and managerial skills within the engineering and planning function at the installation level. Her technical knowledge, wisdom and experience were apparent in the superior planning, programming, design and execution of the \$16 million Fort Bragg Modular Force initiative and a \$2 billion Military Construction program. She also innovatively integrated sustainability concepts and Leadership in Energy and Environmental Design principles into construction projects and installation planning.

Debora Palmer, Fort Leavenworth, Kan. *DPW Business Management Executive of the Year*



Debora Palmer

Palmer was selected because of her outstanding achievements in

all facets of her functional area, including requirements identification, programming, cost estimating, funds control and acquisition planning. She monitored daily expenditures during a period of critical funds management and developed an improved contract performance work statement that other installations have adopted as a model for improving efficiency and saving funds. She was also a Common Level of Support champion and improved the fielding of this key initiative.

Michael Nix, Fort Hood *DPW Housing Executive of the Year*



Michael Nix

Nix's technical knowledge and performance earned accolades from installation commanders and customers, in particular for his leadership and successful coordination of the Fort Hood Family Housing Privatization Program, a \$275 million development that included construction of 974 new homes and more than 1,600 house renovations. He also led the implementation of the First Sergeants Barracks Initiative, developing housing engineer projects and improving barracks self-help and maintenance programs.

Colin Watanabe, U.S. Army Garrison Hawaii *DPW Operations and Maintenance Executive of the Year*

Watanabe was recognized for leadership, managerial excellence and productivity ▶

Acronyms and Abbreviations

DPW	Directorate of Public Works
IMCOM	Installation Management Command


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of the deputy assistant secretary of the Army for installations and housing.

Relocatables belong to the Department of the Army, not the installation, he said. The deputy assistant secretary of

the Army has the authority to move relocatables from one installation to another.

POCs are: Don LaRocque, 703-602-5486, Donald.LaRocque@us.army.mil; Paul Volkman, 703-602-0142, paul.volkman@us.army.mil; Mike Schultz, 703-604-2432, [\[us.army.mil\]\(mailto:us.army.mil\); Barry Bartley, 703-602-3389; \[barry.bartley@hqda.army.mil\]\(mailto:barry.bartley@hqda.army.mil\); Ali Achmar, 210-295-2038, \[ali.achmar@us.army.mil\]\(mailto:ali.achmar@us.army.mil\); and Tony White, 703-602-5362, \[tony.white2@us.army.mil\]\(mailto:tony.white2@us.army.mil\).](mailto:michael.schultz@</p></div>
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Mary Beth Thompson is the managing editor of the *Public Works Digest*. 



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improvements in the DPW operations and maintenance function at the installation level. His leadership and personal contributions were instrumental in improving control and operation of utility systems in the Aliamanu Military Reservation and the U.S. Coast Guard Red Hill housing areas. His energy program management also saved the garrison \$6.2 million annually and increased water system reliability by 70 percent.



Colin Watanabe

\$66 million Barracks Improvement Program and a \$61 million Flagship Projects Program. Aggressively taking up the Army leadership charge to support the Warriors in Transition program, he led the region to validate and execute 52 projects on 11 installations totaling \$35 million, which will improve living and working conditions for wounded warriors and their Families. Under his leadership and personal mentoring, the West Region is the model for hiring and developing engineer interns, the future Public Works professionals and leaders.




Gustavo De Jesus

tion program. The district also provided quality master planning and stationing support that helped Fort Bragg resolve numerous facilities and infrastructure issues.

VT Griffin, Fort Stewart
DPW Support Contractor of the Year

Contractor VT Griffin consistently exceeds a 99 percent customer feedback rating, proving its commitment to customer relations and customer satisfaction. The company is committed to quality work, responsive to installation requirements and maintains high standards of engineering and operational efficiency. Its management philosophy, "Excellence through Teamwork," permeates its relationships with Fort Stewart and Hunter Army Airfield. It improved efficiency, reduced work backlogs, enhanced facility conditions and maintained high levels of customer support.

POC is John Krajewski, 703-602-0528, John.Krajewski@hqda.army.mil.

John Krajewski is an engineer, Public Work Division, Headquarters, IMCOM. 

Thomas Fry,
Fort Stewart, Ga.
DPW Support
Executive of the Year

Under Fry's leadership, Fort Stewart successfully implemented sustainable management of installation resources, developed an aggressive installationwide Recycling Program for domestic, demolition and hazardous waste, and implemented innovative wildlife and forestry management programs. His strategic vision and his commitment to expedited National Environmental Policy Act reviews ensured that priority readiness and mission projects were completed within critical timelines. He developed partnerships and improved relations with the surrounding community, state and federal agencies, local universities and private organizations.



Thomas Fry

Savannah District,
U.S. Army Corps of
Engineers
DPW Installation
Support Program
of the Year

Savannah District was nominated by Fort Bragg for support provided as a full partner in accomplishing the installation's missions. Highlights of its exceptional support to Fort Bragg included expedited design and contracting for a critical \$52 million vehicle maintenance complex; effective execution of \$145 million in reimbursable task orders; and engineering, contracting and management support to Fort Bragg's \$264 million Military Construc-



Stephanie Hall accepts on behalf of Savannah District.



Lt. Gen. Robert Wilson presents the award to VT Griffin representatives David Ruff (center) and Richard Tibbetts (right).



Fort Jackson DPW on the road to GFEBs

by Clyde Reynolds

Every Directorate of Public Works employee in the Army is familiar with terms like *service order*, *standing operations order*, *individual job order*, *work order*, *preventive maintenance*, *engineer work request*, *DA Form 4283* and *project*. They should be familiar with those terms — they’ve been the language of the business and the language of the Integrated Facilities System for many years. But, that is all about to change.

The IFS used by DPWs throughout the Army will soon be “subsumed” by GFEBs — the **General Fund Enterprise Business System** — a web-based system that will allow the U.S. Army to share financial and accounting data across the service. The term *subsumed* implies that IFS will become a part of GFEBs, but that is not the case. Rather, and more accurately, IFS will be replaced by GFEBs.

On the official GFEBs web site, <http://www.gfeps.army.mil>, in the Frequently Asked Questions section, this question is posed: How will IFS be affected? The response states that GFEBs has the functionality to replace the IFS and that when GFEBs deploys to an installation, there should not be any dual entry required. The IFS, or some sort of data warehouse, should still be available for historical research for data that is not converted into GFEBs.

In June 2006, the system, outfitted with commercial off-the-shelf software, successfully completed its initial technology demonstration at Fort Jackson, S.C. The initial fielding, or Release 1.1, of GFEBs was focused on real property inventory.

Why real property? Over time, as Army commands separately established methods and automated systems to track their inventories, the same or similar data were processed through multiple systems on

different time-lines, producing different results. As a consequence, the Army as a whole did not have a system in place to accurately manage each command’s inventories.

GFEBs has provided the solution to this problem. By serving as the single source for Army financial management information, GFEBs eliminates confusion about real property inventory and its value. The “Property, Plant and Equipment Inventory” capabilities of GFEBs far exceed the capabilities of IFS and the legacy financial management systems that GFEBs is replacing.

The initial technology demonstration at Fort Jackson was successful and met expectations. Consequently, GFEBs Release 1.2 will be fielded at Fort Jackson first, going “live” Oct. 1. GFEBs capabilities will be fully applied at Fort Jackson, expanding the system to address the post’s 38 Installation Management Command functions, including financial processes for:

- command and staff,
- personnel and community,
- information technology,
- operations,
- logistics,
- engineering,
- resource management,
- acquisition and
- health services.

In addition to the IMCOM activities at Fort Jackson, Release 1.2 will also support related financial activities at Defense Finance and Accounting Service, IMCOM headquarters and Headquarters, Department of the Army. Between now and Oct. 1, vari-



Clyde Reynolds
Photo by Renee Sanders, Fort Jackson

ous aspects and capabilities of GFEBs will be tested at Fort Jackson and elsewhere.

The real property module of IFS is not the only module to be replaced, though. Most, if not all, other modules will also be replaced.

The terminology and processes of GFEBs are entirely different, too. Terms such as *service order*, *work order* and such will give way to terms like *demand maintenance order* and *preventive maintenance order*.


Traditional processes will also be replaced by new processes for everything from work reception to warranty repairs. Basically, GFEBs will require a top-to-bottom revamp of almost all DPW processes.

There are a number of challenges to be overcome for successful implementation of GFEBs within the DPW. In coming issues of *Public Works Digest*, specific challenges will be explained in greater detail, along with solutions and/or work-arounds developed at Fort Jackson.

Among those challenges are master data files, data conversion, preventive maintenance planning, supply catalogs and procedures, identification and inventory of installed equipment, work approval and processing, work scheduling, roles and assignments, and how contract information is captured.

At this point, Fort Jackson’s advice to its DPW counterparts is to read everything they can find on GFEBs, ensure that their real property inventory is as complete and accurate as possible to minimize problems with the base data conversion, seek out and take advantage of all applicable GFEBs training as soon as it becomes available and stay tuned to future issues of the *Digest* for specific challenges and solutions.

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Clyde Reynolds is the director of Public Works, Fort Jackson. 

Acronyms and Abbreviations	
DPW	Directorate of Public Works
GFEBs	General Fund Enterprise Business System
IFS	Integrated Facilities System
IMCOM	Installation Management Command



Laying the groundwork for Career Program 18

by Lt. Gen. Robert L. Van Antwerp

In late March, the Career Program Policy Board for Career Program 18 (Engineers and Scientists – Resources and Construction) held a three-day workshop in Virginia Beach, Va. The goal of the workshop was to give the CPPB an opportunity to tackle our next major objective: a complete review and revision of the CP-18 Army Career Training Education and Development System, or “ACTEDS,” Plan.

Each of the 23 Army civilian career programs are required to demonstrate through their ACTEDS plans how they will develop their employees through educational opportunities, developmental assignments and other career enhancing components. The plans are supposed to be turned in to the Assistant G-1 for Civilian Personnel Policy on a regular basis.

Our current ACTEDS plan is more than 15 years old and needs revisions to reflect the current and future evolution of career development and advancement changes in the Army. Also, the current career ladders, which are supposed to show how an employee can progress from an entry level position to senior management and leadership, don't reflect the reality that our employees need training and development in multiple functional areas and occupations, embracing the Army “pentathlete” model.

In many cases, the best way to that level of development is through lateral assignments in functional areas. For example, one of our teammates, Debra Ford, a CP-18 Leadership Development Program graduate from USACE's Baltimore District, accepted a challenge to diversify her skills. She sought and accepted a lateral assignment from the Engineering Division to the Programs and Project Management Division.



Lt. Gen. Robert L. Van Antwerp
Photo by F.T. Eyre

She subsequently accepted a position with the New York District to oversee Base Realignment and Closure work and has recently been promoted to chief, Military Programs Branch at the Los Angeles District. Debra's progression is a great example of how CP-18 employees can develop their careers by diversifying their skill sets, finding the right skills for the right seat on the bus.

Bob Slockbower, my functional chief representative for CP-18, will be asking the leaders of each functional area — engineering, construction, civil works planning, operations, environmental, public works, programs and project management, and research and development — to re-examine their career development progressions in light of how the Army is functioning now and how it will function in the future.

He is also asking the functional areas to develop their plans within a new career map format, originally developed by Career Program 22, Public Affairs. This format will make it much easier for Army careerists to see what skills and training they should have for their current jobs and what they need to progress to the next level.

We anticipate that this process will take a great deal of time and effort from everyone within CP-18. All of this work ties back into the second and third goals that CP-18 developed last fall: “Develop a diverse world-class workforce with a reputation for technical and leadership excel-

lence;” and, “Create an exciting and challenging career experience that enables lifetime learning and rewards technical and leadership excellence. Retain the best as the employer of choice.”

Updates

The draft version of the CP-18 Career Program Managers Handbook is available for review and comment at <https://ekopowered.usace.army.mil/cp18/>. Our goal is to have the final version ready for comment at the CP-18 Career Program Managers Workshop in

July, with final publication and issue by the end of fiscal year 2008.

Trish Opheen and Mollie TeVrucht of Alaska District are spearheading this effort. Contact Trish at 907-753-2662 and patricia.s.opheen@usace.army.mil, or Mollie at 907-753-2695 and mollie.l.tevrucht@usace.army.mil, if you have any questions or need a copy of the draft handbook.

The CP-18 Career Program Managers Workshop is scheduled for July 15-17 at the Baltimore Sheraton City Center Hotel, Baltimore. I plan to visit the workshop and take the opportunity to talk with you about your successes and challenges in civilian career development. Registration details and further information will be provided soon.

Departure

My last item is to offer my sincere thanks and appreciation to Ed Gauvreau, who has served as my day-to-day program manager for CP-18 since 2003. Ed was promoted to chief, Programs Branch of the Installation Support Community of Practice here at Corps headquarters and will be relinquishing his CP-18 duties.

He has performed magnificently in spearheading CP-18, many times as an “Army of One,” and has been an outstanding asset and friend for career program managers as well as careerists. Ed has served as the functional POC for three

Acronyms and Abbreviations	
ACTEDS	Army Civilian Training Education Developmental System
CP-18	Career Program 18, Engineers and Scientists – Resources and Construction
CPPB	Career Program Policy Board
USACE	U.S. Army Corps of Engineers



CP-18 career trends discussed in Kansas City

by Edmond Gauvreau

During the Installation Management Command Multi-Functional Training Conference in Kansas City, Mo., two presentations directly related to civilian career development. The first was a Career Program 18 presentation April 8 that included three speakers — John Krajewski of Headquarters IMCOM, Trent Spencer of Headquarters, U.S. Army Corps of Engineers, and me.

Krajewski led with a description of the training and educational programs available to civilian employees throughout the public works community. CP-18 employees need to take advantage of these programs if they are seeking advancement within the Army, he said.

He emphasized senior leadership opportunities, including the Harvard Senior Executives Fellows Program and the Senior Service Colleges. CP-18 has been significantly underrepresented in these programs, and, with the expectations of civilian leadership raised, the need for increased applications and participation is critical.

I presented an Army career programs overview, specifically the makeup and objectives of CP-18. I covered the results of last fall's off-site meeting to redevelop the CP-18 mission, goals and objectives.



Edmond Gauvreau
Photo by Mary Beth Thompson

I emphasized the three overarching areas on which CP-18 will focus: recruitment, development and retention. For each area, I showed the proposed initiatives CP-18 will take on during the coming months, including launching the new Master Intern Training Plan, revising the overall Army Civilian Training Education and Development System Plan for CP-18 and completing a Career Program Managers Handbook that will help supervisors and employees determine their career goals and how to attain them.

I also announced the upcoming CP-18 Career Program Managers Workshop in Baltimore July 15-17. The workshop is open to all career program managers with CP-18 employees.

Trent Spencer, deputy chief of the Installation Support Community of Practice at Headquarters, USACE, closed with a presentation on the Facilities Engineer Career Field initiative. Spencer discussed his own experience serving as a director of

Public Works in Germany, Italy and at Fort Eustis, Va. He said that FEFCF is still in its infancy but is getting attention at the Army staff level and that DPWs should prepare their workforce to start their training soon. The 100- and 200-level courses are already available online, and the 300-level will be implemented by the end of 2008.

An audience member commented that there seemed to be a "glass wall" between IMCOM and USACE that prohibits crossing between them. Spencer and I answered that it is very possible to move between USACE and IMCOM. Both of us have done so, Spencer just recently through his promotion from Fort Eustis to Headquarters, USACE.

The other event was held April 10, when retired Brig. Gen. Volney Warner discussed the Army Civilian University. As the newly appointed president of ACU, Warner talked about the direction and initiatives that the Army staff has launched over the past year to enhance the quality of training and development of the Army civilian team.

He mentioned the proposed assimilation of all Army civilians into eight broad career groups, including the existing career programs and the remaining 60 percent of the Army work force not currently in a career program. A new management function will provide operational guidance and resource allocation for these career groups. The structure and operational elements of this management function are being developed.

Warner discussed the incorporation of the Logistics Training Development Model to frame all civilian training. This initiative would code certain positions as devel- ➤

Acronyms and Abbreviations	
ACU	Army Civilian University
CP-18	Career Program 18, Engineers and Scientists – Resources and Construction
DPW	Directorate of Public Works
FEFCF	Facilities Engineer Career Field
IMCOM	Installation Management Command
SES	Senior Executive Service
TRADOC	Training and Doctrine Command
USACE	U.S. Army Corps of Engineers

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functional chief representatives — Dwight Beranek, Don Basham and Bob Slockbower — and has given his full devotion to duty and achievement to all three.

We plan to select and announce the

new functional POC shortly. Please join me in wishing Ed well in his new duties and giving many thanks for his achievements in advocating career development across the entire spectrum of CP-18, assuring that the CP-18 TEAM is indeed Army Strong, Engineer Ready!

Essayons!

Lt. Gen. Robert L. Van Antwerp is chief of engineers, commanding general of the U.S. Army Corps of Engineers and functional chief of CP-18.



Energy forums in August

The Phoenix, Ariz., Convention Center is the site for the 2008 Army Energy Forum Aug. 7-8, which will be held in conjunction with the GovEnergy 2008 conference Aug. 3-6. The week will include the presentation of the 30th Annual *Secretary of the Army Energy and Water Management Awards* Aug. 6.

“Hot Solutions for Prickly Problems” is the theme for the Army’s forum. Attendance is open to installation and state energy managers, resource efficiency managers, Army staff and invited guests.

The forum’s purpose is to bring together Army energy leaders and the energy and utility managers from all Army installations to share and discuss strategies, technologies, approaches, barriers and successes to meet the goals and milestones as described in the *Army Energy and Water Campaign Plan for Installations*.

The GovEnergy conference is sponsored by several federal agencies, including the departments of Energy and Defense. It provides a forum to:


- educate, inspire and motivate people and organizations to be more energy efficient in their facilities;



- raise awareness and knowledge of latest energy-savings strategies and products;
- increase opportunities for energy and facility professionals to network with colleagues; and

- assist federal agencies to reduce their energy use and costs while meeting federal energy mandates.


The early-bird online registration fee is \$475 until June 13 and then \$495 until July 25. On-site registration will be \$595. To register and for more information, go to the 2008 GovEnergy web site, <http://www.govenergy.com>. The Army Energy Forum web site is <http://army-energy.hqda.pentagon.mil/training/2008forum.asp>.

From GovEnergy and Army Energy Program web sites. 

Career Program 18 Training Workshop

July 15-17

Sheraton City Center Hotel
101 West Fayette Street
Baltimore, Md.

POC is Jeff Hooghouse, 202-761-0522, jeffrey.t.hooghouse@usace.army.mil. 

(continued from previous page)

opmental in nature, then set the standards and development criteria necessary for advancement.

He also announced the first Senior Executive Service development course specifically for Army civilians. The course is being offered through the University of North Carolina this summer, with details to be announced. There will also be an executive Masters of Business Administration program for SES members that will be offered through the University of Tennessee. Two other opportunities include the Army Fellows Program, aimed at Pay Band 1 and 2 employees, and the Senior Army Fellows Program, aimed at Pay Band 3 employees interested in preparing

for SES positions.


Warner talked of the changes in civilian career management, with the G-1 retaining civilian career policy, the G-3 gaining pronopency for civilian training and development, and Training and Doctrine Command assuming overall responsibility. He noted that the new Army Civilian Education System was developed and fielded by TRADOC as the Army standard for civilian leadership development.

ACU will be a virtual organization rather than a bricks-and-mortar campus, Warner said. It will assimilate its first two career programs this summer. CP-22, Public Affairs, and CP-34, Information Management, will test the ACU concept. The other career programs will be assimilated

over several years, depending on fine tuning the strategic and operational concepts of ACU as well as acquiring sufficient resources to develop and sustain it.

In closing, Warner emphasized that “stewardship is key” for success. The Army is an institution with a long and proud heritage, and it is the responsibility of everyone in the Army — military and civilians — to leave the institution better than he or she found it.

POC is Edmond Gauvreau, 202-761-0936, edmond.g.gauvreau@usace.army.mil.

Edmond Gauvreau, is the chief, Programs Branch, Installation Support Community of Practice, Headquarters, USACE. At the time of this article, he was the functional POC and program manager for CP-18. 



Brown runs Cleanup Division's Program Management Branch

by Jean Skillman

Hopeton Brown brings more than 20 years of progressive experience with the Department of Defense to his position as the chief of the Program Management Branch in the U.S. Army Environmental Command's Cleanup Division. Brown has a diverse educational and professional background in both safety and environmental engineering.

He received his bachelor's degree in chemical engineering from Drexel University in Philadelphia, Pa., and his federal career began at the Philadelphia Naval Shipyard. As a member of the Shipyard Emergency Spill Response Team, Brown was responsible for the initial response, control and cleanup of hazardous waste spills. He also served as the gas free engineer/Confined Space Safety manager, in charge of overall management of the Confined Space Safety Program.

Brown joined USAEC in 1984. He worked as an environmental restoration manager and the Cost-to-Complete Program manager prior to his current position. He responded to questions about the program he now oversees.

What are your duties? In the Program Management Branch, we are responsible for the planning, programming and budgeting of Army environmental cleanup at the active, excess and Army National Guard Installation Restoration Program and the Military Munitions Response Program, both of which are funded through the Environmental Restoration, Army account. We also check cleanup execution to ensure targets are being met and make corrections as necessary.

What are your goals? My overall goal is to ensure full implementation of the Army Environmental Cleanup Strategy as specified in the Army Environmental Cleanup Strategic Plan and the AEC Program Management Plan. My focus



Hopeton Brown
Photo by Jean Skillman

areas are: auditable and documented site-level data for the Active Sites Program, transitioning MMRP execution to the oversight branches and ensuring continuity and seamless transition of the work force throughout the transfer to San Antonio.

What are your challenges? The next challenge on the horizon will occur as we transition the MMRP program to the oversight branches with eventual execution by the installations. It will be absolutely necessary to ensure that the responsible individuals possess the essential skill sets for successful program execution.

In the coming years, as we transition to San Antonio, there will likely be some attrition in the work force. It will be critical that we ensure continuity within the Active Sites Cleanup Program. The move will occur during the time the Army plans to meet the overall environmental liability assertion milestones resident in the Office of the Under Secretary of Defense (Comptroller) Financial Improvement and Audit Readiness Plan.

Do you have career advice for Army environmental managers? Two things imme-

diately come to mind — people and the big picture. Your success is ultimately dependent on the quality of your surrounding cast. It is essential to ensure your staff receives the required training and professional development to meet their career objectives. In this fast-paced working environment, individuals will give more if they know that you have their best interests at heart.

Army managers should view their cleanup activities from the big-picture standpoint. When making decisions, it is important to consider the impact to stakeholders within the cleanup community.

Any message for installations? The installations are the “center of the universe” for the cleanup program. The success or failure of the program is dependent on the installation's participation. It is essential that installations know that AEC is there to support them in the execution of their cleanup activities. We value the work that they have accomplished throughout the years, from the inception of the Installation Restoration Program, and, as we transition to MMRP, they will continue to be essential to ensure successful program completion.

Jean Skillman is the web manager, U.S. Army Environmental Command Public Affairs Office.



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<http://www.imcom.army.mil/sites/pw/digest.asp>

Acronyms and Abbreviations

MMRP	Military Munitions Response Program
USAEC	U.S. Army Environmental Command



Gibbons occupies unique role at Yuma Proving Ground

by Yolie Canales

Wildlife biologist Jason Gibbons has one of those jobs any outdoor enthusiast would envy — hike into some of the most beautiful places in the Arizona desert to evaluate Army activities in relation to native plants and animals.

“It’s hard to describe what I do and still have others consider it work,” said Gibbons with a smile. He added, more seriously, “I enjoy the challenges and problem solving that go hand-in-hand when you’re trying to study, survey or evaluate the impact of something in the wild.”

Gibbons, who is with the Yuma Proving Ground’s Environmental Sciences Division, ensures that YPG fully complies with all Army, federal and state natural resource regulations and laws.

“I oversee the implementation of the YPG Integrated Natural Resources Management Plan,” said Gibbons. “This plan outlines YPG’s responsibilities for land management and grounds maintenance, fish and wildlife management, outdoor recreation and cultural values, and endangered species.”

His position keeps him quite busy.

“The YPG Environmental Sciences Division plays a vital role that goes hand-in-hand with the Yuma Test Center mission,” explained Gibbons. “For example, if a test director wants to test an artillery round at the Kofa Firing Range and hasn’t submitted a record of environmental consideration to our office, he can’t do it.”

Before a test director can proceed with a test project, said Gibbons, the environmental office must lay the environmental groundwork, including compliance, conservation, pollution prevention, restoration and internal assessment.

“My job is to ensure the necessary ‘T’s’ are dotted and the ‘T’s’ are crossed to ensure that not a single test is delayed by litigation or court order for noncompliance with environmental law,” he said. “Without the environmental office, I believe we wouldn’t be able to test or construct a single thing.”

Gibbons faces challenges that include environmental assessments, permit applications and other environmental documents that come through the office. He said his greatest challenge is giving each project the environmental analysis it’s due within the time constraints required by testing and training activities.

“I wish I could witness every project on the ground, no matter how small. We have contractors who write many of our larger environmental documents, but I review every statement and weigh it against the best available science,” Gibbons said.

He also works closely with the Arizona Game and Fish Department in conducting mule deer and desert bighorn sheep surveys from helicopters and fixed wing aircraft. Working with the AGFD, he plans and participates in the net-gunning of deer and bighorn sheep for radio telemetry and translocation projects.

Gibbons grew up with a passion for science, hunting and fishing. Realizing in high school that competition for wildlife




Jason Gibbons, wildlife biologist (right), assists Bob Waddell of the AGFD during last November’s desert bighorn sheep telemetry project near YPG. Photo by George Andrejko, AGFD

jobs was fierce, he began volunteering with the local fish and game department and the U.S. Forest Service in his native Washington state. He graduated in 1999 with his bachelor’s degree and a list of practical experience under his belt that enabled him to join the federal government as a wildlife specialist in Washington.

He also spent more than three years with the U.S. Department of Agriculture, Wildlife Services Division in Guam as a supervisory wildlife biologist and canine program manager. An important role of his office was to assist in the recovery of endangered species and prevent the invasive brown tree snake from stowing away in Navy, Air Force and commercial cargo vessels or aircraft bound for destinations overseas.

An avid archery hunter and fly-fishing hobbyist, Gibbons also likes to camp, see new sites and learn about new areas.

Yolie Canales is editor of *The Outpost* and deputy public affairs officer, YPG. 

Acronyms and Abbreviations	
AGFD	Arizona Game and Fish Department
YPG	Yuma Proving Ground



Key retirements

compiled by Mary Beth Thompson

Michael Q. Frnka, chief of Public Works Division, Installation Management Command, Southeast Region, for the past five years is retiring at the end of May. Frnka's federal career spanned 38 years and focused on installation support.



*Michael Q. Frnka
Photo courtesy of
Installation Management
Command,
Southeast Region*

His achievements attest to the positive influence he has had on superiors, peers and subordinates throughout his career. He always maintained a can-do attitude regardless of the challenge, his co-workers said. Frnka earned the confidence of his coworkers and staff, the praise of his customers and a reputation as the model of what an engineer should be.

Hank Dangerfield is acting chief. He can be reached at 404-464-1071, hank.dangerfield@us.army.mil.

Edwin A. Theriot, chief of the Environmental Community of Practice, the Southwestern Division Regional Integration Team and the Department of Defense Support Team for the U.S. Army Corps of Engineers, retired at the end of March.



*Edwin A. Theriot
Photo by F.T. Eyre*

Among his prior assignments, Theriot served as senior advisor to Ambassador Paul Bremer, head of the Iraq Coalition Provisional Authority, and in several Corps senior leader positions. During 27 years in research and development, he directed research for more than 13 years in the areas of aquatic ecology, risk assessment and river restoration.

Stacey Hirata is acting chief for all three positions. He can be reached at 202-761-5642, stacey.k.hirata@usace.army.mil.

Kristine L. Allaman, director of the Strategy and Integration Directorate and chief, Installation Support Community of Practice for the U.S. Army Corps of Engineers, will retire in early June.



*Kristine L. Allaman
Photo by F.T. Eyre*

In a time when women were discouraged from pursuing careers in science and engineering, she earned a bachelor's degree in aerospace engineering. Her career with the Army began in Germany, and she has worked tirelessly in a number of roles around the world for the Army and the Corps. In her last position, she outlined a roadmap for the future that will serve the Corps for many years.

An acting replacement had not been named at press time.

Colonel Mark A. Loring, deputy director, Operations, Office of the Assistant Chief of Staff for Installation Management, retired in April.



*Colonel Mark A. Loring
U.S. Army photo*

Loring's Army career spanned 33 years, including six years as an enlisted man with the 82nd Airborne Division at Fort Bragg, N.C. He earned a bachelor's degree in 1981, a master's degree in business administration in 1989 and a master's degree in foreign national security studies in 2004. Loring served in various engineer assignments in Germany, at Fort Bragg, at Fort Riley, Kan., in Bosnia-Herzegovina and on the Army staff.

Bob Sperberg is the acting deputy director. He can be reached at 703-604-2430, robert.sperberg@hqda.army.mil.

Mary Beth Thompson is managing editor, *Public Works Digest*.

Regional installation leaders exchange jobs

The last original senior members of the U.S. Army Installation Management Command who still occupied their original jobs left those jobs in May, but not the organization. The region directors of Northeast Region and Europe Region simply traded places.

Diane M. Devens moved from director of IMCOM-Northeast, where she

conducted oversight, management and execution functions for that region's 28 installations to IMCOM-Europe. Russell B. Hall, who held the same responsibilities for Europe Region relocated to Northeast Region. They each bring their experience and unique talent to the other's former job under the change.

"I'm glad this move worked out for

everyone because we can meet the Army's intent of keeping SES [Senior Executive Service] leaders fresh by moving them every few years, but we get to keep their experience and institutional knowledge with IMCOM for a while longer," said IMCOM Executive Director Philip E. Sakowitz.

From an IMCOM news release

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