



2000

U.S. ARMY ENVIRONMENTAL CENTER



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# COMMANDER'S MESSAGE

One-and-a-half billion dollars to manage. Fourteen million acres to protect and restore. Fourteen hundred installations to support. Two hundred endangered species to shelter.

When you look at the depth and breadth of the Army's responsibilities, it might appear that the focus is on numbers. Indeed, as the Army's point organization for integrating environmental programs, USAEC can not tell its story without numbers: We have created, shaped and supported a wide variety of programs during the last 25 years, avoided hundreds of millions of dollars in costs, and persisted through some challenging personnel reductions (25 percent reduction in force over the last five years).

However, USAEC is more than a laundry list of numbers or an impersonal collection of initiatives. We're an energetic group of professionals — physical scientists, safety and health experts, chemists, biologists, geologists, engineers and attorneys — dedicated to both Army training and sustaining the environment. Whether we're safeguarding the habitat of the red-cockaded woodpecker, preserving sacred Native American burial grounds, or preventing erosion and maneuver damage, we continue to promote our soldiers' readiness and well-being while protecting the environment.

Our efforts have not gone unnoticed. Fiscal year 2000, in fact, has been a banner year for us. For example, just since October, three USAEC programs have received Vice Presidential Hammer Awards, which recognize federal partnerships that provide for more efficient government at lower operating costs. The Joint Working Group for Non-toxic Ammunition, the Conservation Team partnership programs and "Team Hawthorne," who developed a low-cost, low-tech environmental cleanup solution for energetically contaminated soils, have helped the Army more efficiently manage its natural and cultural resources while saving tens of millions of dollars. USAEC has also witnessed the maturation of its environmental initiatives; the Regional Environmental Offices we opened for the Army, for example, have just celebrated their fifth anniversary as integral liaisons between installations and federal, state and local regulators.

This year, as we begin a new century and a new millennium, USAEC has embraced a new vision: to be the world's premier military environmental center and to reveal ourselves as a team of world-class professionals committed to excellence and empowered to shape the future. This report — our third annual accounting to you — tells of the leaps we took this year.

COL Stanley H. Lillie  
COMMANDER  
U.S. Army Environmental Center



Integrate, Coordinate and Oversee Implementation of the Army's Environmental Programs for the Army Staff.

Provide a Broad Range of Environmental Products and Services to Headquarters, Department of the Army; Major Army Commands; and Commanders Worldwide.

Provide Leadership, Focus, Direction and Innovative Solutions to the Army's Future Environmental Challenges.

Develop and Sustain a Value-Based Team of World-Class Environmental Professionals Dedicated and Empowered to Accomplish the Mission.





## HIGHLIGHTS FROM FISCAL YEAR 2000

Critical to the Army's national defense mission is protecting our environment while enhancing the well-being of the American people. Despite increasingly complicated environmental regulations, the U.S. Army Environmental Center continues to develop innovative ways to sustain training areas, clean up contaminated soil, prevent pollution and defend your dollars. We invite you to survey the highlights of our fiscal year.

### **IT'S HAMMER TIME**

This fiscal year, we've won not one, not two, but three Vice Presidential Hammer Awards for our programs. Conferred by the National Partnership for Reinventing Government, the awards celebrate federal partnerships that create a more effective government at a lower cost. The Joint Working Group for Non-toxic Ammunition, the Conservation Team partnership programs and "Team Hawthorne," who produced an environmental cleanup solution for energetically contaminated soils, have helped the Army more proficiently handle its natural and cultural resources while saving tens of millions of dollars.

### **REOS CELEBRATE FIFTH ANNIVERSARY**

The Regional Environmental Offices (REOs) celebrated their fifth anniversary this fiscal year as integral liaisons between regulators and lawmakers and installations and major Army commands. Whether they are acting as conduits to state and federal regulatory agencies, interceding for installations, or coordinating committees, the REOs are recognized for their valuable regional presence.

### **ENVIRONMENTAL QUALITY TECHNOLOGY PROGRAM**

Technology advances, such as new materials, systems and lessons learned, can enhance the Army's capabilities, minimize costs and lessen environmental impacts. To assist major Army commands (MACOMs) in meeting their environmental technology requirements, USAEC helped the Army develop the Environmental Quality Technology (EQT) program. The EQT program involves a new user-driven management approach that identifies the best projects to fund based on urgency, costs and risk. The Army user community and research and development professionals formed technology teams to develop technology projects and programs. The U.S. Army Environmental Requirements and Technology Assessments (AERTA) database is used to track and analyze user requirements and prioritize program needs. AERTA is revised regularly with support from Army users to ensure that the database reflects their current needs. USAEC works hard with the Army users to refine the requirements so that MACOMs have continual access to timely and relevant information.

### **INTEGRATED TRAINING AREA MANAGEMENT CONFERENCE**

Co-sponsored by USAEC, the ninth annual Integrated Training Area Management (ITAM) Conference drew more than 460 Army civilians, soldiers and support contractors to discuss the latest range management and environmental issues. ITAM provides a uniform program supporting sound natural resources management practices on Army lands to sustain the Army's ability to provide realistic testing and training both now and in the future.

### **NEW EPR CATALOG ON CD-ROM**

Two of USAEC's most requested tools for environmental reporting were released on searchable CD-ROM at the Army Worldwide Environmental and Energy Conference. The U.S. Army Environmental Program Requirements (EPR) Project Catalogs, in U.S. and overseas versions, contain a comprehensive collection of sample project submissions and program guidelines that meet the most current Army EPR policy and guidance.





2000



# POLLUTION PREVENTION

From hazardous material management systems to chemical paint removal, USAEC is developing and supporting techniques to prevent pollution — saving thousands of dollars by reducing hazardous waste, protecting resources and meeting federal guidelines to eliminate pollution in all operations and activities.





## BREAKING NEW GROUND

Always seeking ways to break new ground in pollution prevention, we helped demonstrate the FLASHJET® coatings removal process, an alternative to chemical paint removal and media blasting. The FLASHJET® process offers low lifecycle costs, saves time and reduces the amount of hazardous waste generated during depainting. In fact, FLASHJET® combines two depainting technologies in one process: a xenon-flashlamp and a continuous stream of recycled carbon dioxide pellets. To further ensure worker safety, the process is fully automated and requires limited human involvement.

## OPERATION WASTE REDUCTION

The Hazardous Substance Management System (HSMS) has proven itself to be one of the most effective means to reduce the generation of hazardous waste and simultaneously decrease installation operating costs. We've continued to assist installations in establishing HSMS programs in fiscal year 2000. A combination of the Hazardous Material Management Program and HSMS software, HSMS facilitates centralized hazardous-material control and management and also assists

with environment-related reporting. Installations using HSMS have both reduced their hazardous materials inventory and improved worker safety.

While continuing our comprehensive program — including technical support, training, briefings and newsletters — we're teaming with major commands to field HSMS at nearly 60 installations by fiscal year 2002. Already, we've successfully implemented the system at 47 sites.

### COST SAVINGS AND AVOIDANCES OF THE HSMS PROGRAM

HSMS programs have saved or avoided costs of thousands of dollars. The following numbers represent cost savings/cost avoidance figures from 14 sites for their HSMS start-up year.

- ◆ Pine Bluff Arsenal . . \$194K
- ◆ Fort Campbell . . . \$2,475K
- ◆ Fort Knox . . . . . \$163K
- ◆ Fort Bliss . . . . . \$669K
- ◆ Schofield Barracks . \$755K
- ◆ White Sands . . . . . \$13K
- ◆ Fort Carson . . . . . \$864K
- ◆ Camp Murray . . . . . \$51K
- ◆ Detroit Arsenal . . . \$240K
- ◆ Fort Lewis . . . . . \$325K
- ◆ Fort Irwin . . . . . \$204K
- ◆ Fort Leonard Wood . \$267K
- ◆ Fort Drum . . . . . \$170K
- ◆ Kaiserslautern Industrial Complex . . . . . \$478K

## A POUND OF PREVENTION

Sound environmental planning involving pollution prevention is the most economical and practical means of addressing environmental compliance concerns. With the Navy, Air Force, Marines and other Army agencies, USAEC is an active member of the Field Assistance Support and Technology

Transfer Team, which coordinates visits at participating Army installations and conducts a Pollution Prevention Opportunity Assessment. Installations use the ideas and suggestions we help generate to limit business costs through reductions in waste streams, labor and costs associated with environmental compliance. To date, we have visited more than 23 sites and made recommendations with an estimated cost savings of over \$100 million.

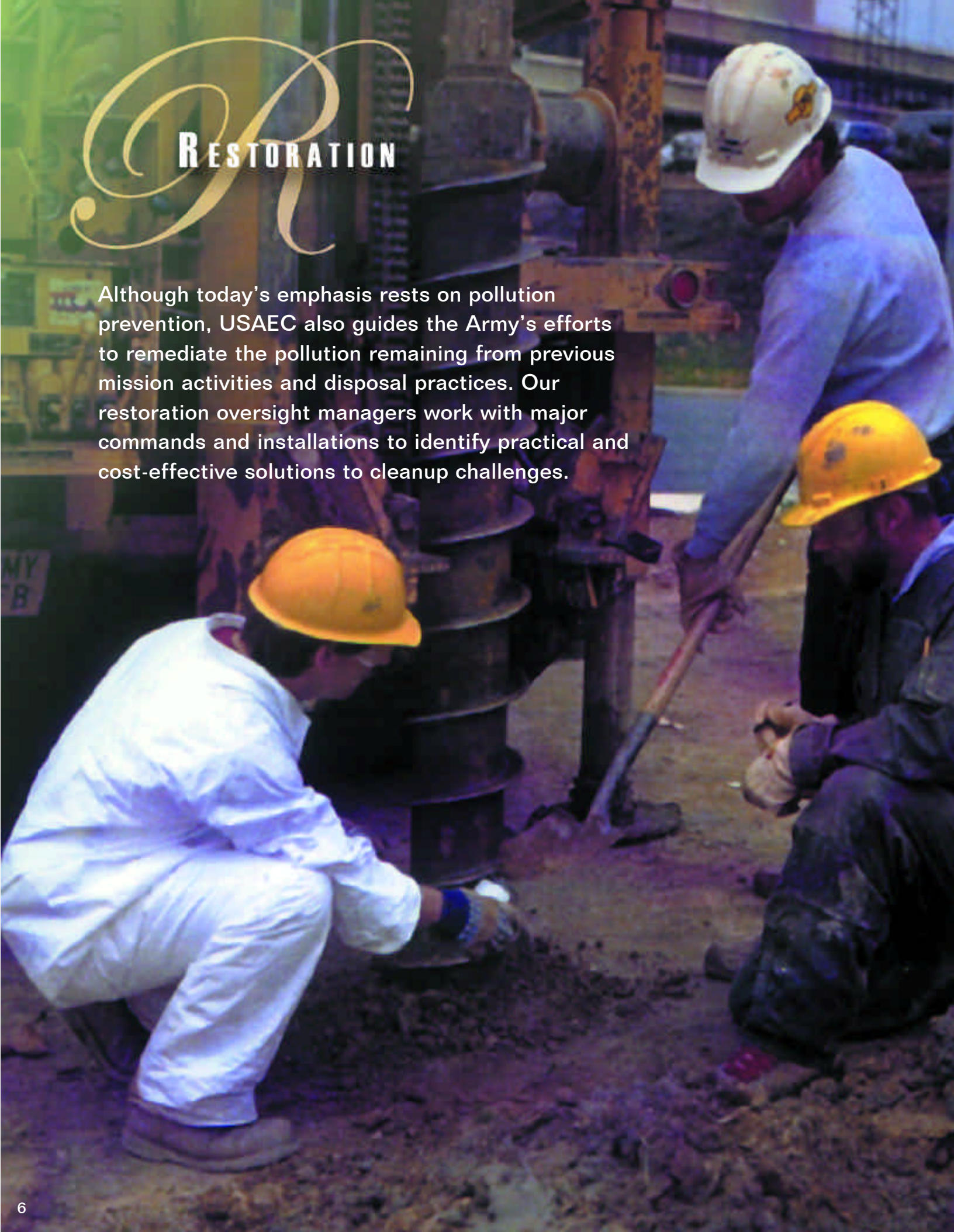
## ACQUISITION SUPPORT

Addressing environmental requirements can form a significant portion of a weapon's total costs, so our Acquisition Support Team works with the Army's weapons management and base operations communities to reduce these expenses during procurement. We've completed estimates of the environmental costs incurred during the development, use and eventual disposal of the Comanche and Apache helicopters; we're already putting that information and other lessons learned in an environmental-cost handbook that all program managers can use to estimate costs for their own weapon systems. Identification of environmental costs will help program managers make informed decisions on environmental issues by allowing them to evaluate the long-term costs of alternative courses of action. USAEC is also developing a range of reference materials — from guidebooks to computer programs — designed to help program managers find environmentally friendly replacements for hazardous maintenance materials, devise other ways to prevent pollution and protect the health and safety of soldiers.



# RESTORATION

Although today's emphasis rests on pollution prevention, USAEC also guides the Army's efforts to remediate the pollution remaining from previous mission activities and disposal practices. Our restoration oversight managers work with major commands and installations to identify practical and cost-effective solutions to cleanup challenges.





## EFFICIENT MANAGEMENT

Highlighting our commitment to effective program management, we appointed a single USAEC Restoration point of contact for each major Army command (MACOM). This new way of doing business simplifies communication and coordination and strengthens an already successful partnership with Army MACOMs.

## ONGOING GUIDANCE

Continuing our aggressive pursuit of cost reduction in environmental restoration, USAEC prepared interim Comprehensive Environmental Response, Compensation and Liability Act five-year review guidance. Our direction promotes consistent reviews that evaluate ongoing remedial actions and long-term monitoring programs.

## TECHNICAL ASSISTANCE

We're always seeking ways to develop a more cooperative and proactive working relationship with installation project teams. In fiscal year 2000, the Independent Technical Review (ITR) endeavor modified its focus of efforts. While we continue to conduct ITRs at select installations, we focused this year also on training and technical assistance to support prior ITR recommendations and systemic issues.

Our successful Principles of Environmental Restoration (PER) Workshop continues to highlight the pillars of a successful environmental restoration program (communication, cooperation, problem and response identification and uncertainty management). Applying the principles to installation-specific issues through hands-on exercises, the PER Workshop helps each project team understand how to best expedite the cleanup effort.

Technical assistance played a major role in both the Base Realignment and Closure and Active Sites ITR efforts in fiscal year 2000. Between both programs, we conducted eight technical assistance efforts, including helping Fort Monmouth reduce the cleanup bill for mercury releases from sewer lines by over \$10 million. We also helped Milan Army Ammunition Plant develop more reasonable soil cleanup levels — which will drastically reduce cleanup costs.

## FROM THE GROUND UP

As part of our mission to provide technical assistance to MACOMs and installations, we worked closely with geophysical experts from several government organizations to identify technology needs and applications to restoration efforts. One such effort was the development of a workshop for installation project

## REDUCING COSTS

As the Army nears its goal of reaching the remedy-in-place milestone for its restoration sites, we are continuing to seek ways to reduce the recurring costs of operating and monitoring cleanup remedies. Approximately 40 percent of the remaining restoration program costs are associated with remedial action operations and long-term monitoring — presenting a tremendous opportunity for finding cost efficiencies.

USAEC has initiated several efforts to reduce these long-term costs. Both the ITR and Groundwater Extraction and Treatment Effectiveness Review (GWETER) efforts ensure that we employ cost-effective remedies and develop exit strategies to ensure a minimum time for the operation of these systems. USAEC also developed guidance to optimize remedial action operations and long-term monitoring, building on ITR and GWETER principles.

managers and Army Corps of Engineers project geologists on downhole geophysical testing techniques. These techniques enhance the characterization of geologic and hydrogeologic conditions that impact contaminant transport and the design of effective responses.

## DATA QUALITY CONTROL

We update our cost-to-complete estimates for both the BRAC Environmental and Installation Restoration Programs annually. This year, the Restoration Cost-to-Complete System (RCTCS) began the transition towards a Web-based system. In fiscal year 2000, installations and MACOMs viewed, printed and updated their site detail sheets — and approved estimates — via the Web. Ultimately, installations will update their cost-to-complete estimates entirely through the Web with USAEC providing data quality control support rather than data entry support.

## PROGRAM REVIEW CROSSWALKS

In an effort to improve data consistency between the Defense Site Environmental Restoration Tracking System, the RCTCS and BRAC work plans, the USAEC supported the BRAC Office in conducting Program Review Crosswalks. In fiscal year 2000, we conducted Program Review Crosswalks on Savanna Army Depot, Military Ocean Terminal Bayonne, Oakland Army Base, Seneca Army Depot, Fort Wingate and Pueblo Chemical Depot Activity.



# RANGE SUSTAINMENT

From “green” ammunition to unexploded ordnance to bullet traps, our comprehensive range sustainment program examines range activities and designs ways the Army can be better stewards of its land. Range sustainment is a partnership between the Army’s environmental, training and materiel-development communities to apply the latest pollution prevention, compliance and conservation techniques to range operations.

## GREEN AMMUNITION

Millions of small arms rounds are fired annually on military ranges during training and testing activities. We found that replacing lead, the material found in conventional projectiles, with a tungsten-nylon or tungsten-tin composite core minimizes the environmental impact of small arms training and helps avoid any potential costly cleanup efforts. Our “green” ammunition allows soldiers to train and fight as they always have, and it has been demonstrated that the tungsten bullets are actually more accurate and cause less weapon erosion than traditional bullets. USAEC is continuing to team with the Army Armament Research, Development and Engineering

Center to produce lead-free replacements for other standard-sized Army rounds while meeting or exceeding U.S. and North American Treaty Organization performance standards — and protecting the environment.

## MANAGING RISKS

To maintain readiness, soldiers regularly participate in testing and training operations using explosive ordnance. Unexploded ordnance (UXO) results when a portion of the rounds used during training malfunctions. In partnership with the U.S. Army Aberdeen Test Center, we’ve been studying the potential risks and environmental impacts of UXO found on installations.





We've developed a program to gather data on the extent and rate at which UXO degrades to the point of environmental air, soil and groundwater contamination. The Army will use this data to support Army efforts in connection with the Range Rule and related matters.

### **OPTIMUM TECHNOLOGY**

The framework we developed to evaluate UXO technology has been used across the country to select companies, systems and sensors for UXO characterization and restoration efforts. USAEC has actively sought advanced methods to detect, locate, identify, neutralize, recover and dispose of UXO. The Center's UXO Technology Demonstration Program, conducted at Jefferson Proving Ground in Indiana, allows users, including private industry, to better select and tailor the optimum technology or system for their needs.

### **VEGETATION MAPPING**

It's no secret that erosion can affect the quality of training sites and the environment on Army installations — and that well-placed, tolerant vegetation can limit the effects of erosion on Army training. USAEC directed a project to produce Guidelines for Mapping Vegetation on Army Installations, which will be useful in making decisions on everything from vegetation management to threatened and endangered species. Developed by the Engineer Research and Development Center-Waterways Experiment Station (Mississippi), the guidelines provide an organized framework for mapping vegetation, identifying available resources and determining specifications and costs.

### **INTEGRATED MANAGEMENT**

Our Integrated Training Area Management (ITAM) team has a multi-million-dollar work plan that supports projects and programs in all four ITAM core components: Land Rehabilitation and Maintenance (LRAM), Land Condition Treatment Analysis, Toxic Release Inventory and Environmental Awareness. Our projects offer geographic information system support and program-specific contract vehicles to accomplish ITAM-related work at installations. We also provide a critical integration of training and environmental programs through involvement in other USAEC programs such as Conservation, the Army's Range Inventory, and the Army Range Integration Steering Committee.





## INCINERATION

### ALTERNATIVE

Many installations contain soil contaminated with petroleum, oils and lubricants (POLs), but excavation of this soil for remediation can disrupt Army operations. USAEC has taken several steps to promote bioventing, an alternative to excavation and incineration that relies on existing microorganisms to remediate the waste. Developed by the Air Force Center for Environmental Excellence, bioventing stimulates the in-situ biodegradation of POLs by providing oxygen to microorganisms in the soil. USAEC successfully demonstrated bioventing at several installations, including Fort Carson in Colorado and Fort Bliss in Texas.

### GOING WITH THE FLOW

USAEC's Groundwater Extraction and Treatment Effectiveness Review (GWETER) program has proven extremely successful with installations that need to determine how well a groundwater treatment system is performing, when the system has reached the end of its usefulness, and whether another method could meet remediation goals at lower costs. GWETER experts evaluate a site's conditions and look for cost-effective alternatives to pump-and-treat systems, especially on installations that lacked the funds to consider other options at the start of cleanup. By maximizing existing systems and establishing appropriate cleanup objectives, the Army expects to avoid costs of \$100 million in the next several years.

## REMIEDIATING

### CONTAMINATED AREAS

Many Army installations use soil vapor extraction (SVE) to remove volatile organic compounds (VOCs) from soil, largely because they can leave the soil in place during the cleanup operation and save money. The Center is developing a model that installations can use to improve the design and operations of such in-situ remediation systems. In fiscal year 2000, we've been conducting characterization and cleanup activities at Twin Cities Army Ammunition Plant in Minnesota to remediate contaminated soils, sediments and groundwater. Our remediation efforts involved SVE systems at two sites to remove VOCs from soils and reduce contaminant migration to groundwater. Sampling data indicate that the systems have removed large volumes of VOCs — while also reducing cleanup costs significantly.

## SETTING NEW STANDARDS

From bridge launchers to forklifts, the Army employs hydraulic fluid when operating many types of equipment, but the disposal costs for used hydraulic fluid can be significant. Recycling hydraulic fluid to Army specifications reduces waste quantity and disposal charges. New fire resistant hydraulic fluid (FRH) costs roughly \$10 per gallon, but it takes less than \$3 to reclaim a gallon of FRH. We've tested, analyzed and improved hydraulic fluid recyclers — resulting in user-friendly, cost-effective machines able to meet military needs.







# ENVIRONMENTAL TECHNOLOGY

USAEC's technology demonstration programs enable the Army to test and implement cost-effective technologies in pollution prevention, conservation, compliance and restoration. Our state-of-the-art tools and techniques — from groundwater treatment systems to alternative remediation — can save significant costs while protecting both our soldiers and our environment.





A large tortoise, likely a Galapagos tortoise, is shown resting on a gravel surface. The tortoise has a dark, textured shell and a lighter-colored head and neck. In the top left corner, there is a decorative green swirl graphic. The background is a blurred green field.

# CONSERVATION

## Protecting Natural Resources

Army installations collectively care for 153 endangered species and nearly 14 million acres of public land, which contain a wide variety of cultural and natural resources. USAEC's conservation programs develop and refine tools that installations need to protect ecosystems and maintain land so our soldiers can train on realistic areas.



## A BIRD IN THE HAND

The North Carolina Sandhills support not only Fort Bragg's soldier training area but also the second-largest population of endangered red-cockaded woodpeckers (RCW) in the United States. USAEC continues to promote the Private Lands Initiative (PLI), an innovative partnership between Fort Bragg, the U.S. Fish and Wildlife Service and The Nature Conservancy developed to protect the RCW's habitat. With the PLI, we're working hard to preserve Fort Bragg's longleaf pine ecosystem while maintaining military readiness and increasing public recreation opportunities. Once the Army meets its RCW recovery goal, Fort Bragg will have little or no training restrictions.

## ENDANGERED SPECIES MANAGEMENT SUPPORT

U.S. Army lands contain superior training space — and 153 threatened and endangered species. USAEC supports the conservation of these "listed" species, while protecting military readiness and preserving installation

budgets. We provide detailed biological assessments and endangered species management plan reviews and provide a federal register review for Endangered Species Act (ESA) announcements that alerts Headquarters, Department of the Army, major Army commands and installations to any newly listed or proposed species in their area. We also support pilot studies at Fort Bliss-White Sands Missile Range and Camp Blanding on species at risk.

## GOING OUT ON A LIMB

We take our mission as environmental stewards seriously and are committed to the Army's Forestry and Agricultural Grazing programs. Installations depend on these programs to support mission and ecosystem management. We continue to streamline the annual workplan process while coordinating with major commands and Army Corps of Engineers districts to ensure fiscal efficiency at the installation level. As the Army's representative on the DoD Forestry Committee, USAEC was granted \$2.3 million from the Forestry Reserve Account to fund over 40 installation projects, which included longleaf pine ecosystem restoration, forestry equipment purchases, sustainable forestry projects and riparian (streamside) protection efforts.

## CONSERVATION

### ASSISTANCE

Always looking for ways to support conservation efforts, we funded 22 projects in fiscal year 2000 through the Conservation Assistance Program (CAP). Limited in scope (up to \$7,500 each), CAP provides rapid technical assistance and technology applications for field problems associated with natural and cultural resources on Department of Army lands. Our projects this year involved threatened and endangered species, soil erosion and survey plan development.

### PEST MANAGEMENT

This fiscal year, we can report on several developments, including invasive species control to manage noxious weeds, pesticide-limiting sensors and precision-targeting approaches. In one of these efforts, we sponsored a three-year, multi-agency trial of a strategy for controlling imported fire ants (IFAs) with reduced amounts of pesticides. Using a combination of pesticide-reduction with self-sustaining biological control agents, this integrated pesticide management method is designed to enable areawide, sustained management of IFAs at significantly lower costs.

### REMOTE SENSING

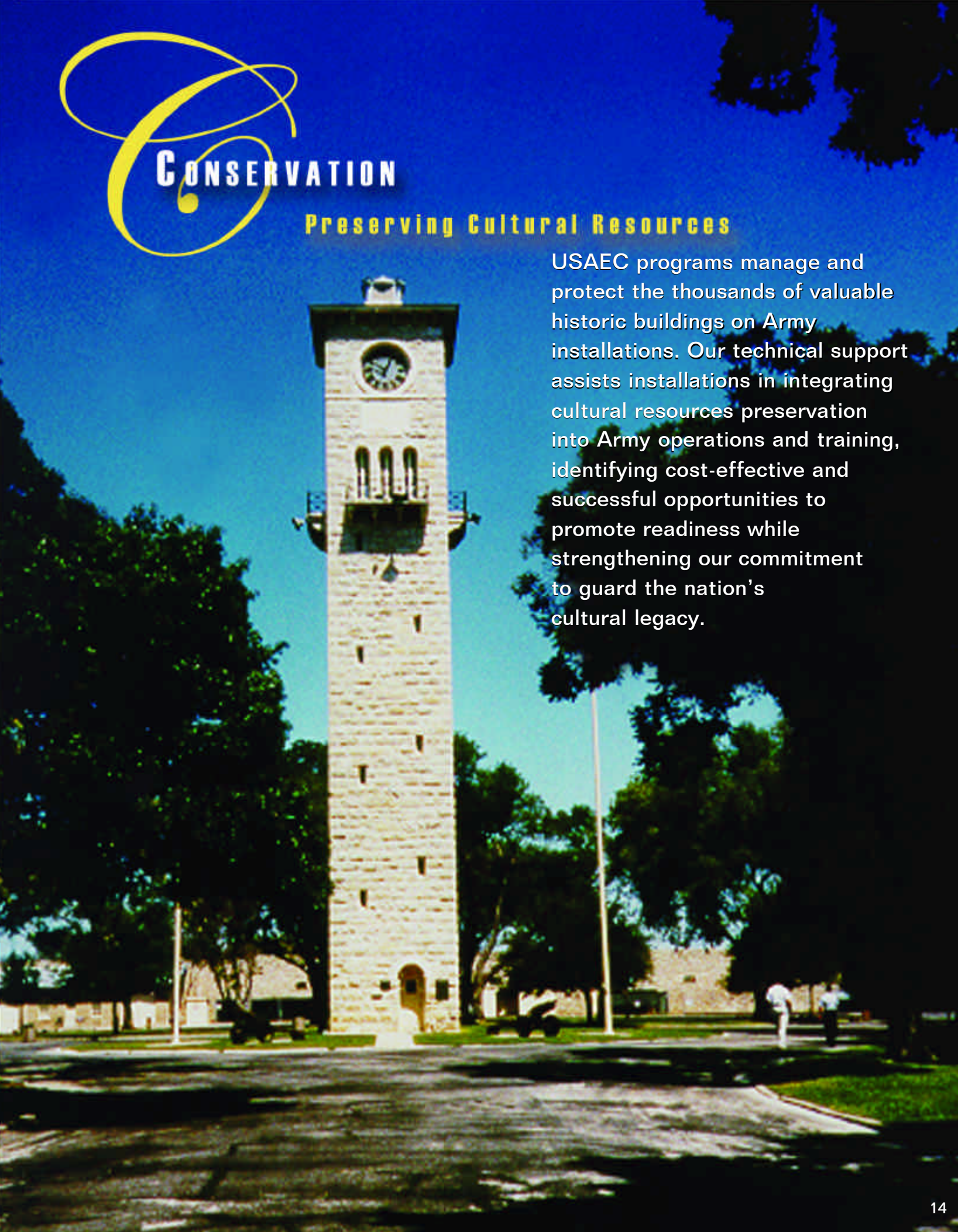
Land managers looking to detect erosion, plan mitigation projects or minimize training impacts will find our Remote Sensing User's Guide valuable. Produced with the Army Corps of Engineers, the guide describes available and near-term remote sensors so resource managers can make more effective remote-sensing decisions. Users will also be able to locate helpful literature and imagery and judge whether to work independently or use contractor expertise.





# CONSERVATION

## Preserving Cultural Resources



USAEC programs manage and protect the thousands of valuable historic buildings on Army installations. Our technical support assists installations in integrating cultural resources preservation into Army operations and training, identifying cost-effective and successful opportunities to promote readiness while strengthening our commitment to guard the nation's cultural legacy.



## IMPROVING PROPERTY MANAGEMENT

Army management of historic buildings is currently guided by regulations under the National Historic Preservation Act (NHPA) 36 CFR Part 800. The thousands of historic buildings on Army installations form an important part of our nation's legacy. To improve Army management of these properties, we've worked to produce alternate procedures under Section 106 of the NHPA. In addition to enhancing NHPA compliance, the alternate procedures will reduce procedural requirements and project delays — and save the Army a projected \$1.5 million to \$4.2 million annually for 30 years.



## COOPERATIVE AGREEMENTS

The Army encourages the effective, long-term, and sound stewardship of the cultural resources entrusted to its care. In the face of a growing inventory of cultural resources and limited funds, we're always looking for progressive and efficient management methods. With our support, the Army established a number of Cooperative Agreements for cultural resources support, taking advantage of the cooperative agreement authority provided by the

Defense Authorization Act of 1997 and Army Regulation 200-4, "Cultural Resources Management." All Defense Department services will find the agreements useful in meeting cultural resources management needs, including curation; development of Integrated Cultural Resources Management

Plans; technical support for identification, evaluation and treatment of cultural resources; Native American consultation support; and conference, meeting, or symposium support.







# COMPLIANCE

Despite complying with increasingly complex and numerous environmental requirements, Army commanders must remain dedicated to meeting their mission objectives. Our innovative monitoring programs, permitting expertise and educational guides help keep the Army in compliance with environmental laws and regulations.



## WASTEWATER PRETREATMENT PROTOCOL

Installations that privatize their wastewater treatment plant will find a new USAEC Pretreatment Protocol important reading. The Protocol, titled *Guidelines for Developing Wastewater Pretreatment Programs*, describes how to determine which industrial operations are discharging to sanitary sewers and helps installations decide what to do about these operations from an environmental perspective.

A significant Army initiative now impacting the environmental program is the privatization of utilities on Army installations. The Army is turning management of electric, gas, water and wastewater utilities over to the private sector, but the biggest impact is expected for utilities that treat water and wastewater. The discussion in the protocol will have information that will save installations both time and money.

## CRITICAL COMPLIANCE ASSESSMENT

Effective management of drinking water and wastewater programs is necessary for maintaining environmental compliance. However, stringent Safe Drinking Water Act and Clean Water Act requirements, the age and condition of many Army systems, and the scarcity of maintenance and new construction dollars can make compliance a challenge. To help major Army commands and installations improve program management of critical drinking water and wastewater systems, we developed and implemented a compliance assessment protocol.

Focused only on key criteria, the protocol provides critical information for installation decision-makers and identifies potential problem areas for less than 15 percent of the cost of full-scale engineering assessments. The protocol provides a cost-effective and time-saving way to evaluate the condition of drinking water and wastewater systems, and rank them on their ability to meet current and future compliance requirements. In addition, it provides valuable information to supplement utility privatization studies and economic analyses.

In fiscal year 2000, the protocol was successfully used at seven Army installations, including Fort Lewis and Yakima Training Center, Washington; Fort Indiantown Gap, Pennsylvania; Fort Campbell, Kentucky; Camp Bullis, Texas; Camp Roberts, California; and Camp Robinson, Arkansas.

## AVOIDING COSTS

The Environmental Protection Agency, under pressure from industry and some governmental

agencies such as the Defense Department, agreed to defer listing coal ash as a hazardous waste. USAEC provided valuable input to the DoD on this issue. As a result, Army coal-burning facilities will save significant dollars and avoid the burden of managing a hazardous waste. While the Army has significantly phased out the burning of coal in utility boilers, eight Army installations still burn coal, some of which dispose of up to 36,000 tons of coal ash per year. The deferral of the listing of coal ash as a hazardous waste is expected to avoid the very large costs associated with the handling and disposal of the ash as a hazardous waste.



## LIVING DOCUMENTS

The Army has initiated efforts to make its traditionally heavy armored forces more mobile, more lethal, more survivable and easier to maintain. To help the Army accomplish its goals, we've supported installations in implementing and managing the National Environmental Policy Act (NEPA), which requires that potential environmental impacts be evaluated before certain federal actions can be initiated.

The Center's NEPA manual advises installations on integrating the requirements of NEPA and Army Regulation 200-2 into the materiel acquisition process. We developed the manual as a "living" document, compiled in a loose-leaf format for convenient updating.

## INVESTIGATING ENVIRONMENTAL COMPLIANCE

The Environmental Compliance Assessment System (ECAS) is instrumental in helping installation commanders attain and maintain compliance with environmental laws and regulations. The ECAS program, which we initiated in 1991, includes both internal and external assessments conducted on a three-year cycle. During an assessment, a team of evaluators investigates an installation's environmental program to provide its commander with an objective view of the installation's state of environmental compliance. The U.S. Army Center for Health Promotion and Preventive Medicine and the Army Materiel Command Installation and Support Activity conducted assessments at 41 active Army installations in fiscal year 2000. Also last year, contractors conducted assessments at Army National Guard facilities in 17 states. And U.S. Army regional support commands conducted 321 U.S. Army Reserve facility assessments.





# REGIONAL ENVIRONMENTAL OFFICE COORDINATION

## **DEMONSTRABLE PROGRESS**

Establishing good communication and coordination and other partnerships between military installations and state and local government environmental regulators has always been a focus of the Northern Regional Environmental Office (NREO). Currently, the NREO leads or plays a significant role in eight DoD/State pollution prevention (P2) partnerships; three DoD/State environmental management work groups; two DoD/State multi-site cleanup agreements; a partnership with Illinois and U.S. Environmental Protection Agency (EPA) Region V to develop a memorandum of agreement on land use controls employed in site remediations; and the annual Region III DoD/Regulators environmental colloquium, which in fiscal year 2000 connected more than 300 participants. The NREO also participates in a number of installation Restoration Advisory Boards throughout its geographical area, providing facilitation services when requested. These initiatives promote demonstrable progress on real issues and a substantially improved compliance enforcement relationship.

## **VALUABLE RELATIONSHIPS**

The Western Regional Environmental Office (WREO) developed its Outreach Initiative to build valuable relationships with regulators, the private sector, tribal groups and DoD. This ongoing effort — which unites participants in our common goal of pursuing environmental stewardship — includes such diverse activities as the Hawaii Pollution Prevention Partnership, the Alaska Environmental Forum, and the Legislative and Regulatory Analysis Monitoring Program.

## **COLLABORATIVE DECISION-MAKING**

The Southern Regional Environmental Office (SREO) continues to identify existing collaborative decision-making forums from which the military has traditionally been left out. These forums often provide opportunities to enhance the military mission while improving the environment. One such effort is the Southeast Natural Resources Leaders Group (SENRLG), a high-profile collaboration of 10 regional federal executives that promotes the conservation and restoration of natural resources; the stewardship of natural, biological and cultural resources; and ecologically sustainable development. As the DoD regional environmental coordinator for the EPA Region IV, SREO was added to SENRLG as the military representative and now participates on the executive, watershed, sustainability and communications committees.

## **MEMBER OF THE ROUNDTABLE**

The Central Regional Environmental Office (CREO) has significantly improved overall P2 coordination within EPA Region VI by leading the Defense Department into involvement with the regional P2 Roundtable. Although the DoD participates in a number of DoD/State P2 activities within Region VI, it had not traditionally been an active member of the Roundtable, a forum of state P2 coordinators that work with the EPA's coordinator on common regional P2 issues. As a result of CREO's efforts, the DoD is now a recognized participant in these forums and in the regular Roundtable Steering Committee meetings.





USAEC's Regional Environmental Offices celebrated their fifth anniversary this fiscal year as vital liaisons between major Army commands and installations and federal, state and local regulators on significant regional topics. Army regional environmental coordinators and their staffs work with key decision-makers, using their comprehensive understanding of the issues to more closely monitor local legislation and regulations that can affect Army training.





# REPORTING

One of our most vital projects is reporting on environmental programs to congressional, Defense Department and Army leaders. Our reports must be both comprehensive and accurate since these decision-makers use our data to develop initiatives and identify funding for Army environmental programs. USAEC's reporting tools make it easier for installations to collect and forward this critical information through the chain of command. We also gather, evaluate and manage the data, producing functional reports that illustrate the judicious use of stakeholder investments in Army environmental programs.

## INTEGRATING ENVIRONMENTAL DATA

What's the most efficient medium for collecting, accessing and assessing information? Our Army Environmental Database (AEDB) and Analysis Toolkit make use of the World Wide Web to allow users to retrieve and analyze Army environmental data.

The AEDB, an integrated Oracle database, merges the Army's major environmental reporting systems: Environmental Program Requirements Module (EPR-M), Environmental Quality Report (EQR), Defense Site Environmental Restoration Tracking System (DSERTS), Restoration Cost-to-Complete System (RCTCS), ECAS, and the Installation Status Report (ISR) Part II (Environment). The ISR is already successfully eliminating duplicate data entry at the installation level, but we're continuing to modify it to better support the Assistant Chief of Staff for Installation Management in justifying and prioritizing environmental requirements.

The Analysis Toolkit is a collection of applications and reports designed for the analysis and review of the data collected through the Army's major environmental reporting systems. We gathered the specifications for the Toolkit from the Office of the Director of Environmental Programs and USAEC program managers.

Together, the innovative AEDB and Analysis Toolkit allow users to query and compare data from all of these previously "stove-piped" legacy systems and perform instant, integrated, cross-program analyses of the Army's environmental initiatives and objectives.





## SYSTEMATIZING SOLUTIONS

The RCTCS and DSERTS systems conserve both time and money by allowing the Army to collect information without distributing software to the field. The RCTCS provides consistent, repeatable and justifiable budget estimates for environmental restoration projects at all Army installations. DSERTS provides an automated method to assess health and environmental risks from contaminated sites, track environmental restoration activities at Defense Department sites, and provide reporting and management information for the Defense Environmental Restoration Program.

The Army uses the data in DSERTS to produce the Defense Environmental Restoration Program Annual Report to Congress, which legislators and administrators consider the official word on military cleanup success.

The Army's restoration programs continue to make progress towards program completion. In fiscal year 2000, a net gain of 317 sites achieved Remedy in Place/Response Complete in the active Installation Restoration Program (IRP), while a net gain of 120 restoration sites achieved Remedy in Place/Response Complete in the Base Realignment and Closure (BRAC) program. According to DSERTS, the active IRP has 1,650 sites working towards meeting the program goal of Remedy in Place/Response Complete. The BRAC Environmental Restoration Program has 527 restoration sites working towards this goal and has 79 compliance sites and 32 unexploded ordnance sites in progress. The Cost-to-Complete for the active Installation and BRAC Environmental Restoration Programs was reduced by \$1.4 billion and \$229 million respectively — thanks to technical and programmatic reviews.



## MANAGING ENVIRONMENTAL INFORMATION

To most efficiently evaluate the Army's environmental record, we've developed a system of programs and applications that collect and generate information. For example, EQR is a Web-based data collection application designed to provide an automated environmental reporting process to collect measures of merit data — from permit compliance to Native American cultural resources to installation pesticide management plans — for Headquarters, Department of the Army, commands and installations. We achieved a new level in software test and evaluation standards with a functional testing guide and controlled test protocol. Since we created it in 1997, EQR has saved the Army many hours by automating data entry and submission.

EPR-M is a Microsoft Windows-based software application that allows tracking and reporting on environmental projects and funding. The Environmental Program Requirements (EPR) reporting system was established in Executive Order 12088 and Title 10 USC 2706(b) as a way to comply with Defense Department environmental budget reporting requirements to Congress. The EPR has become a standard Army method to plan, program for and budget the projects and related funds required to manage environmental programs; practice good environmental stewardship; and achieve and sustain compliance with existing laws, regulations, executive orders, official governing standards and international agreements.

Two of our most requested tools for environmental reporting were released on searchable CD-ROM. The U.S. Army Environmental Program Requirements (EPR) Project Catalogs, in U.S. and overseas versions, contain a comprehensive collection of sample project submissions and program guidelines that meet the most current Army EPR policy and guidance. The EPR document allows Army commanders and environmental managers at all levels to identify, plan, execute and defend the resources necessary to fulfill environmental program goals and maintain mission readiness. It also serves as a central component in the Army's strategic environmental planning process.

To review projects reported in EPR-M, we developed the Environmental Program Requirements Review (EPR-R), a Web-based application that helps us assess Army environmental projects. Using the EPR-R, a reviewer can view all aspects of a project as reported in EPR-M (narrative, environmental category and law or regulation), as well as comments from the previous review cycle to ensure data integrity.



# R REGULATORY MONITORING

The military, like other federal agencies and the private sector, must comply with all relevant and applicable environmental laws and regulations, including future requirements. To ensure that new environmental requirements are reasonable, based on sound science, and don't inadvertently impact military missions through unintended consequences, each military service monitors and analyzes various legislative and regulatory actions. Our Environmental Legislative and Regulatory Analysis and Monitoring Program (EL/RAMP) and the State Regulatory Analysis and Monitoring Program (S-RAMP) actively educate the developers of environmental requirements and, for new requirements, position the military to develop effective compliance strategies.

## COMMUNICATING AND EDUCATING

EL/RAMP and S-RAMP are designed to inform service leadership of new environmental requirements at their conception. As new environmental requirements are developed, EL/RAMP or S-RAMP produces requirement summaries, information papers, impact analyses, and, to the organization developing the proposed requirement, comments. These requirements include those from the President, Congress, federal regulatory agencies, states, territories and local governments. This involves the military in critical stages of lawmaking and regulation-writing processes.

EL/RAMP and S-RAMP activities include, but are not limited to, monitoring, prioritizing, analyzing and commenting on emerging, proposed and final environmental requirements that can affect military operations. These requirements include:

- ◆ New federal and state legislation
- ◆ Proposed/modified federal and state regulations
- ◆ Executive Orders
- ◆ Treaties

## STRONGER PROGRAMS

USAEC's improvements to EL/RAMP in fiscal year 2000 will help to ensure Army leaders receive useful legislative and regulatory information. We enhanced EL/RAMP's ability to track regulatory agendas by refining the Semiannual Report System database that feeds into a newly developed Activity Planner and Tracker database. These two databases are the program's major reporting and analysis tools, enabling the USAEC to prioritize regulatory activities and plan actions. We also worked with staff of the Army Secretariat, Army Environmental Policy Institute, The Judge Advocate General, Army Regional Environmental Offices and Army Environmental Strategic Action Plan Workgroups on EL/RAMP business practices and, more importantly, on addressing a variety of proposed and newly implemented specific regulatory activities.



## **RANGE RESPONSES**

USAEC is a leader in the development of the Defense Department's range response program. We wrote much of the draft DoD Range Rule, a proposed federal regulation for evaluating and addressing environmental and explosives safety issues at former military ranges. We also researched and analyzed current environmental laws and regulations that may affect ongoing range activities and provided legal assistance on various munitions and range issues.

## **NEGOTIATING AGREEMENTS**

We represented the Army in eight months of negotiations with the State of New Jersey, DoD and the other services on a Voluntary Cleanup Agreement (VCA). The VCA outlines the framework under which cleanup will proceed on non-National Priority List military sites in New Jersey. In addition to providing such a framework, the negotiations forged a positive working relationship between the parties, and allowed each party to understand the goals and constraints of the other participants in the restoration process. This follows on to the successful similar arrangement in the State of Pennsylvania in July 1998.

## **LAND USE CONTROLS**

If an active or closing military site is slated for industrial use, it makes little sense to spend significant time and money restoring it to "residential" conditions. Land use controls are physical, legal and administrative measures designed to limit exposure to contaminated areas to ensure that the use of the property is protective of human health and the environment. This can also be a prudent way for the military to prepare a closing or realigning site for its next use. USAEC helped produce a draft DoD Interim Land Use Controls Policy, which focuses on the manner in which land use controls will be implemented at active and closing military sites.

## **NATURAL RESOURCE INJURIES**

An emerging trend across the DoD is the potential for natural resource trustees to actively participate in cleanup decisions and to consider asserting claims for compensation to address injury to natural resources caused by Army releases of hazardous substances. We helped the DoD prepare and release a policy for integration of natural resource injury considerations into cleanup decision-making. Given the far-reaching impact of this policy, the Army decided to prepare implementing policy and guidance, which we played a pivotal role in drafting.

We know from experience that legal issues routinely arise during most environmental projects, having assessed and acted on a wide variety of environmental legal concerns. USAEC's legal office applies its expertise in environmental laws and regulations, fiscal and contracting laws, ethics issues and personnel rules, and administrative procedures under the Freedom of Information and Privacy acts.





# AWARENESS



Because better stewardship stems from increased understanding, we provide direct educational and timely awareness support to installations and major commands. The more soldiers and civilians know about the environment, the better they can protect it.

## ENVIRONMENTAL EXCELLENCE

Environmental awards programs help us spread word of the Army's leading-edge programs to military and public audiences. USAEC coordinates the annual Secretary of the Army Environmental Awards and also organizes Army participation in the Secretary of Defense Environmental Security Awards program. Our comprehensive communication efforts publicize these achievements through articles, photos and video news stories to national and local media — allowing news of the Army's top stewards to reach those who can learn from their examples.

## TRAINING INNOVATIONS

As an enthusiastic member of the Interservice Environmental Education Review Board, USAEC

sponsored classroom conservation courses, produced video- and Web-based courses, and endorsed several other classes offered by the U.S. Air Force, U.S. Navy, U.S. Marine Corps, U.S. Army, Defense Logistics Agency, and U.S. Coast Guard.

While we work hard to generate quality environmental training, we also contain costs by eliminating unnecessary duplication in training development and execution and reducing per-student development and delivery costs. In addition, our video- and Web-based courses spare installations travel costs and time.

## FAST ANSWERS

From chemical agent-resistant coating paint to the Chesapeake Bay

Program, from antifreeze recycling to range issues, our Environmental Hotline found answers for nearly 600 questions in 2000, and while soldiers remain our most consistent customers, they're not the only ones who come to us for information around the clock. Other services, federal and state agencies, contractors and businesses joined the soldiers and Army civilians who called 1-800-USA-3845 with questions or document requests. We also created an e-mail address for the Hotline, giving customers more comprehensive access to environmental reports.





The Army is working hard to care for the environment, and it's important to share our innovative programs and commitment to public lands with local communities.

USAEC provides

comprehensive environmental public affairs support to Army Headquarters, major commands and installations to help them build strong relationships with their neighbors.



increase their own knowledge through training and information sessions. USAEC receives high visibility by participating in various conferences, including the National Defense Industrial Association Environmental Symposium, the Association of the United States Army Conference, the Joint Service Pollution Prevention/Hazardous Waste Management Conference, the Installation Commander's Conference and the National Recycling Coalition Congress.

### EARTH DAY 2000

The Army has good news to tell about its environmental programs, and Earth Day provides a perfect opportunity to get that news out to the media, the communities surrounding our installations and our soldiers. Every year since 1994, USAEC has managed the Army's Earth Day program to create a more visible and accessible program for national, local and Army audiences. Earth Day activities were conducted in April 2000 across the Army using the theme and products we developed that tie all Army events together as one Army Earth Day celebration. Perhaps our most notable product in fiscal 2000 was the poster of an Army soldier holding the Earth in his hands and bearing our theme: "Preserving the Past, Protecting the Future." We distributed over 30,000 of these posters worldwide.

### GOOD NEWS

Our national print and broadcast initiatives tell the Army's environmental story to millions of readers and viewers in the Army, Defense Department and American public. Our quarterly Environmental Update — a 1998 Keith L. Ware Army journalism award-winning publication — includes useful articles on cost-effective ways to do business related to environmental matters. Our Soldiers Radio and TV stories and bimonthly "Environmental Front" feature in Soldiers magazine relay the environmental ethic to troops at all Army levels. And with their combinations of success stories and legislative and regulatory news at the state level, our Regional Office newsletters keep installations and major commands informed of pertinent regulatory issues.

### ON THE WEB

USAEC's World Wide Web site received an astounding more than 6 million hits in fiscal year 2000 — compared to just under 2 million hits the previous year. The newly revamped site offers hundreds of files, photos, sound bites and videos on a range of topics. Visitors can catch the latest environmental news, download awareness materials and operating guides, tap into the Army's major environmental reporting systems, and gather information that can help them build effective environmental programs.

### USAEC ENVIRONMENTAL EXHIBITS

When our exhibits travel to conferences around the country, we have the opportunity to share first-hand knowledge and answer specific questions received from soldiers, technical experts and the general public. Program managers from the Center share success stories with their peers and have an opportunity to





The many partnerships we've formed — with other services, Army organizations, government agencies, federal and state regulators, communities and businesses — combine resources and ideas to protect Army readiness, increase stewardship and improve everyone's well-being. We know from experience that teamwork goes a long way in protecting our environment.

### SUPPORTING OUR YOUTH

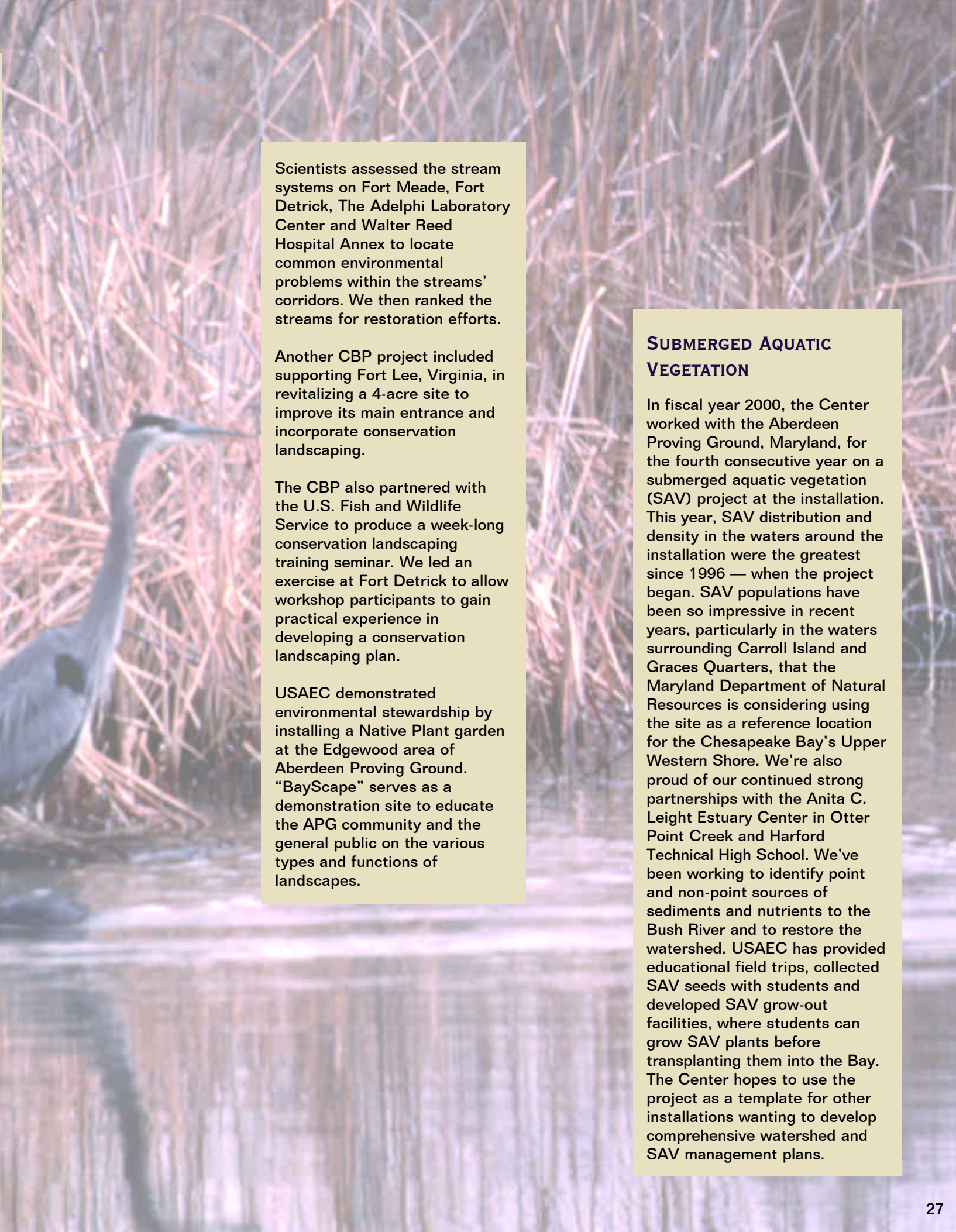
USAEC renewed its award-winning partnership with Edgewood Elementary School in Maryland for the third year, and pledged to promote the environmental sciences and professional career paths among the school's students, parents and teachers. During the 1999-2000 school year, USAEC hosted environmental activities that included an interactive Science Night, an outdoor Earth Day ceremony with poster and essay contests, a Mock Trial, a year-long reading enrichment program and classroom presentations about the Chesapeake Bay, recycling and other environmental topics. The Center's support to the local community has not gone unrecognized, and during a partnership renewal ceremony November 2000, the Assistant Superintendent of Harford County Public Schools thanked USAEC for its continued commitment to children and their education.

### CHESAPEAKE BAY PROGRAM

The Chesapeake Bay watershed is a complex, delicate ecosystem that serves as home to more than 3,500 species of plants and animals — and to 19 Army installations, including USAEC's headquarters at Aberdeen Proving Ground, Maryland. We support the Army Chesapeake Bay Program (CBP), a governmentwide endeavor to protect this national resource, by providing technical and administrative assistance and public awareness and education.

The CBP and DoD partnered with the Maryland Department of Natural Resources to conduct stream assessments on several Maryland Army installations.





Scientists assessed the stream systems on Fort Meade, Fort Detrick, The Adelphi Laboratory Center and Walter Reed Hospital Annex to locate common environmental problems within the streams' corridors. We then ranked the streams for restoration efforts.

Another CBP project included supporting Fort Lee, Virginia, in revitalizing a 4-acre site to improve its main entrance and incorporate conservation landscaping.

The CBP also partnered with the U.S. Fish and Wildlife Service to produce a week-long conservation landscaping training seminar. We led an exercise at Fort Detrick to allow workshop participants to gain practical experience in developing a conservation landscaping plan.

USAEC demonstrated environmental stewardship by installing a Native Plant garden at the Edgewood area of Aberdeen Proving Ground. "BayScape" serves as a demonstration site to educate the APG community and the general public on the various types and functions of landscapes.

## **SUBMERGED AQUATIC VEGETATION**

In fiscal year 2000, the Center worked with the Aberdeen Proving Ground, Maryland, for the fourth consecutive year on a submerged aquatic vegetation (SAV) project at the installation. This year, SAV distribution and density in the waters around the installation were the greatest since 1996 — when the project began. SAV populations have been so impressive in recent years, particularly in the waters surrounding Carroll Island and Graces Quarters, that the Maryland Department of Natural Resources is considering using the site as a reference location for the Chesapeake Bay's Upper Western Shore. We're also proud of our continued strong partnerships with the Anita C. Leight Estuary Center in Otter Point Creek and Harford Technical High School. We've been working to identify point and non-point sources of sediments and nutrients to the Bush River and to restore the watershed. USAEC has provided educational field trips, collected SAV seeds with students and developed SAV grow-out facilities, where students can grow SAV plants before transplanting them into the Bay. The Center hopes to use the project as a template for other installations wanting to develop comprehensive watershed and SAV management plans.





# PROTECTING INVESTMENTS

The Center plans, budgets for and executes millions of environmental dollars. As part of our budget support mission, we:

- ✦ Manage the Environmental Restoration, Army (active site) account, a \$376.2 million program in fiscal year 2000. We develop the Army's installation restoration budget, distribute the money to major Army commands, and track and report on its execution.
- ✦ Develop long-term and annual budget submissions for USAEC Environmental Quality programs, which support Armywide pollution prevention, conservation and compliance initiatives.
- ✦ Provide financial guidance and reporting for the Army's Base Realignment and Closure (BRAC) cleanup program, which included a fiscal year 2000 BRAC support budget of \$4.7 million. We provide similar services for the Army's environmental technology transfer program.



## PAST, PRESENT & PROJECTED ARMY ENVIRONMENTAL FUNDING



## OUR SHARE

Of the Army's fiscal year 2000 environmental budget, USAEC managed \$110.8 million in direct and reimbursable funds.

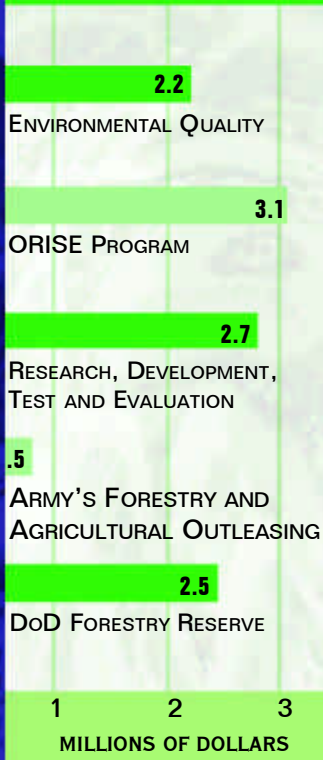
Direct funding covers our programs for Environmental Quality (includes \$10 million Operation and Maintenance, Army [OMA] for unexploded ordnance active and inactive inventory), BRAC support and Environmental Restoration management — \$99.8 million in fiscal year 2000. We also programmed, budgeted for and reported on the execution of another \$357.8 million in Environmental Restoration, Army (ER,A) funds.

## THE ARMY ENVIRONMENTAL BUDGET

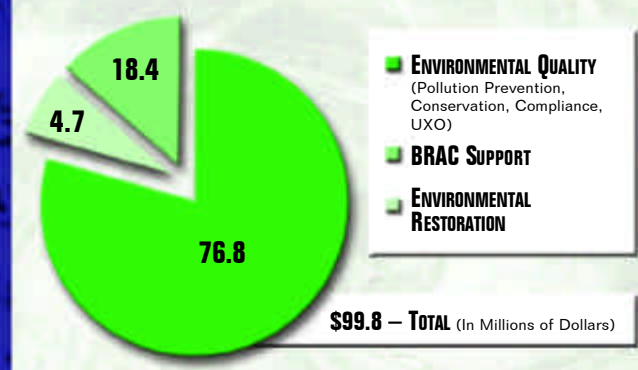
	FY00 \$M	FY01 \$M
TECHNOLOGY	28	34
PREVENTION	53	40
COMPLIANCE	411	405
CONSERVATION	61	82
ER,A	376	390
FUDS	238	186
BRAC	261	108
<b>TOTAL</b>	<b>1428</b>	<b>1245</b>

USAEC also managed and executed funds for \$11.0 million in reimbursable programs. These "other" Army and Defense Department programs — funded outside our direct operating budget — included environmental Research, Development, Test and Evaluation; DoD's Forestry Reserve; the Army's Forestry and Agricultural Outleasing (Forestry); Oak Ridge Institute for Science and Education internships; and various other Environmental Quality initiatives.

## FY00 OTHER PROGRAMS



## USAEC PROGRAMS







# USAEC ORGANIZATION

For more than a quarter century, the U.S. Army Environmental Center has supported the Army's growing role as a world environmental leader. We provide the tools and programs that prepare soldiers, installations, major commands and Army Headquarters to protect readiness and quality of life through sound environmental stewardship. Our skilled team includes professionals in engineering, physical science, technology, chemistry, biology, geology, archeology, history, safety, health, law, resource management, information systems and public affairs. We also work with Army, government, public and private-sector experts to provide unparalleled, cost-effective support for military environmental programs.

## OUR HISTORY

By 1980, when "Superfund" was established, the Army already had several years' experience in environmental cleanups. The Agency responsible for spearheading the Army's environmental restoration program in 1975 continues to offer environmental program support today.

On February 5, 1993, further emphasizing the Army's commitment to protecting our natural resources heritage, the U.S. Army Toxic and Hazardous Materials Agency was redesignated as the U.S. Army Environmental Center (USAEC), under the direction and guidance of the Director of Environmental Programs, a newly created Department of the Army General Officer staff position.

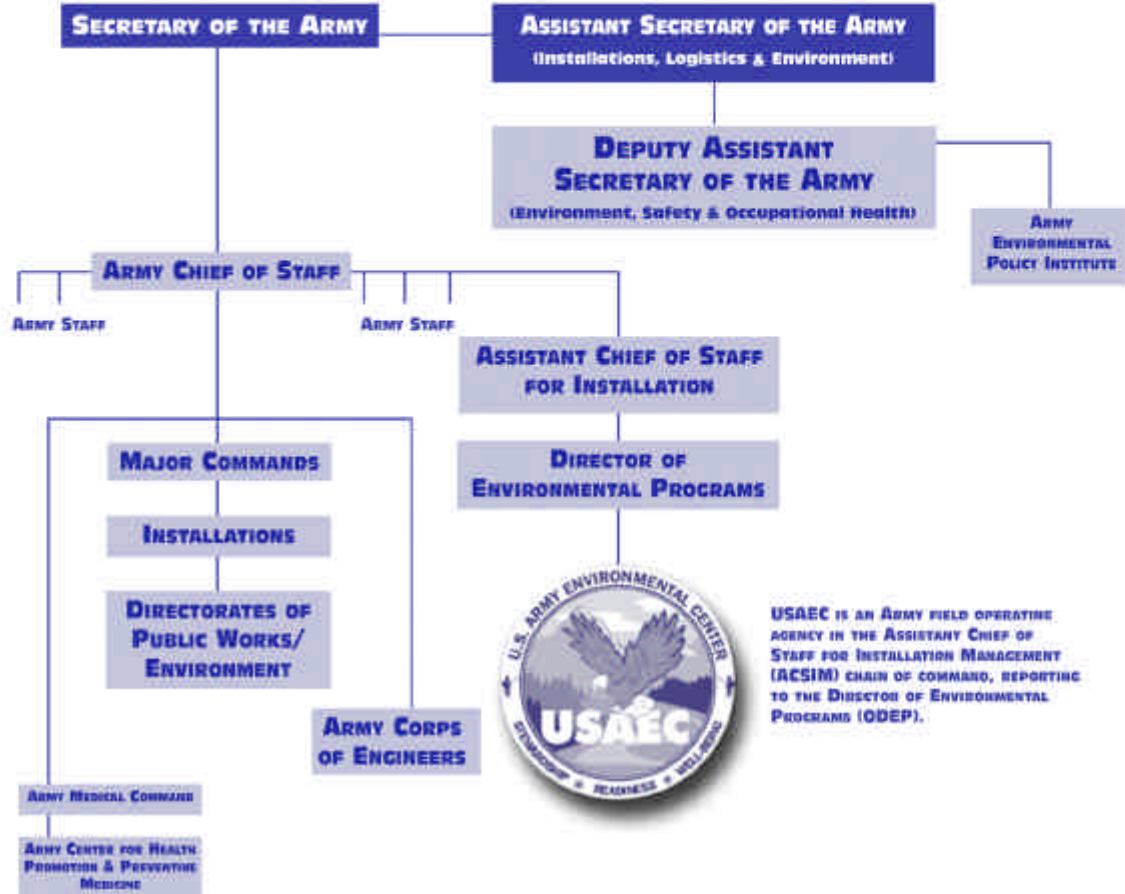
Our original environmental mandate — the restoration of active Army installations — today extends beyond installation restoration to include environmental compliance support and more. We also devote extensive resources and expertise to environmental technology demonstration and transfer.

The USAEC is located at Aberdeen Proving Ground in Edgewood, Maryland. Our team of over 200 military and civilian professionals works hand-in-hand with the environmental staffs of the major Army commands, the Army Corps of Engineers' divisions and districts, field operating activities, installations, and facilities nationwide and around the world.

USAEC's support encompasses the four pillars of the Army's environmental strategy for the 21st century: Compliance, Restoration, Prevention and Conservation. From conducting site investigations to testing groundwater to implementing new sampling technologies, our environmental support takes many forms. Because of its history and mission activity support, USAEC provides a unique combination of technical and management expertise from one source.



## ARMY ENVIRONMENTAL ORGANIZATION







## CONTACTING USAEC

For more information  
about any of our programs,

Call the Army Environmental Response Line  
(1-800-USA-3845)

Visit the USAEC Home Page  
(<http://aec.army.mil/>)

Write  
Commander  
U.S. Army Environmental Center  
ATTN: SFIM-AEC-PA  
5179 Hoadley Road  
Aberdeen Proving Ground, MD 21010



