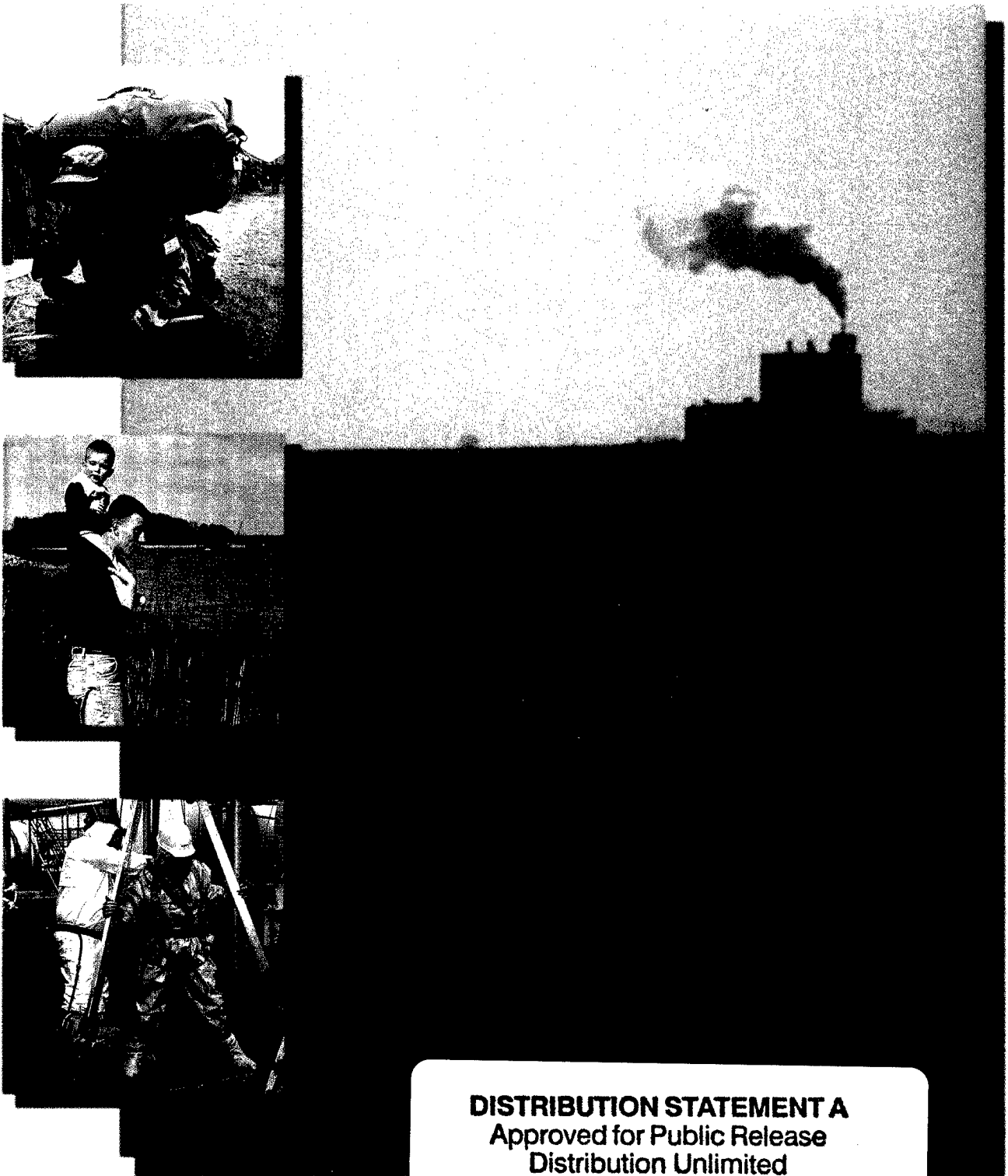


Lyle

Army: A Real Success Story



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1995 Accomplishments Report
Environment ♦ Safety ♦ Occupational Health

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America's Army is constantly challenged as we approach the 21st century. How the Army meets the challenges and protects our most valuable resources—our soldiers and the environment—will determine the nation's future.

Today, we have the finest Army in the world, well on its way into the 21st century. Protecting the force is every leader's moral imperative; we owe it to the sons and daughters of a grateful nation. Let us hold fast to our commitment to fulfill that responsibility.

—Honorable Togo D. West, Jr.
Secretary of the Army



Environmental responsibility involves all of us. The environmental ethic must be part of how we live and how we train. We must seize the opportunities to do things smarter and better. By working together, we can forge a premiere environmental stewardship program. Protection of the environment is the key to ensuring we can continue to conduct tough, realistic training and keep the Army trained and ready in the future.

—General Dennis J. Reimer
Chief of Staff, Army



Readiness and stewardship are inseparable. Our Army is capable of decisive victory while continuing to be good stewards of the earth we inhabit and the soldiers we train. Our commitment to safeguarding the human and natural resources entrusted to our care by this great nation is incorporated in our vision for the Army: America's Army, trained and ready.

—Mr. Robert M. Walker
Assistant Secretary of the Army,
Installations, Logistics, and Environment

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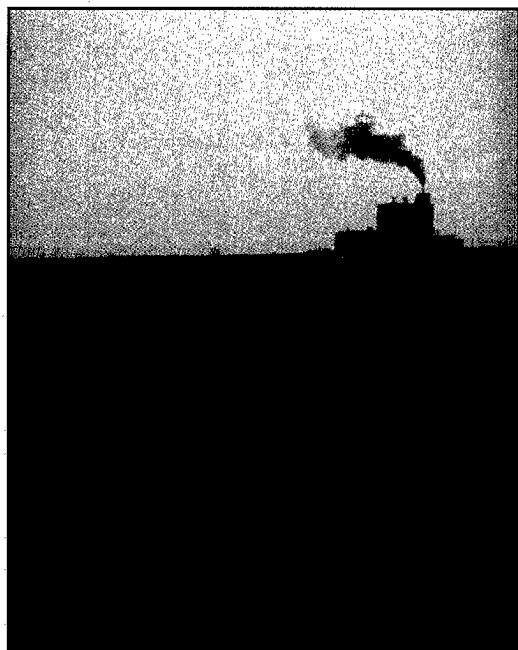


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Cover photo: Rocky Mountain Arsenal has been transformed into the nation's largest urban wildlife refuge. A Submerged Quench Incinerator (SQI), pictured here, eliminated 10.5 million gallons of liquid hazardous waste, creating a safer environment at the arsenal.

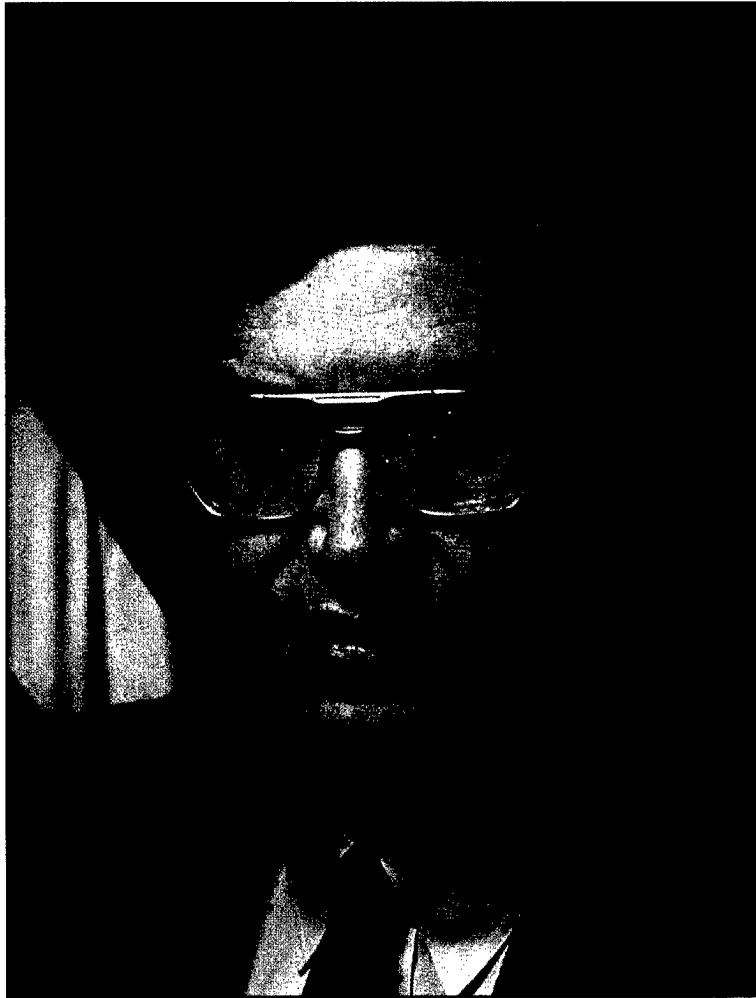
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Table of Contents

- 2 A Message from Mr. Lewis Walker**
- 3 Introduction and Vision Statements**
- 4 Army Success Stories**
- 11 Army Risk Management**
- 12 Deployment—Protecting the Force**
- 14 Information Technology Initiatives**
- 16 A Professional Work Force**
- 18 Integration into the Army's Mainstream**
- 19 Partnerships**
- 22 AEPI—Army Environmental Policy Institute**
- 23 U.S. Army Environmental Strategy into the 21st Century**
- 24 SafeForce21: Road Map to the Future**
- 25 Occupational Health: A Key to Readiness**
- 26 Environmental, Safety, & Health Awards**
- 27 Senior Leader Initiatives**



Over the past fifteen years, I have been extremely impressed by the Army team's efforts to meet environmental, safety, and health challenges. I have witnessed a growing commitment to protecting the resources entrusted to the Army. Efficient and effective management of these programs is essential and is a key element of our mission to defend the nation with forces of sufficient size and lethality to meet a wide range of threats. We are the protectors and purveyors of the fundamental values shared by the American people and continuously strive toward exemplary stewardship. The Army program focuses on protecting the people, equipment, facilities, and environments that are necessary to conducting our mission.

Our future challenges are imposing. As the Army and the world continue to change and evolve, we must strive to sustain our nation's and our allied nations' environments, ensuring that these environments are safe and healthful for our children and all future generations.

*—Mr. Lewis D. Walker
Deputy Assistant Secretary of the Army
Environment, Safety, and Occupational Health*

Introduction and Vision Statements

This report presents an overview of the 1990–1995 accomplishments of the

environmental, safety, and occupational health programs of the Department of the Army. The objective of this report is to demonstrate that, while national defense is the Army's primary mission, there is a strong emphasis on protecting the natural environment; the health and well-being of Army personnel, both military and civilian; and Army equipment.

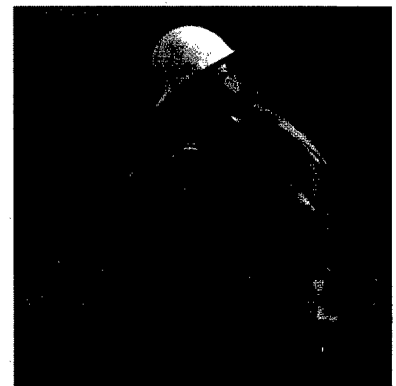
Environmental Vision

The Army will be a national leader in environmental and natural-resource stewardship for present and future generations as an integral part of our mission.



Safety Vision

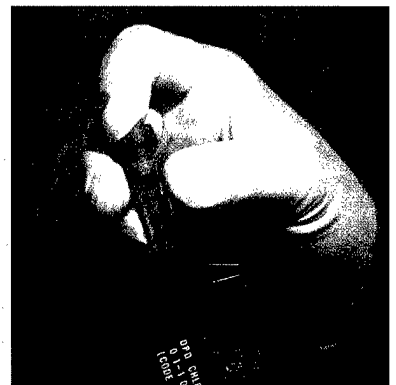
The vision of SafeForce21 is for the Army Safety Program to be the model for maximizing mission effectiveness of systems, organizations, and operations through accident prevention during peacetime and wartime.

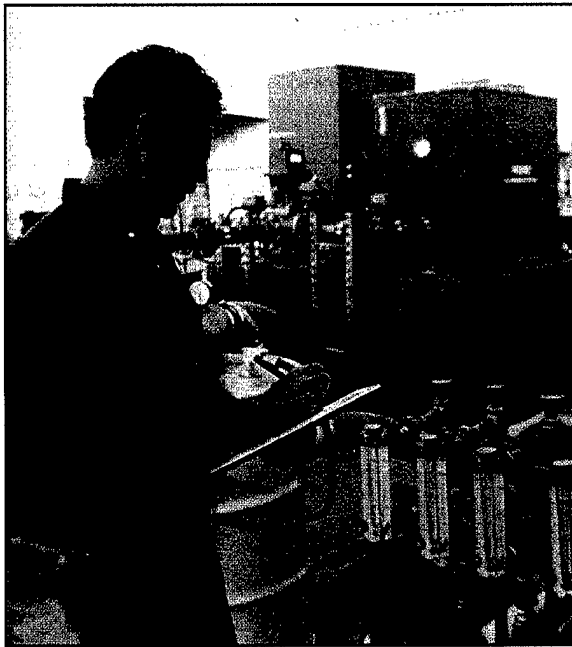


Occupational Health Vision

The Occupational Health Program will be the leader providing focused, world-class occupational health services supporting Force XXI

- in garrison, protecting personnel of America's Army at power projection, industrial base, and training sites;
- during deployment, maintaining fit and healthy soldiers and controlling disease and nonbattle injury and illness;
- postdeployment, analyzing the war-fighters' potentially hazardous exposures.





Army Success Stories

The following success stories are a tribute to the dedication and hard work of Army environmental, safety, and health professionals.

Army Cleanups

By the end of fiscal year 1994, 8,316 sites with potential for inclusion in the Formerly Used Defense Sites program had been identified; preliminary assessments to determine if contamination exists were completed on 6,822 sites. Of these, 4,604 sites were determined to be either ineligible or to require no action. Cleanup has been completed at 296 sites on those sites eligible for restoration. The U.S. Army has taken aggressive action to evaluate sites and implement remedial actions through its Installation Restoration Program (IRP). Of the 10,286 sites identified through fiscal year 1994, restoration actions have been completed at 6,431 sites.

Air Emissions Inventory

In 1992 the Army initiated a centrally managed program to comprehensively inventory sources of air pollutant emissions at the majority of Army installations. Completed in 1994, the program provided inventories of 110 Army installations. The total program cost was

approximately \$10 million. These inventories are an essential part of the Army's program to comply with Title V permitting requirements.



Over the past several years the Army's environmental professionals have helped to implement hundreds of new programs, procedures, and products that enhance, protect, and restore the environments over which the Army has stewardship.

Rocky Mountain Arsenal, Colorado

Beginning in 1993, Rocky Mountain Arsenal was transformed into the nation's largest urban wildlife refuge. It is now home to a winter-roosting population of American bald eagles, as well as other threatened or endangered species. The arsenal had been the site of chemical munitions and pesticide production for three decades and was one of the first federal Superfund sites. The arsenal is currently managed as a wildlife refuge by the U.S. Department of Interior in cooperation with the Army's cleanup program. This partnership creates many opportunities for creativity in conservation and restoration, from recycling to treating hazardous liquid in a water collection pond (Basin F). The Basin F interim response action provided an environmentally safe, economically sound, and timely elimination of 10.5 million gallons of hazardous liquid through the Submerged Quench Incinerator (SQI).

Spring Valley, Washington, D.C.

The American University Experiment Station was established in Spring Valley during World War I as a chemical warfare research and testing center. Camp Leach was established adjacent to the station and was used for training engineer units in trench warfare and handling chemical munitions. These facilities were closed in 1918, one month after the war ended. The War Department restored the grounds by burning temporary buildings and filling in trenches, pits, dugouts, and similar work areas. In 1993 residential construction workers unearthed munitions in the remnants of the camp's trenches. The cleanup involved removing munitions in the residential neighborhood of Spring Valley. As a safety precaution, residents in surrounding areas were evacuated from their homes during the daytime removal operations. Army officials met nightly with the community to explain the day's work. Within a month, 141 munitions were recovered and transported to military disposal sites. As part of searching a wider area, the



Army Corps of Engineers established an on-site office, organized a series of town meetings, and launched a community relations program. New Army policies and procedures were developed for dealing with reimbursement and real estate issues brought about by evacuations. The Spring Valley Project was the nation's first Formerly Used Defense Site involving the cleanup of chemical munitions in a residential neighborhood. The final closure report was issued in May 1995.

Sacramento Army Depot

Sacramento Army Depot expects to be the first DoD facility to be removed from the National Priorities List. The depot is well ahead of its cleanup schedule since it established a Technical Review Committee (TRC) made up of federal, state, and local officials. Because of the TRC's initiatives, the depot will be able to achieve a smooth and effective environmental cleanup.

Fort Sill, Oklahoma

Fort Sill has won several national environmental awards for its diverse environmental programs. The post's Integrated Training Area Management Program is making great strides toward improving the environmental quality of the post's training lands by improving roads, graveling firing pads, improving drainage, and planting vegetative and woody cover.

Schofield Barracks, Hawaii

With the help of the Legacy Resource Management Program, Schofield Barracks, Hawaii, is currently working with the Nature Conservancy to inventory rare biological species. Schofield Barracks is home to more endangered species than any other Army installation in the world. The goals of the project are to protect threatened and endangered species and to enhance their survival by preserving their rare ecosystems.

Savanna Army Depot, Illinois

The largest mobile incinerator ever put into operation at an Army installation has successfully completed its operations at Savanna Army Depot. The on-site treatment at the depot's ammunition washout lagoon area was the first attempt to clean up one of seven sites. The incinerator has processed nearly 25,000 cubic yards of soil.

Umatilla Depot, Oregon

The depot was the site of the first technology demonstration test of explosives-contaminated soils remediation by biocomposting. Using the results of the



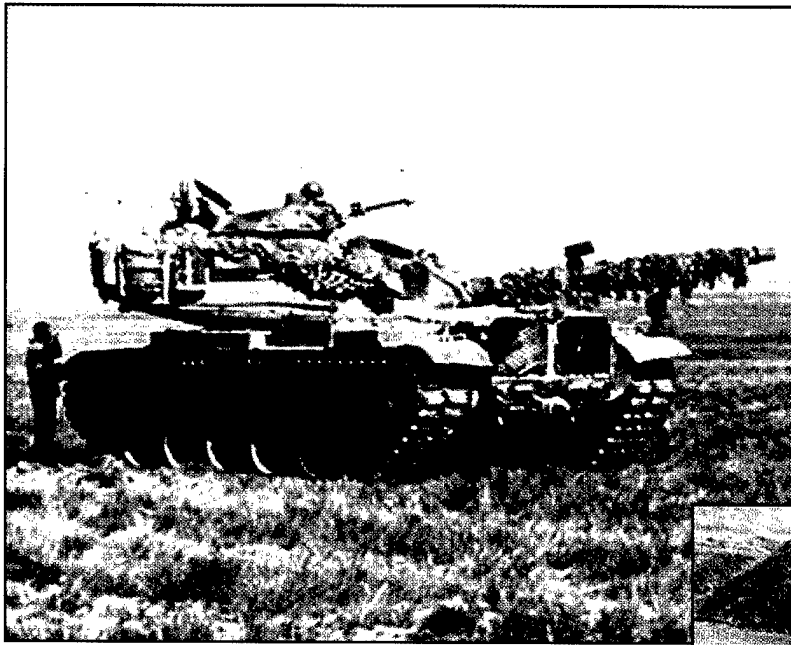
tests, the U.S. Army Environmental Center performed calculations showing that using a new windrow composting method for biocomposting would be significantly less costly than incineration. This is the first use of windrow biocomposting for testing explosives contamination at a National Priorities List site.

Iowa Army Ammunition Plant, Iowa

Iowa Army Ammunition Plant is engaging in extensive efforts to reuse scrap explosive materials in different applications to reduce the quantity of waste. The plant continually searches the market in order to sell excess explosives and other materials to approved buyers. Between 1983 and 1991 the plant recovered more than \$900,000 from explosives-scrap sales.

Fort Polk, Louisiana

In an effort to integrate Army training with conservation of its training lands, Fort Polk, through its Integrated Training Area Management Program, has planted vetiver grass throughout the installation. Vetiver grass protects the soil and allows training lands



The earth belongs to each . . . generation during its course, fully and in its own right . . . then, no generation can contract debts greater than may be paid during the course of its own existence.

—Thomas Jefferson

time to heal. As a result, streams run clearer, and native grasses, trees, and shrubs return to the landscape sooner, creating a more realistic training area and helping to conserve the natural environment.

Fort Carson, Colorado

Fort Carson's Piñon Canyon Maneuver Site land management practices demonstrate that the environment can be protected before, during, and after training exercises. It is the kind of stewardship that will preserve the site for future training and for its wildlife for many years to come.

Tobyhanna Army Depot, Pennsylvania

The Tobyhanna Army Depot recycling program successfully reduced the amount of solid waste sent to municipal landfills. In past years, the recycling program collected more than 11 million pounds of recyclable material, achieving a notable recycling rate of about 72 percent. The program conserved an estimated 52,230 cubic yards of landfill space by 1994.

Twin Cities Army Ammunition Plant, Twin Cities, Minnesota

The Army Ammunition Plant cleanup incorporates partnering/teamwork among Army; Alliant Techsystems; EPA; the state of Minnesota; and the surrounding communities of New Brighton and Fridley. The cleanup has been accomplished



on time and has been cost effective, resulting in the reuse of treated soils and groundwater.

Pine Bluff Arsenal (PBA), Arkansas

The Waterfowl Refuge project at Pine Bluff Arsenal changed a sewage treatment lagoon into a superb waterfowl refuge. The refuge provides an opportunity for the general public and PBA employees to observe waterfowl in their natural habitat without disturbing waterfowl activities.

Army Pacific Command

Army Pacific Command has switched to citrus-based, biodegradable degreasers and cleaners, which resulted in a 90 percent reduction of hazardous solvent waste. The end result is less

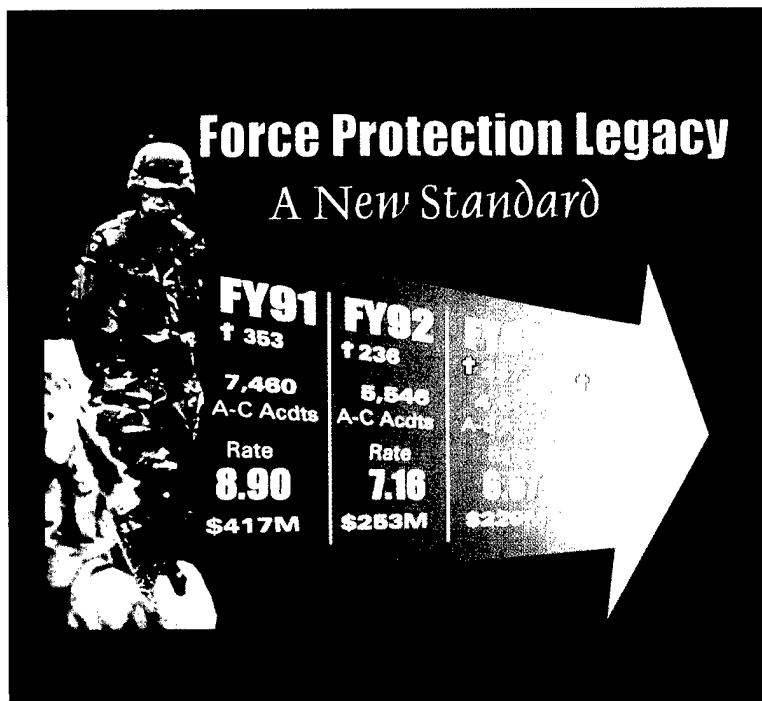
cost for hazardous waste disposal, elimination of the potential for spills, and lower risk to personnel and the environment.



Through comprehensive application of risk management, accident prevention, regulatory compliance, safety education and promotion, and safety planning, the Army Safety Program has made tremendous strides to protect the force and enhance its war-fighting capability while complying with legal mandates. The number of ground and aviation accidents is at an all-time low.

Ground Safety

Since 1990 the number of ground accidents and fatalities has been on an overall downward trend. In 1994 the overall Class A through C accident rate



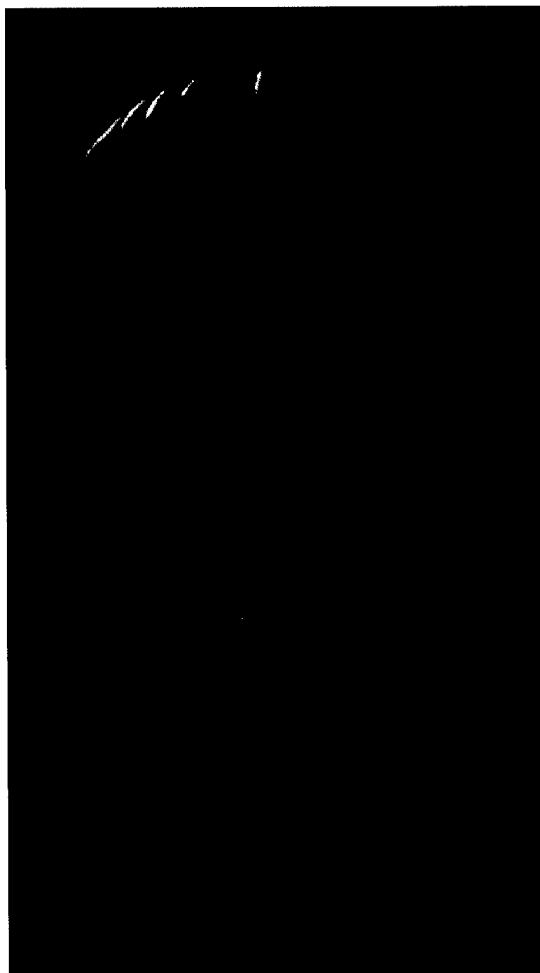
was 6.04 per thousand soldiers compared with 9.04 in 1990, a one-third decrease in overall accidents. Categories of ground safety include privately owned vehicles (POVs), Army motor vehicles (AMVs), personnel injuries, and training.

Privately Owned Vehicles (POVs). Accidents involving POVs—automobiles and motorcycles—remain the number one killer of soldiers. However, since 1990 POV accidents and fatalities declined overall by 68 percent and 52 percent respectively. The Fort Campbell SOS-101 (Save Our Soldiers-101 Days) is a good example of an effective program.

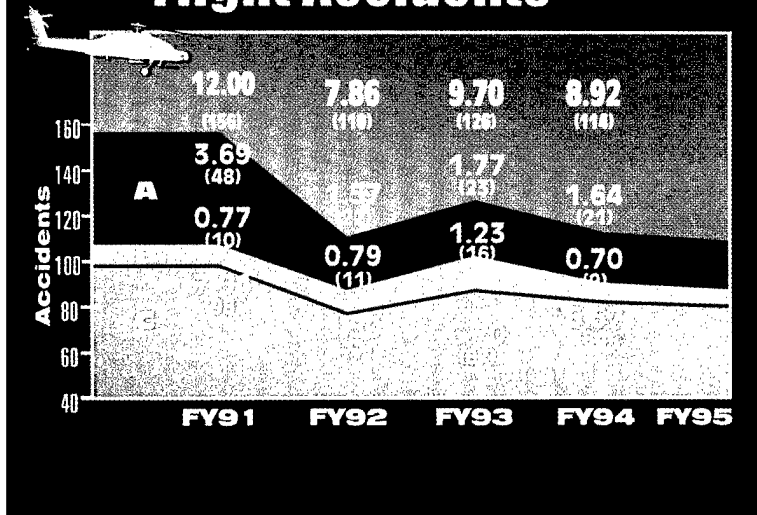
Army Motor Vehicles (AMVs). Since 1990 emphasis on driver training programs and other efforts to improve safety in AMV operations reduced accidents by 53 percent and fatalities by 24 percent.

Personnel Injuries. Since 1990 the numbers of personnel injury fatalities have increased slightly—by 8 percent. However, the total numbers of personnel injuries were down by 46 percent. Furthermore, the rate per thousand shows a decrease in overall personnel injuries by about one-third, reflecting the general decline in Army accidents.

Training. Since 1990 the Army reduced the number of training-related accidents by 51 percent and fatalities by 48 percent. While this decrease reflects the downsizing of the Army, the rate of training accidents (per 1,000) and fatalities has also shown a substantial decrease—36 percent and 31 percent respectively.



Army Aviation Class A-C Flight Accidents



Aviation

In fiscal year 1992 the Army experienced the lowest accident rate on record for Class A flight accidents, and in fiscal year 1994 experienced the second lowest. The fiscal year 1994 rate for Class A accidents was 1.64 per 100,000 flight hours compared with 1.57 in 1992 and 1.83 in 1990. Over the past five years, Army aviation has been consistently reducing accidents because the Army embraced the concept of risk management and incorporated it into all its activities.

Chemical Toxic Agents

The Army toxic chemical weapons demilitarization program is continuing to dispose of the Army's stockpile of aging chemical weapons. To date, the Johnston Atoll Chemical Agent Disposal System (JACADS) has safely destroyed more than 625,000 pounds of agents.



The Army occupational health team has made every effort to ensure that readiness is not compromised because workplace exposures are adversely affecting the Army's personnel. The Army occupational health team has played a major role in identifying, eliminating, and controlling the stressors that might adversely affect the Army's civilian and military workforce.

Air Pollution Source Management

Officials of the Air Pollution Source Management program established an annual Hospital Incinerator Operator Training Course. In addition, every active hospital waste incinerator was visited by program personnel who evaluated its operation and provided suggestions to improve operations and minimize emissions. An Inter-agency Support Agreement was established with the U.S. Army Chemical Material Destruction Agency, formalizing support for the chemical demilitarization program. The Army is in the forefront of efforts to perform Health Risk Assessments (HRAs) on hazardous waste incinerators.

Hearing Conservation Program

Through the Army's Hearing Evaluation Automated Registry System (HEARS), a 1992 study among the enlisted combat



arms found that significant hearing loss had been reduced by 19 percent since 1974. The rigorous execution of the Army Hearing Conservation Program has resulted in 1,654 fewer primary hearing loss cases since 1990 among Army veterans. The Army's HEARS also played an important role in Operation Desert Shield/Storm. Twelve military audiologists and ten military occupational health vehicles equipped with HEARS audiometers were deployed to Southwest Asia to support the redeployment of more than 29,000 reservists.

Biologic Surveillance Initiative (BSI)

The Kuwait Oil Well Fires BSI was a major focus in the occupational health arena. BSI was designed to help determine the adverse health effects from the Kuwait oil well fires during the Persian Gulf War. The ultimate goal of the project was to refine health risk-estimate precision and increase the validity of the modeled exposures derived from environmental monitoring. A myriad of health parameter base lines were measured prior to the Army's deployment, in Kuwait while deployed, and after redeployment. The final draft report was submitted to Office of the Surgeon General in early 1994. This draft provided substantial information to decision makers about the potential for adverse health effects from situations similar to the Kuwait oil fires.

Silver Recovery Units

Occupational health officials conducted a pilot study to evaluate alternative silver recovery technologies. They determined that the effluent from many existing silver recovery units used for x-ray processing units at Army medical treatment facilities (MTFs) contained concentrations of silver that would classify the effluent as a hazardous waste. Available off-the-shelf



technologies were found that could increase silver recovery and produce an effluent that is not a hazardous waste. U.S. Army Environmental Hygiene Agency officials assisted the U.S. Army Health Services Command (HSC) and U.S. Army Medical Command in developing policies on this issue.

Radio Frequency/Microwave Sources

The Army implementation of the most current National Consensus Standard involved significant field survey and study effort over the past three years, resulting in all radio frequency radiation (RFR) sources in the Department of the Army inventory being in full compliance with current exposure standards. The Army was the leader in biological-effects research in electromagnetic pulse (EMP), high-power microwave, and ultra-wideband sources and was instrumental in the successful design and conduct of a tri-service human-subject test of the dosimetric impact of EMP exposure.



Army Risk Management

Risk management is a tool that helps Army leaders make sound logical decisions. Risk management enables leaders at all levels to manage risks effectively.

Safety Risk Management

The Army's Safety Program reached new heights in the 1990s through comprehensive application of risk management. The Training and Doctrine Command made significant progress in integrating risk management into professional military education while Forces Command and Special Operations Command applied risk management during planning and execution of training and military operations. The U.S. Army Safety Center exported teams to teach risk management techniques in units Army-wide. Overall, integrating safety into training and using risk management techniques has led to a decrease in Army accidents, fatalities, and injuries.

Lyme Disease

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) was proactive in recognizing the potential threat from this tick-borne disease by developing laboratory capabilities and field surveillance protocols. The criteria essential to determining risk were identified, and factors determining degree of risk were established. Risk assessments were based on a combination of epidemiological, surveillance, and assay data. Protocols were developed for surveillance under various environmental settings and for laboratory assays based on fluorescent antibody testing. These risk assessment procedures now serve as a model for other DoD and state government agencies.

Health Risk Assessment

The USACHPPM provided vital public health consultations to Army leadership. Its highly trained personnel led the Kuwait Oil Fire Health Risk Assessment Team, performing on-site sampling in Southwest Asia during the well burnings. Quick-response public health determinations and

expert risk communication support addressing releases of hazardous substances were provided.

Hazardous Waste Disposal

Although the Army's most dramatic decrease in hazardous waste disposal occurred between 1986 and 1988, the trend continues downward. Army disposal of hazardous waste declined from about 38,000 metric tons in 1990 to 26,000 metric tons in 1993.

Underground Storage Tanks (USTs)

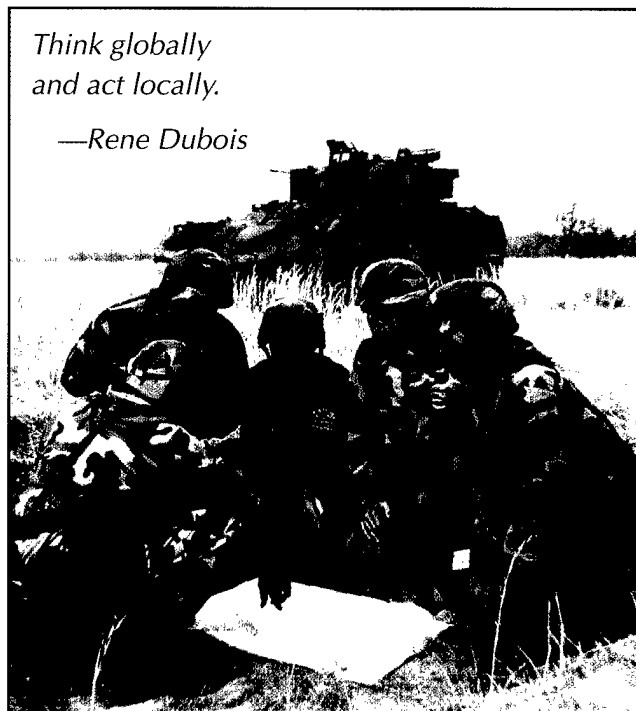
The Army has spent about \$132 million on removals, replacements, and upgrades for 5,000 USTs that have been removed. About 11,000 USTs remain in the Army inventory, 6,000 of which are regulated USTs. Of the regulated USTs, 41 percent will not require further upgrades to comply with the 1998 standards.

Ecological Risk Assessment

Cutting-edge methods in ecological risk assessment have been developed for use on Army sites such as Rocky Mountain Arsenal. In 1994 the Edgewood Research Development and Engineering Center published some of the most comprehensive procedural guidelines for ecological risk assessment. The U.S. Navy and U.S. Air Force are considering adopting these guidelines.

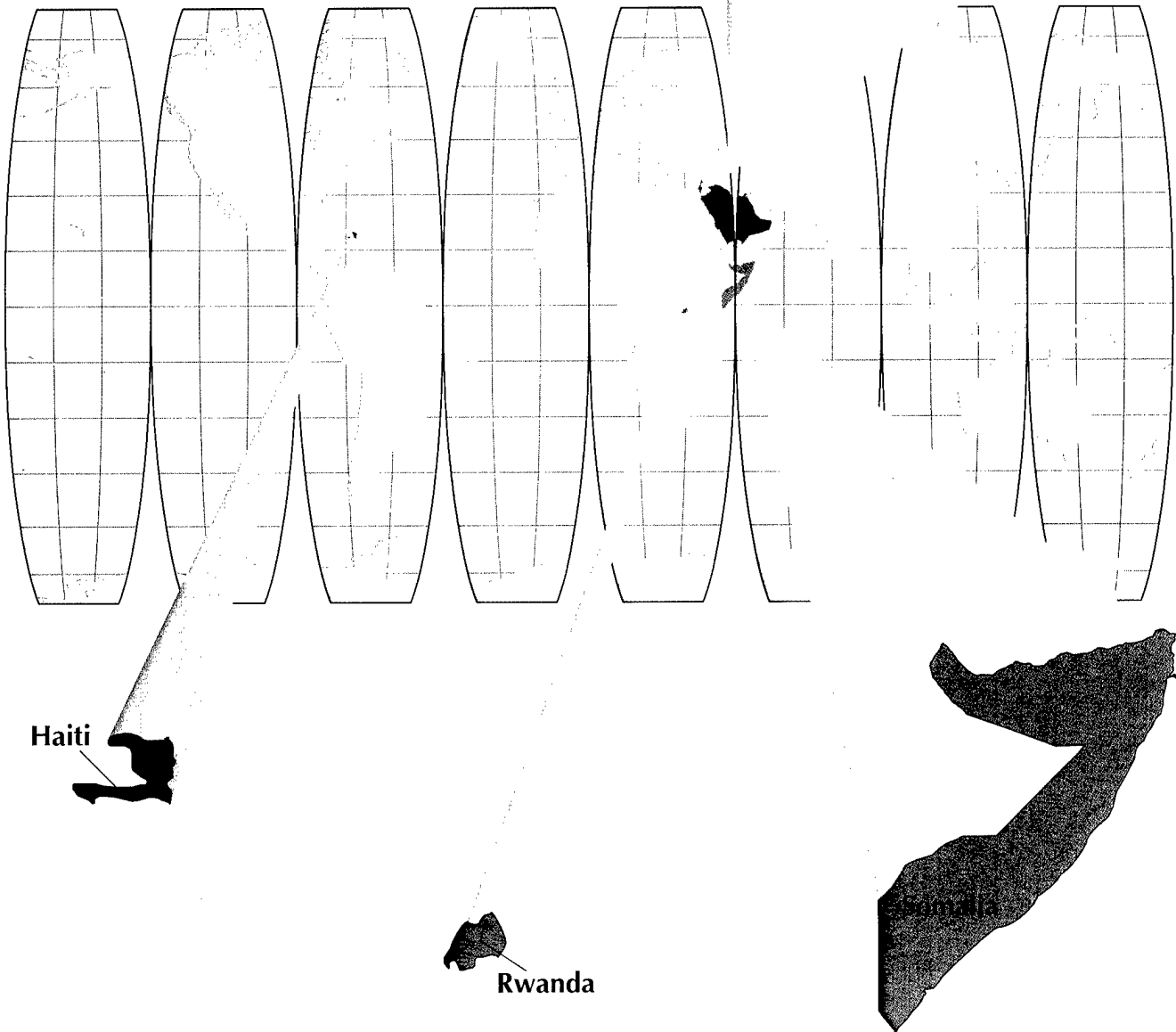
*Think globally
and act locally.*

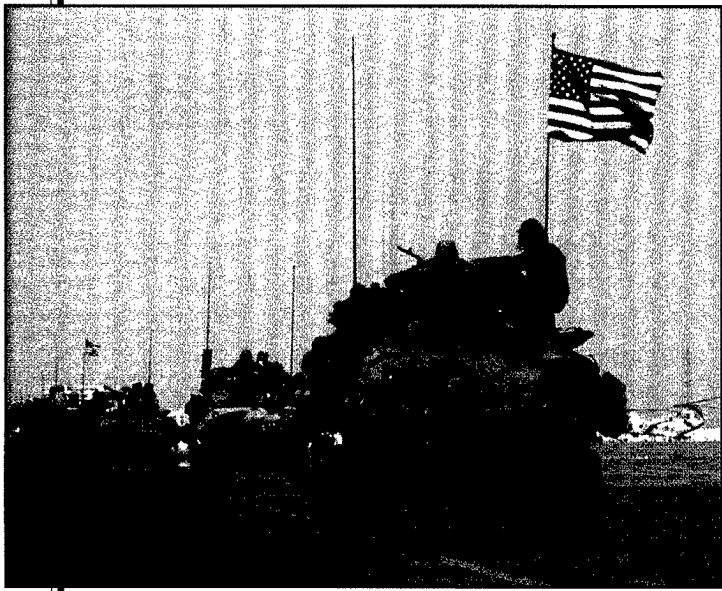
—Rene Dubois



Deployment—Protecting the Force

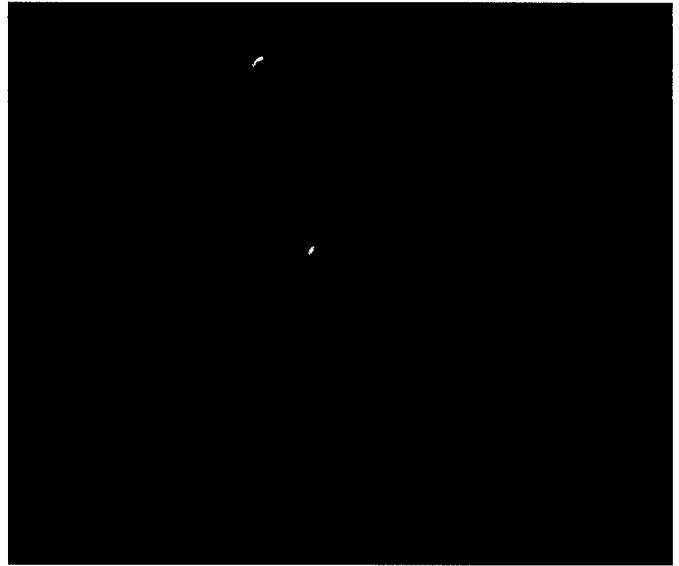
America's Army serves the nation in many ways. Our soldiers have upheld democracy in Haiti; provided pure water and relief supplies to Rwandan refugees in Zaire; protected United Nations Operations in Somalia; shielded the Kurds in Iraq; and faced down renewed Iraqi aggression in Kuwait. Army environmental safety and health professionals were there.





During these past two years [1992–1994], our military has time and again demonstrated its readiness and its war-fighting and peacekeeping capabilities. From Korea to Macedonia, to Rwanda and Haiti, we have placed great burdens on our men and women in uniform, and they have responded magnificently.

—President Bill Clinton



Information Technology Initiatives

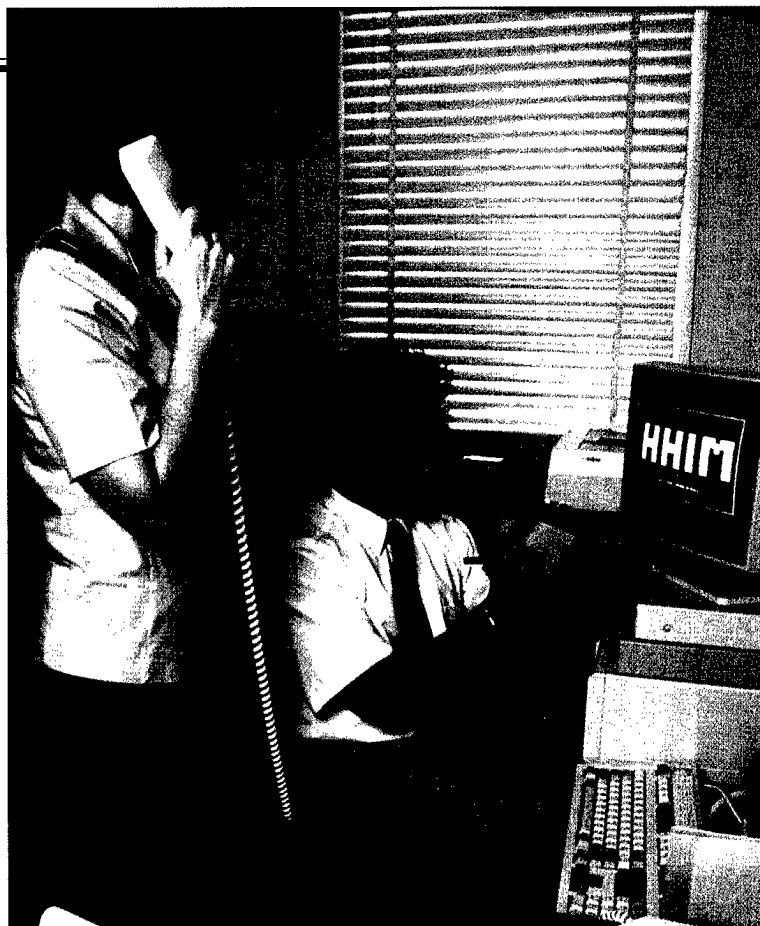
Reengineering the Army's business processes has provided opportunities for Army leaders to incorporate automation initiatives. Such initiatives have resulted in productivity gains; reduction of redundant data entry and storage; and the ability to share information across functional areas.

The Army Safety Information Services and Technology (ASIST)

The ASIST initiative was conceived by the U.S. Army Safety Center to correct currently identified deficiencies at the Headquarters Department of the Army and has evolved into an information system focused on supporting commanders' risk management decision requirements. ASIST is the information management component of the Army's safety strategy (SafeForce21) and will expand and transform the Army's safety practitioner-oriented accident data base into a risk management information system, easily accessible from existing and emerging unit and installation-level information support systems.

Sustaining Base Information Service (SBIS), Safety Installation Support Module (ISM)

The Safety ISM is one of six innovative ISMs that will be used as models in development of the SBIS and will enable a quantum improvement to be made in the quality, standardization, and efficiency of executing installation safety programs. The Safety ISM will provide automated processes for inspections, hazard abatement, risk management, and accident reporting. Subsequently,



the Safety ISM will interface with other automated systems at Army installations and Department of the Army.

Occupational Health Management Information System (OHMIS)

OHMIS is an integrated network designed to collect, maintain, and assess occupational health management information. Four components now support functional areas of occupational health programs worldwide. They are OHMIS Medical Information Module (MIM), OHMIS Health Hazard Information Module (HHIM), OHMIS Hearing Evaluation Automated Registry System (HEARS), and OHMIS DoD Vision Information System (DVIS). Once a system designed strictly for the Army, OHMIS was selected as the DoD system and will expand to accommodate the necessary functionality and uniqueness required by the Air Force and Navy. Data gathered by the modules are housed on a mainframe computer, which serves as a corporate-wide information resource.

Hazardous Waste and Medical Waste—Military Item Disposal Instruction System and Hazardous Waste Management Training

Coverage and capabilities of the Military Item Disposal Instruction System, which provides information about

excess military items, were expanded. The data base now contains information on more than 65,000 items, an increase of 25 percent since 1992. The data base also was ported to a compact disk for distribution directly to approximately 3,000 DoD clients worldwide. Other accomplishments included training more than 500 Army health care facility personnel on the proper techniques for managing hazardous materials and waste. Approximately 100 Army hazardous waste and medical waste managers were trained to

be instructors, thereby helping soldiers and civilians to help themselves.

Environmental Compliance Assessment System (ECAS)

The Army's compliance program has taken a leap forward with ECAS, which was fully implemented in 1992. ECAS helps installation commanders identify compliance problems and suggests corrective measures. By the end of 1995 a total of 190 installations (including overseas installations), 1,500 Reserve facilities, and the National Guards of fifty states and four territories—virtually the entire Army—will have been assessed under ECAS. Environmental awareness has been increased for soldiers and civilians through ECAS training.

Environmental Pollution Prevention, Control, and Abatement Report [DD-P&L (SA) RCS-1383]

An automated 1383 Project Catalog was fielded in 1995 to help environmental managers properly identify and justify funding requirements. This report was designed to capture environmental requirements by project for use in the annual environmental budget for the Army.

Defense Site Environmental Restoration Tracking System (DSERTS)

DSERTS was developed and fielded in 1994. It is used for tracking the progress and status of sites in the environmental restoration programs. The DSERTS information is used primarily for the Annual Report to Congress.



Technology is an essential part of making our nation's communities more sustainable.

—J. Gary Lawrence
Director

Center for Sustainable Communities
University of Washington

A Professional Workforce

The dominant principle of management has shifted from managing in order to control to leadership in order to bring out the best in people and to respond quickly to change. A quality Army is not possible without a quality workforce.

Reserve Safety Professionals

A major accomplishment was the assignment of Reserve Component professional safety personnel to assist contingency operations' commanders in accomplishing their combat and domestic missions.

Consortium of Agencies for Safety Training (CAST)

The Director of Army Safety established CAST to capitalize on public domain safety training programs. The U.S. Army Safety Center catalogues and shares public domain materials with other federal agencies such as National Institute for Occupational Safety and Health and the Occupational Safety and Health Administration.

Safety Intern Training

The Safety Intern Training Program, a two- to three-year education program, has been acknowledged as one of the best in the Army, with many of its graduates progressing to key leadership roles in the Army, Department of Defense, and other federal agencies. Six of the seven most senior civilian executives in Army Safety are intern program graduates. Key changes instituted since 1992 include central recruitment, selection, and placement of all interns; instituting a special three-year chemical demilitarization safety specialist program; a total restructuring of the formal education curriculum and on-the-job-training requirements; development of a health physics intern training program; and movement of the intern training school from the Field Safety Activity, Charlestown, Indiana, to the U.S. Army Safety Center, Fort Rucker, Alabama.

Professional Development

The Safety, Training, Education, and Development System (SAFTEDS) plan was published in January 1991. The



In the past, the Army learned how to change from industry. We were derivative. Today, we are leading change. Today, we are writing the theory and creating the practice simultaneously.

—General Gordon R. Sullivan



SAFTEDS plan outlines sequential and progressive training in the various career fields and in leadership, supervision, and managerial development, from entry level to senior management. The plan also provides general information and guidance on safety and occupational health management (CP-12), career progression ladders, key positions, and mobility requirements.

The CP-12 Executive Development Group (EDG)

The CP-12 was the first career program to establish an EDG program. Selectees participate in a modular series of focused formal training opportunities; developmental training assignments averaging six to eight weeks in duration; and self-development efforts. The success of the EDG program is gauged by the fact that 14 of the 20 graduates were promoted during the 1991-1994 period.

Occupational Health Program Management

Through training and consultations, Army industrial hygiene professionals were introduced to management concepts and practices, following the trend of the private sector to a businesslike approach for occupational health. The Industrial Hygiene Management Program made significant contributions to the U.S. Army Materiel Command (AMC)/HSC Partnership, a revolutionary fee-for-service initiative at installations.

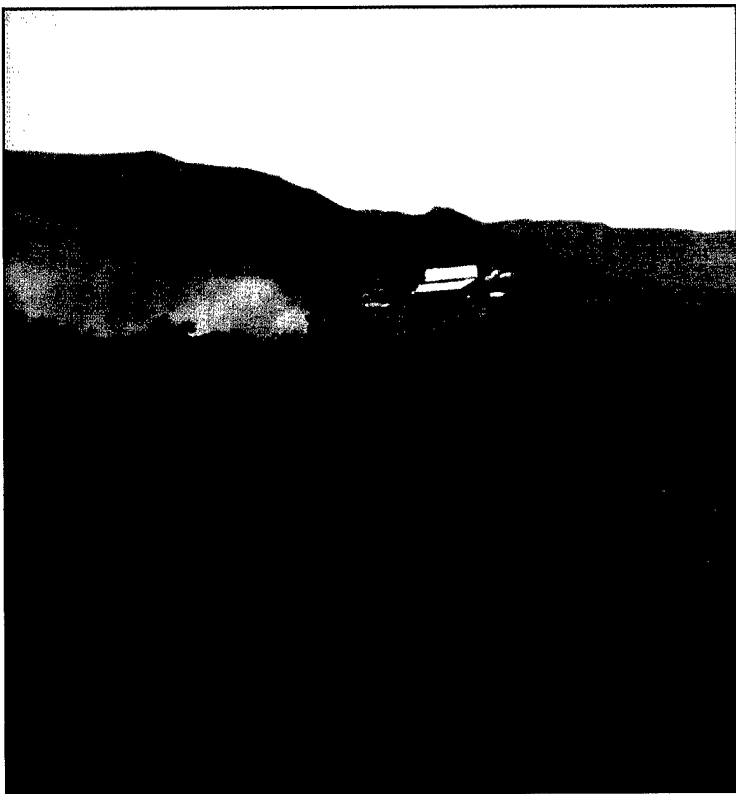
Training. Training was conducted for hundreds of industrial hygiene, safety, and occupational health professionals on subjects such as indoor air quality, design review, ventilation, and ergonomics.

Ergonomics. Ergonomics is the science of fitting the task to the worker. Tremendous advances in the amelioration of workplace ergonomic hazards were made with the training of installation health professionals to recognize, assess, and recommend controls for ergonomic problems. Sophisticated ergonomic consultations were provided to high-risk workplace environments such as warehouses, dental offices, and production lines.



Army Environmental Training

The Army has initiated a vigorous program to incorporate environmental training and awareness into the Army's training mission. The Army Environmental Training Master Plan was formalized in 1992. All soldiers and civilians are receiving some form of environmental training and/or awareness at various stages throughout their careers. Environmental training is also being incorporated into the Army schools system where appropriate. The Environmental Training Support Center was established in Huntsville, Alabama, to provide training materials and support to the field, and the center assists Army leaders in their overall program management requirements. The Center for Environmental Innovation and Hands-on Training was established at Fort Sill, Oklahoma, to provide cost-effective access to regulatory-mandated environmental training. The U.S. Army Engineer School developed or initiated thirteen environmental awareness training support packages for integration into leader development courses at all TRADOC schools.



Integration Into the Army's Mainstream

The Army has initiated vigorous programs to incorporate environmental, safety, and health concerns into the fabric of the Army's mission. By addressing these issues, the Army can maintain combat readiness and, at the same time, promote good stewardship of its land. Full integration occurs when everyone—leaders, soldiers, and families—automatically includes environmental, safety, and occupational health considerations in the planning and execution of activities.

U.S. Army Training and Doctrine Command (TRADOC) Integration

TRADOC established an environmental integration steering committee and an environmental training working group, consisting of representatives of several TRADOC schools, to begin integrating environmental issues into soldier training and doctrine.

Integrated Training Area Management (ITAM)

ITAM was designed as a comprehensive, long-range approach to melding training and testing needs with sound land management. It provides long-term accurate assessments of land conditions and wildlife habitat to managers and administrators. Presently, more than 50 installations use elements of ITAM. ITAM has increased training realism; minimized environmental damage; reduced costs for environmental compliance and restoration; and demonstrated commitment to continued military readiness and land stewardship.

Legacy Resource Management Program

The Legacy program is used for identifying, protecting, and managing cultural and natural resources on Army lands. During the last five years, the Army has made a concerted effort to inventory species and natural resources at all activities. The Army is also doing a comprehensive inventory of all of its cultural resources. The project helps identify and establish means for managing significant archaeological and historical resources, including avoidance during training or other exercises. An automated tracking system is being used for monitoring the full spectrum of cultural resources present at Army installations.

Improved Public Awareness of Natural Resources on Army Lands

Army participation in programs such as *Watchable Wildlife* and *Partners in Flight* is improving public awareness of natural resources maintained by the Army. The Army is doing more than being a steward—it is helping the public to appreciate the natural resources it conserves.

Chesapeake Bay Program (CBP)

Consistent with the goals of the overall CBP, the Army managed approximately 218,000 acres on 21 installations within the bay's watershed. Today, 82 percent of the acreage under Army management remains undeveloped, and 9 percent of the acreage is wetlands. The Army has already decreased its overall phosphorus loadings in 1994 (compared with 1985) by 61 percent and nitrogen loadings by 40 percent.

Partnerships

Army-wide, environment, safety, and health areas were made more efficient through partnerships with national, federal, civilian, and industrial organizations.

Human Performance

New partnerships between Army safety and Army human factors agencies are being formed to address human performance. In research and development, program managers are addressing the Longbow Apache and Comanche helicopter issues with new technology and training methods. Safety research is identifying improvement issues (such as crew coordination) to be addressed in training, policy, and equipment design.

Chemical Weapons Treaties

The Director of Army Safety is providing support for several chemical weapons treaty actions now impacting the Army. In support of the U.S.–Russian Wyoming Memorandum of Understanding, the Army Safety Office is assisting the On-site Inspection Agency by certifying that Russian chemical weapons inspection equipment is safe. In support of the Chemical Weapons



Convention, the Army Safety Office provides representation on both the Health and Safety Groups and Inspection Equipment Expert Working Groups.

Nuclear Reactor Safety

The Director of Army Safety published AR 385-80, Nuclear Reactor Health and Safety, and reengineered the Army Reactor Committee for Health and Safety (ARCHS). ARCHS is composed of members from the offices of the Deputy Chief of Staff for Operations, the Surgeon General, the Army Materiel Command, the Corps of Engineers, and the Director of Army Safety. Through the assistance of an Individual Mobilization Augmentee officer, ARCHS provides oversight for Army reactors through inspecting and approving facilities modifications and operational changes.

Range Safety

To meet new weapons systems development and institute lessons learned from past accidents, Army Safety, in cooperation with Training and Doctrine Command, Army Materiel Command, and others, undertook an extensive revision of Army Regulation 385-63. New guidance was developed for surface danger zones incorporating risk management concepts.

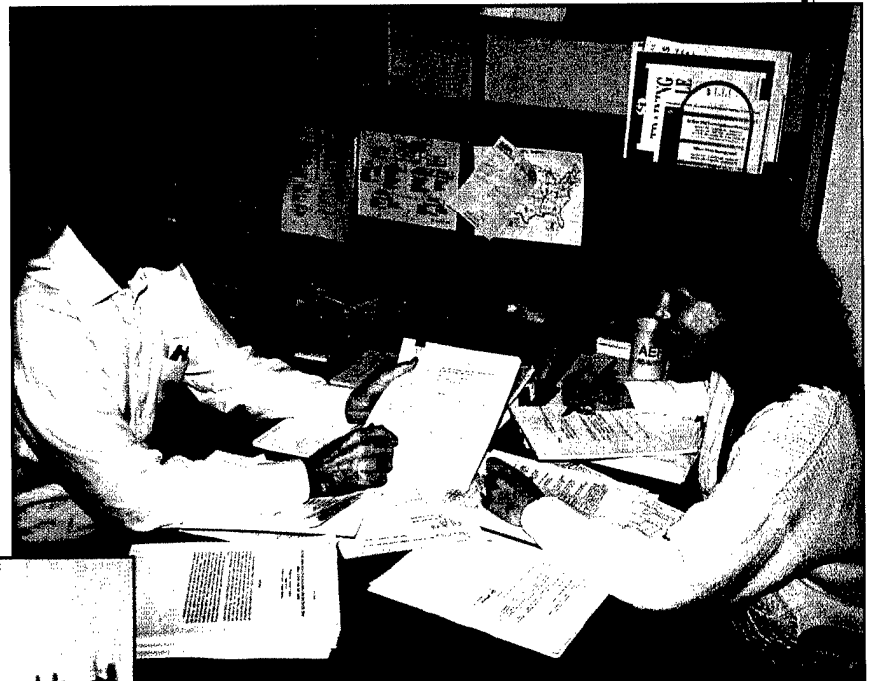
Centralized Accident Investigation

Professional safety teams from the U.S. Army Safety Center investigated 71 aviation and ground accidents in 1991 and assisted local boards with investigating 33 other accidents that had the potential for Army-level issues (primarily in support of Operation Desert Shield/Storm). During fiscal years 1992 and 1993, teams investigated 120 aviation and ground accidents, providing a significant number of Army-wide recommendations for human or materiel performance improvement. These recommendations resulted in Observation Helicopter 58 (OH-58) engine testing to determine the

amount of air ingestion required to cause engine failure; Utility Helicopter 60 (UH-60) engine testing to study/eliminate outgassing (air bubbles in the fuel); fatigue life cycle testing of the Apache Helicopter 64 (AH-64) strap pack assembly; and an OH-58 human performance study to identify human errors that are implicated in causing accidents.

Environmental Noise

As a result of the Installation Compatible Use Zone (ICUZ) effort, seven installations are now using on-line blast noise monitors in areas of high noise complaints. In addition to success of Army ICUZ studies, a Joint Land Use Study by



Today's environment dictates unprecedented cooperation among all elements of the Army force protection structure. Using the SafeForce21 vision, we will review old ways of doing business and devise new ways of partnering with MACOMs, installations, Headquarters, Department of the Army agencies, and agencies both internal and external to DoD.

*—Brigadier General Thomas W. Garrett
Director of Army Safety*



Pope Air Force Base and Fort Bragg, North Carolina, led to zoning restrictions in high noise areas of Fayetteville, North Carolina. Another successful Air Force/Army effort is a joint data base, NOISEMAP 6.3, which includes Army helicopter noise data. A third DoD effort was the merging of Air Force and Army studies on the effect of military noise on wildlife for use in environmental assessments. The tri-service approach to noise management is proving to be the best way to preserve the ability of the combat arms to train as it fights.

Aberdeen Proving Ground

The Army showed its commitment to community health protection. Contamination from past activities at Aberdeen Proving Ground (APG), Maryland, threatened the groundwater supply of the nearby Hartford County water system in early 1993. U.S. Army Environmental Hygiene Agency personnel assisted in an overall Army effort to work hand in hand with local water providers and state and federal officials to define the extent of the problem and construct a multimillion dollar treatment system for the Hartford County water supply in only eight months. During that time, the APG water systems supplemented the county water supply to ensure that consumers' health was protected.

Restoration Advisory Boards

One of the most significant initiatives designed for coordination and cooperation with communities is the Restoration Advisory Board. At Fort Ord the board assisted members in understanding the challenges of the

restoration process through workshops designed to cover environmental regulations; geology and hydrogeology; risk assessment data management; property transfer; and treatment technologies. These workshops are being used as models for other installations.

NATO

The Army participates in a Data Exchange Agreement with the Federal Republic of Germany and a NATO Committee on Challenges of Modern Society. Their aim is to address practical problems at an international level, combining the expertise, technology, and operations management concepts in member countries to save resources and to reach potential solutions as soon as possible. For example, the Army recently participated in studies related to aircraft noise, reuse of military lands, and a host of other issues.

Civilian Accident Prevention Program (CAPP) Report

In support of the Power Project Platform/Installations of Excellence, the Director of Army Safety mandated a quarterly periodical, *CAPP Report*, to share lessons learned.

Boy Scout Jamboree

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) provided facilities for the national Boy Scouts of America Jamboree held at Fort A.P. Hill, Virginia. USACHPPM has constructed several new facilities for the jamboree and has performed extensive evaluations to ensure safe and healthy living conditions for the scouts, including providing safe and adequate drinking water for the more than 35,000 scouts and thousands of visitors attending.

AEPI—Army Environmental Policy Institute

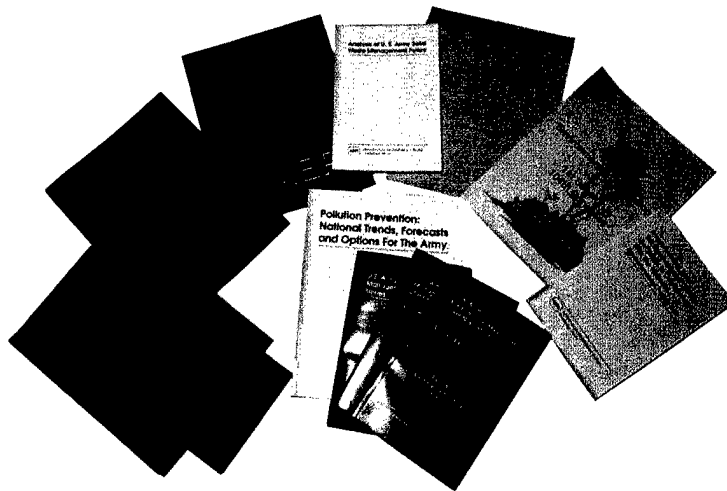
The Mission

AEPI's mission is to assist the Army Secretariat in developing forward-looking policies and strategies to address environmental challenges that may have future impacts on the Army.

History and Overview

The Secretary of the Army established AEPI to help the Army meet its goal of becoming a national leader in environmental stewardship. This unique institute functions as a Staff Support Agency of the Assistant Secretary of the Army for Installations, Logistics, and Environment. The Under Secretary of the Army signed the AEPI charter in 1990. Initially located in Champaign, Illinois, AEPI moved to the Georgia Institute of Technology and Clark Atlanta University campuses in Atlanta, Georgia, in October 1994.

In its short history, AEPI has produced several products that have helped the Army meet its environmental challenges. AEPI has fostered the development of



the U.S. Army Environmental Strategy into the 21st Century. The strategy continues to guide the Army environmental program. Its pillars are also reflected in the Department of Defense program.

To ensure that a broad perspective is represented, AEPI supplements a small staff of six federal employees with fellowships to recognized environmental professionals from installations, major commands, other federal agencies, and academia. This unique mix of public and private sectors enriches the Army with new and innovative policy concepts and models reinvention of government principles.

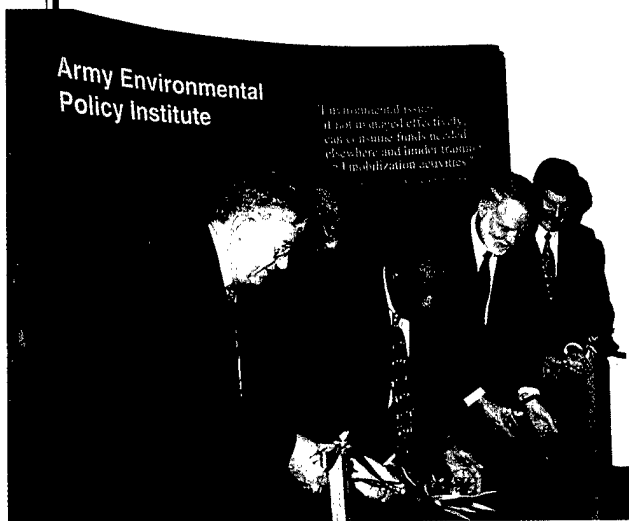
AEPI's charter specifies that it will expand the Army's interaction with academia, industry, and others to facilitate a better understanding of the environment and to assist the Army in defining its vision of the future. AEPI works closely with Historically Black Colleges and Universities and Minority Institutions. AEPI hosts several conferences and workshops each year on environmental topics and solicits input from environmental experts both inside and outside the Army when formulating policy studies.

Ribbon Cutting/Memorandum of Understanding (MOU) Ceremony

On 28 April 1995 AEPI celebrated its move to the Georgia Institute of Technology with a ribbon-cutting ceremony and its agreement with Clark Atlanta University with an MOU signing ceremony. The events formally recognized AEPI's relationships with the two institutions.

The battle for the protection of our environment is still being fought, and the Army has been and continues to be a strong leader in environmental stewardship. The Army Environmental Policy Institute's partnerships with these two academic institutions [Clark Atlanta and Georgia Tech] should be held up as a national model of what we can do when we work and plan together.

—Georgia Representative John Lewis



Environmental Strategy

The U.S. Army Environmental Strategy into the 21st Century (developed in 1992) is focused on four pillars to form a sound environmental program. These pillars are

- compliance
- restoration
- prevention
- conservation

These pillars require the Army to build on its core competencies, which include six critical elements:

- Commit the chain of command.
- Organize for success.
- Spread the environmental ethic.
- Train and educate the force.
- Prioritize Army resources.
- Harness market forces.

Guided by this strategy, the Army is achieving the established goals and objectives to accomplish environmental stewardship. This strategy will strengthen the Army's role as a steward of the environmental resources entrusted to it.

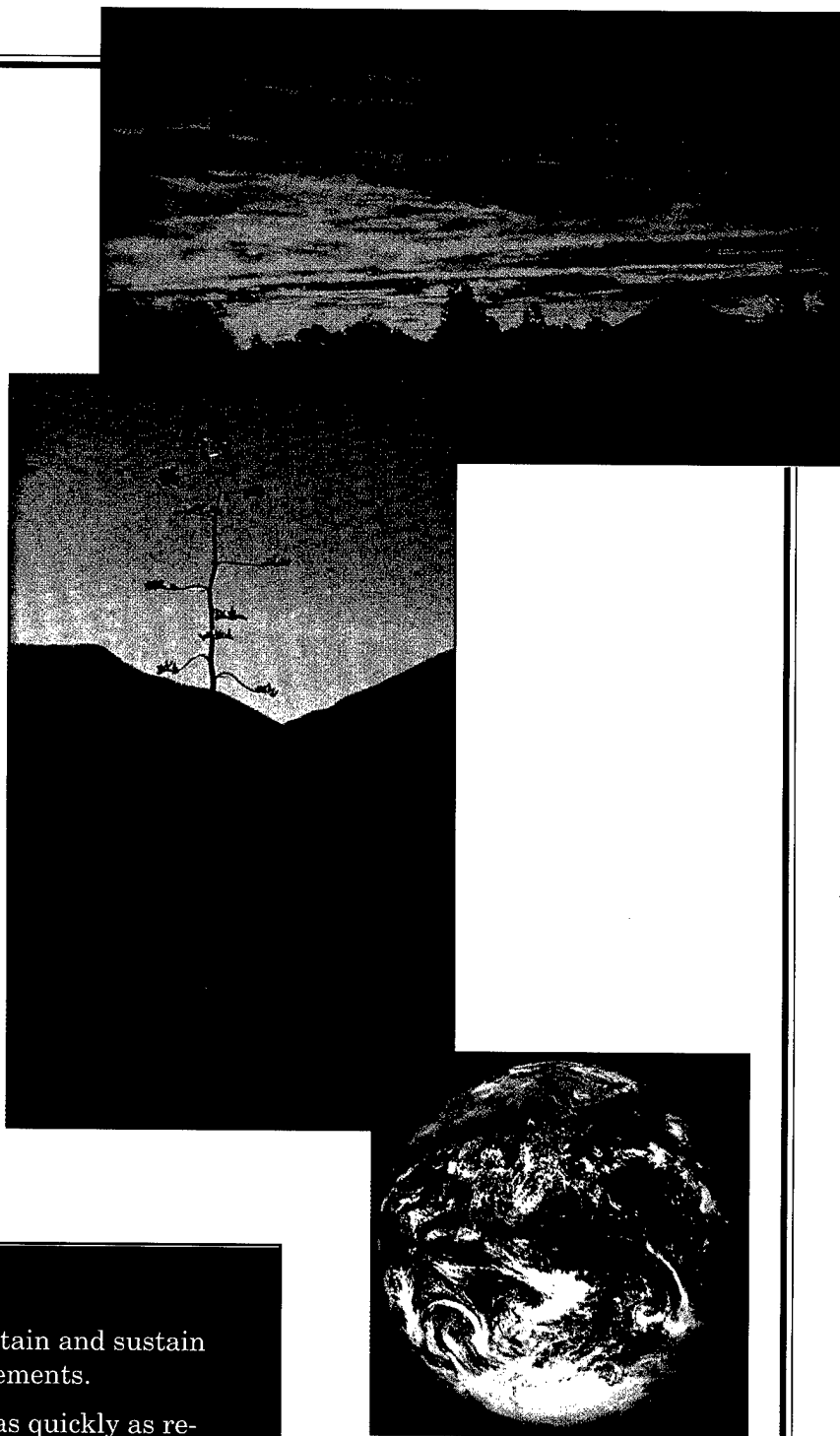
Environmental Strategy Goals

Compliance. Ensure that all Army sites attain and sustain compliance in the face of changing requirements.

Restoration. Clean up contaminated sites as quickly as resources permit to protect human health and the environment.

Prevention. Adopt and implement integrated management approaches, procedures, and operations in all Army mission areas to minimize all environmental contamination and pollution.

Conservation. Conserve, protect, and enhance environmental and natural and cultural resources, using all practical means consistent with Army missions, so that present and future generations may use and enjoy them.



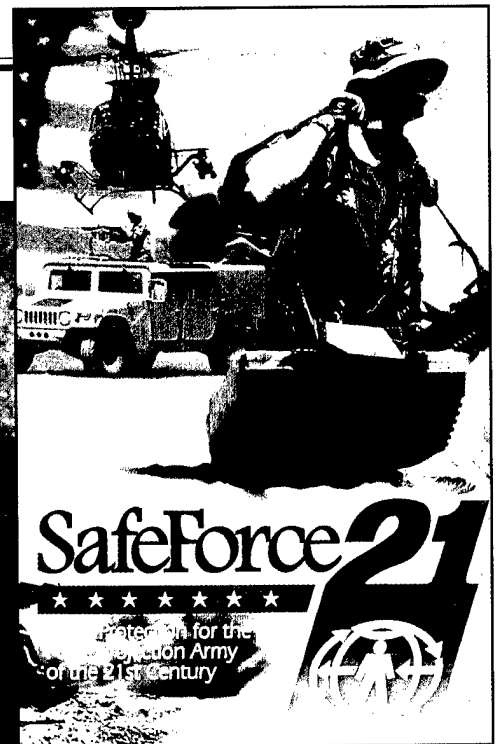
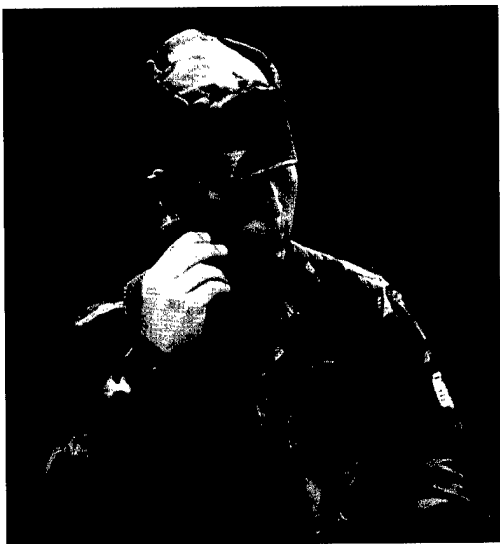
The Army continues to improve in its environmental program due to real people doing their jobs well every day. The investments we've made in training are now paying big dividends.

—Colonel Frank Finch
Director
Army Environmental Programs

SafeForce21: Road Map to the Future

The Chief of Staff, Army, initiated an aggressive set of actions to lead the Army's Force Protection Program into the next century. During 1994 the Director of Army Safety and major Army command safety directors developed a strategic plan, SafeForce21, which identifies Army safety objectives, broad requirements to achieve those objectives, and the major players in that process. The foundation of SafeForce21 is integration of safety risk management into the Army's missions.

Army force protection will be achieved by the Army's exercising risk management in the accomplishment of all its missions: beginning with day-to-day processes at the sustaining base; entailing both the individual civilian employee and soldier; and continuing up through, and including, management planning and programming processes involving senior leaders and managers at the Department of Army level.



Safety is the most fundamental way we take care of people. SafeForce21 is our road map.

*—Brigadier General Thomas W. Garrett
Director of Army Safety*

Safety Goals

- Goal 1.** Ensure that the Army is a safe place for people to live and work.
- Goal 2.** Integrate effective force protection processes into all Army training developments.
- Goal 3.** Ensure that force protection is integrated into all levels of doctrine.
- Goal 4.** Develop force protection strategies for equipment modernization and acquisition.
- Goal 5.** Structure force protection to sustain any force mix and support any mission, including contingency operations and other-than-war operations.
- Goal 6.** Provide and integrate force protection into all aspects of leader development.

Occupational Health: A Key to Readiness

The Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health, in partnership with the Surgeon General, developed a five-year plan in 1990 to implement a set of goals and objectives designed to make the Army Medical Department's Occupational Healthcare and Industrial Hygiene Programs the benchmarks of excellence for DoD and the nation. Much has been achieved since inception of the plan, and Army personnel continue to identify and develop new initiatives to support Army readiness and maintain the Army's lead in occupational health performance.

Enhancement of basic installation programs, assistance to commanders to maintain OSHA compliance, and improved compensation claim control were early targets of the plan. In the mid-term, the Center for Health Promotion and Preventive Medicine (CHPPM) developed a comprehensive management tool, the Occupational Health Management Information System (OHMIS), which targets resources at the most

serious and prevalent occupational health issues. OHMIS was so successful that DoD has identified it for tri-service use. Increased support of the Army MANPRINT program, which identifies and assesses the occupational health hazards associated with Army weapons systems, continues to ensure that soldiers are not exposed to health hazards during use of Army weapons. Recently, such initiatives as use of Geographic Information Systems for environmental health risk assessment, disease surveillance and disease vector work, initiation of ergonomics programs utilizing video technology, and development of an Army Industrial Hygiene Homepage for the Internet are incorporating Force XXI and telemedicine technologies into occupational health operations.

All of this work continues in parallel with recent joint health service strategies to support the war-fighting Commanders in Control (CINCs) by fielding fit, healthy soldiers and preventing disease and nonbattle injury during training and deployment. Occupational health in the Army truly optimizes soldier effectiveness.

Occupational Health Goals

- Optimize management of the Occupational Health Program for the total Army.
- Improve Occupational Health services for military personnel and eligible civilians.
- Assess military equipment and materiel to eliminate or reduce health hazards.
- Continue to support Army employee hazard communication programs.
- Support Army efforts to achieve the Civilian Resource Conservation Program compensation reduction goals.



You optimize soldier effectiveness by minimizing health risk.

—General Gordon R. Sullivan

Environmental, Safety, & Health Awards

Secretary of Defense Environment Security Awards

Natural Resources Conservation Award

1995: Individual: Ms. Valerie Ann Morrill, U.S. Army Yuma Proving Ground, Arizona, conservation program manager for the 838,000-acre Yuma Proving Ground, has skillfully combined DoD resources, cooperating agencies, and volunteers to establish and maintain a natural and cultural resources program.

1992: Installation: Twin Cities Army Ammunition Plant, Minnesota.

1990: Installation: Fort Belvoir, Virginia.

Pollution Prevention—Acquisition

1995: Team: Environmental Management Team for the Project Manager, Abrams Tank System, Program Executive Office, Armored Systems Modernization, Warren, Michigan. The team implemented an environmental management program that makes concern for the environment a way of life at Abrams.

Environmental Quality Award

1993: Installation: Fort Campbell, Kentucky.

Recycling

1995: Individual: Mr. Charles Penwell, recycling coordinator, Tobyhanna Army Depot, Pennsylvania. The depot's solid waste stream was reduced by 73 percent, resulting in 11,340 tons of recyclable material being collected, disposal cost savings of over \$1,067,700, and revenues from the sale of the material of over \$388,400.

Secretary of the Army Awards

Natural Resources Conservation Award

1995: Installation: Fort Leavenworth, Kansas. Successful, multidisciplinary partnerships, such as "Partners in Flight"; Lewis and Clark National Bicentennial Committee; Tree City, U.S.A.; and Research on Global Warming demonstrate Fort Leavenworth's commitment to natural resources.

1995: Individual: Ms. Valerie Ann Morrill, Yuma Proving Ground, Arizona.

Environmental Quality Award

1995: Installation: Lake City Army Ammunition Plant, Missouri. Total quality environmental management has been a principle that has earned them a reputation for environmental excellence in compliance and program management.

1995: Industrial Award—Individual: Mr. James E. Gansel, Riverbank Army Ammunition Plant, California. His achievements include a published model community relations manual; development and approval for the first DoD base-wide record of decision; recognition for his community relations ability; and leadership of a model environmental program.

1995: Nonindustrial Award—Individual: Ms. Cristal Fosbrook, chief of the environmental restoration and compliance branch, Fort Richardson, Alaska. She manages a \$60 million annual budget to ensure Army compliance in Alaska.

Cleanup Award

1995: Installation: Sacramento Army Depot Activity, California. The depot has implemented an effective and efficient fast track cleanup program. Several remediation projects using innovative technologies have been completed or initiated ahead of schedule.

Pollution Prevention Award

1995: Nonindustrial Award—Installation: The Texas Army National Guard, which manages the Army's largest armored division, the 49th AD, has great environmental challenges because of its size, complexity, training tempo, and large geographic area. The Pollution Prevention Committee represents the best example of teamwork, experimentation, and innovation as the action arm of the Command Oversight Environmental Quality Control Committee.

1995: Industrial Installation Award: Lake City Army Ammunition Plant, Missouri. Lake City Army Ammunition Plant, through its efforts to reduce pollution at its source and a commitment to the environment, is a national leader in environmental stewardship.

1995: Team Acquisition Award: Environmental Management for the

Project Manager, Abrams Tank System, Program Executive Office, Armored Systems Modernization, Michigan (see DoD award above).

Recycling Award

1995: Installation: Tobyhanna Army Depot, Pennsylvania. The depot, an industrial facility, has achieved a 73 percent reduction of the solid waste stream being disposed of in area landfills.

1995: Individual: Mr. Charles Penwell, Tobyhanna Army Depot, Pennsylvania.

Governor's Waste Minimization Award

1994: Installation: Letterkenny Army Depot, Pennsylvania. The depot collected 48 percent more recyclables and reduced municipal waste by 50 percent.

Pollution Prevention Award

1993: MACOM: U.S. Army, Japan. The 17th Area Support Group was the recipient of the Department of Army Pollution Prevention (Recycling) Award for 1993, for reducing ash by 115 tons.

Motorcycle Safety Award

1993: The Motorcycle Safety Foundation presented the Army its top military motorcycle program award.

Army Award for Excellence in Safety

1994: Individual: Mr. John Tobias, CECOM, was awarded the Systems Safety Professional of the Year for excellence as an electrical engineer.

1995: Individual: Major General Jack Keane, commander 101st Airborne (Air Assault), and Ms. Cathy McManamay, safety manager, Fort Campbell, Kentucky, received awards for implementing the Save Our Soldiers Program in 1994. This program resulted in fatalities being reduced by 55 percent.

1995: Major Ken Phillips, chief, Occupational Health Clinic, Walter Reed Medical Center, received the award for initiatives that resulted in a \$600,000 reduction in injury compensation costs and a 76 percent reduction in lost-time injuries.

Occupational Health Awards

1993: The U.S. Army Environmental Hygiene Agency received an award for Excellence in Environmental Engineering in recognition of the environmental characterization of the Kuwait oil well fires.

Senior Leader Initiatives

The strength of the Army's commitment to its resources is demonstrated by the kind of commitments it makes and keeps and the results it achieves on issues that are important to its constituents. The Army will continue to assume a leadership role in environment, safety, and occupational health stewardship.

Army Strategies

Environment

1990: The Army established the Army Environmental Policy Institute (AEPI) to provide long-range strategic planning for future environmental requirements.

1991: The Senior Executive Environmental Council (SEEC) was chartered in response to a Senior Environmental Leadership Conference (SELC) recommendation. The SEEC reviews the progress of the Army's environmental programs.

1991: The Army was selected to manage the National Defense Center for Environmental Excellence.

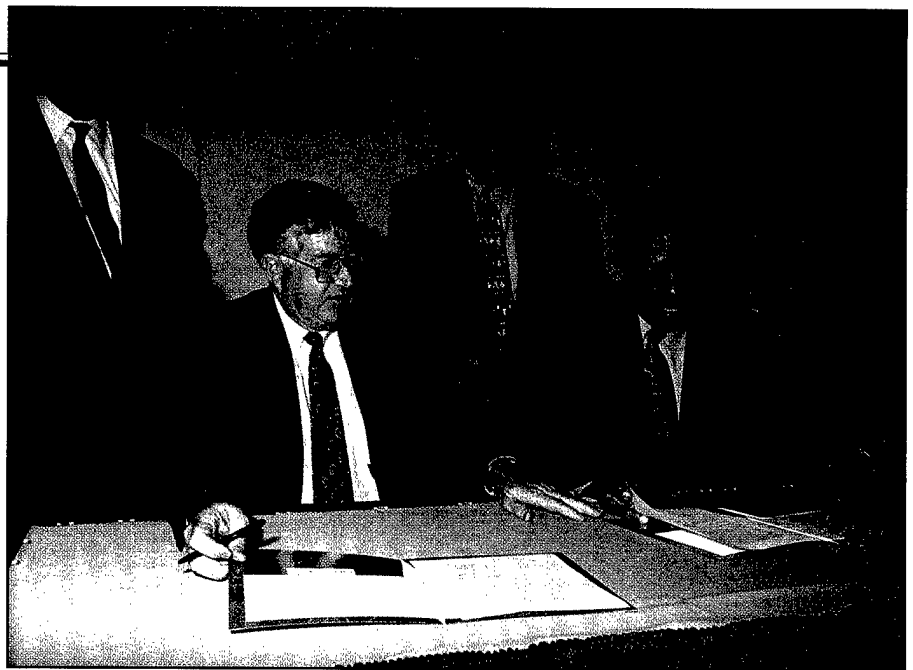
1992: The Army Environmental Center (AEC) was formed as the central agency for technical assistance and support for environmental programs and was charged with implementing the environmental strategy for the Army.

1992: The Army sponsored the SELC, resulting in a single manager being designated for environmental programs (Office of the Director of Environmental Programs).

1992: AEPI coordinated the development of the first Army Environmental Strategy. The Secretary of the Army and the Chief of Staff of the Army signed the strategy acknowledging a well-founded, long-term commitment to Army environmental stewardship responsibility.

Safety

1995: SafeForce21, a safety strategic plan, was developed.



Occupational Health

1993: A strategic plan for occupational health was published.

1994: The Health Hazard Assessment Program Strategy was established. The program eliminates or controls health hazards in the life-cycle management of weapons, munitions, equipment, clothing, training devices, and other materiel. The strategic plan focuses on Army readiness by protecting health and maintaining stewardship of resources.

Reengineering

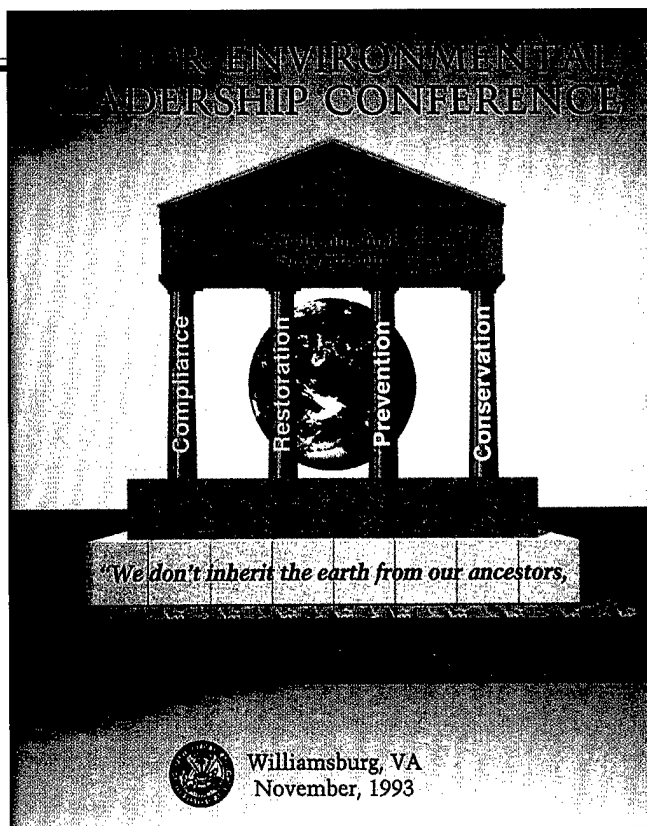
Environment

1992: The Army announced its reorganized environmental structure. The new organization included

- making AEPI a staff support agency reporting to the Office of the Assistant Secretary of the Army Installations, Logistics, and Environment;
- appointing Brigadier General Gerald C. Brown as the first Army Director of Environment;
- changing the name of Toxic and Hazardous Materials Agency to the AEC.

1993: The Army created an Assistant Chief of Staff for Installation Management, which oversees the Directorate of Environment.

1994: AEPI relocated from Champaign, Illinois, to the Georgia Institute of Technology and Clark Atlanta University, Atlanta, Georgia.



1994: The U.S. Army Environmental Hygiene Agency was redesignated the U.S. Army Center for Health Promotion and Preventive Medicine.

Safety

1993: The Major Command (MACOM) Career Planning Board was reengineered. It now consists of all MACOM Safety Directors, Director of Army Safety, and Functional Chief.

1993: U.S. Army Safety Center conducted an Army Data Modeling Process, which outlined the Safety Business Processes.

1993: The Army Materiel Command designated general officer executive directors for key safety program elements such as ammunition, explosives, radiation, chemical programs, and biological programs.

1995: A safety reengineering effort was initiated.

Occupational Health

1991: The Office of The Surgeon General undertook initiatives for the U.S. Army Environmental Hygiene Agency to become the executive agent for Health Hazard Assessments for acquisition items.

1992: Commanders of Army Materiel Command and Health Services Command signed a Memorandum of Agreement that provided for "coownership" of the Occupational Health Program,

including industrial hygiene, at all Army Materiel Command installations.

Integration

Environment

1991: Army Regulation 40-10, Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process was fielded. The program requires that the health effects of environmental contamination be assessed as part of the Health Hazard Assessment.

1992: Army leadership officially approved the Army Environmental Training Master Plan

- to integrate environmental awareness and training into all levels of the Army schools system;
- to provide environmental training in nonclassroom settings for unit and installation audiences.

Safety

1994: The Director of Army Safety codified Army safety doctrine into Field Manual 100-22, Installation Safety.

1994: The Army integrated risk management doctrine into Field Manual 101-5 and into the Army War College curriculum.

1995: A Safety Fellowship was established at AEPI. The first Safety Fellow reported in January 1995.

Occupational Health

1991: Army Regulation 40-10, Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process, was fielded.

1994: A Health Hazard Assessment Program Procedural Guide was published and distributed to the medical and materiel acquisition community. The guide provides practical information to personnel when striving to identify, eliminate, and control health hazards in Army systems.

Accuse not nature, she hath done her part; do thou but thine.

—John Milton, Paradise Lost