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This index provides brief descriptions of the 45 stories included in the first volume and supplement of this *Defense Environmental Restoration Program Annual Report to Congress for FY95*. The short stories in this index recount environmental restoration successes for FY95. The index entries below are arranged in the order of their appearance in the report. When available, the name of a contact person and a telephone number are provided for each installation featured in a story. Installation representatives listed below are willing to share materials and information regarding their specific program. Congress and the public are encouraged to contact them to gain a better understanding of the environmental restoration program and the work done to protect human health and the environment.

The installation experience stories are a new feature in the *Defense Environmental Restoration Program Annual Report to Congress for FY95*. The stories are designed to provide a view of the everyday activities at a variety of installations, as well as the lessons learned from those activities and the realities of DoD's environmental restoration program. They appear in their own section of the report. The Environmental Cleanup Award is the newest category in the annual Environmental Security Awards.

DoD Cleanup Award

Whidbey Island Naval Air Station, WA

This short story outlines the efforts at Whidbey Island that resulted in the 1995 DoD Environmental Cleanup Award.

Fast-Track Cleanup Program

Loring Air Force Base, ME

The BRAC Cleanup Team at Loring Air Force Base devised and implemented a plan to change the installation's on-site landfills from liabilities into assets.

Tustin and El Toro Marine Corps Air Stations, CA

These installations are using thermal desorption to treat contaminated soil resulting in reduced costs and an expedited restoration process.

Contact: Desire Chandler (Tustin)
(714) 726-5836
Joseph Joyce (El Toro)
(714) 726-3470

Joliet Army Ammunition Plant, IL

Components of the Fast-Track Cleanup Program are being tested at this non-BRAC installation, transforming it into one of the largest tallgrass prairie preserves east of the Mississippi River.

Contact: Janet K. Beavers
(410) 671-1502

Bergstrom Air Force Base, TX

The City of Austin teamed with DoD, the State of Texas, and EPA on plans for the city's new airport being developed at this closing base.

Accelerating Cleanup

The Air Force, Rational National Standards Initiative

This risk management tool identifies alternative cleanup standards based on risk and future land use, and allows cleanup to proceed more cost-effectively while acknowledging health and safety issues.

Contact: Terrie Warren
(804) 764-6249

The Navy, Streamlining Data Collection

Using geostatistics to map contamination at a site during the study phase of cleanup, the Navy has streamlined the study phase and saved \$4 million in environmental studies to date at one installation.

Riverbank Army Ammunition Plant, CA

This installation accelerated cleanup by establishing DoD's first base-wide Record of Decision (ROD).

Contact: James E. Gansel
(209) 869-7239

Former Raritan Arsenal, NJ

The installation took an aggressive approach to remedial investigation and remedial action at a lead-contaminated site to complete restoration in time for the site to be reused as a baseball field for a local college team. The cleanup was completed within 2 years by accelerating the schedule and coordinating closely with regulatory agencies and stakeholders.

Contact: Celia Orgel
(212) 264-6484

Defense Distribution Region West Sharpe, CA

The restoration program at Sharpe demonstrates how DoD can effectively balance cleanup responsibilities with the defense distribution mission.

Contact: John J. Guzman
(209) 982-2093

Philadelphia Naval Shipyard, PA

The Navy took quick action to reduce the threat of release from an installation landfill to the Schuylkill River. The landfill required a noninvasive method of controlling erosion to prevent the release of contaminants. The construction alternative chosen cost 5 times less than other alternatives and has resulted in a long-term solution for bank stabilization at the site.

Contact: Emil Klawitter
(610) 595-0567

Environmental Technology

Environmental Security Technology Certification Program--Phytoremediation

The U.S. Army Environmental Center (AEC) at Aberdeen Proving Ground has partnered with EPA, the Tennessee Valley Authority, and the U.S. Army Waterways Experiment Station to develop technologies that treat groundwater contaminated with explosives residues, including phytoremediation and natural attenuation.

Contact: Ira P. May
(410) 671-1522

Beaufort Marine Corps Air Station, SC

At Beaufort Marine Corps Air Station, intrinsic bioremediation is being employed to naturally attenuate and degrade organic compounds. If the treatment is successful, the installation could save \$600,000 in cleanup costs.

Contact: Frank Araico
(803) 522-7464

Navy Supply Corps School, GA

This installation is using a horizontal recovery well instead of multiple vertical wells to treat a contaminant plume that has migrated off site into residential areas.

Aberdeen Proving Ground, MD

Army agencies have teamed to use an innovative biomonitoring technology as the quality control element for a complex groundwater treatment process. To determine how clean treated groundwater is, bluegills are placed in the water and breathing behavior patterns are evaluated with signal analysis software.

Air Force Plant 44, AZ

In just 8 years, a state-of-the-art treatment plant has reduced 80 percent of the contaminant concentrations in groundwater to acceptable levels.

The Air Force, Bioventing Initiative

Within several years of beginning research and development on bioventing, the Air Force advanced the technology into numerous demonstration programs.

Continued Opportunities for Small Business

U.S. Army Corps of Engineers, WA

The Army teamed with the Small Business Administration to increase small business participation in environmental restoration in the Seattle District area.

Contact: Susan Price
(206) 764-6807

Willow Grove Air Reserve Station, PA

At this installation, the Navy hired a small business to install a vapor extraction system with such impressive results that a delegation from Estonia came to view the technology.

Contact: Robert J. O'Brien
(215) 443-1058

Alameda Naval Air Station, CA

The installation contracted with a small business to provide technical expertise in support of the Navy's environmental cleanup program. The small business also advised the Navy on the state's extensive regulatory requirements, assisted with the risk assessment process, and gave presentations before the Alameda Restoration Advisory Board.

Building Partnerships

Langley Air Force Base, VA

A pilot project involving variable oversight enabled stakeholders to identify opportunities for streamlining the study phase of restoration and has improved communication among stakeholders.

Contact: John Hopping
(804) 764-6249

Pensacola Naval Air Station, FL

The Navy partnered with EPA and the State of Florida to complete environmental studies under funding constraints, resulting in significant cost savings for the installation.

Hanscom Air Force Base, MA

The installation has established a consensus statement concept with EPA and state regulatory agencies to proceed with the CERCLA process in advance of the Federal Facility Agreement. Six consensus statements have been signed to date, and EPA and the installation have jointly prepared an engineering evaluation/cost analysis for the site.

Contact: Tom Best
(617) 377-4485

Sierra Army Depot, CA

This depot is successfully using natural attenuation to address groundwater contaminated with explosives and other toxic wastes.

Contact: Darrell Elliot
(918) 421-2551

Defense and State Memorandum of Agreement (DSMOA)

State of Alaska

As a result of the DSMOA program, litigation has been avoided, unique closure and cleanup methods and reuse alternatives have been developed, and cleanups have been accelerated at installations in Alaska.

State of Texas

The DSMOA program in Texas has resulted in numerous cost avoidance and time saving measures. DSMOA staff have recommended less costly remedies at six installations, expedited state review of documents, and improved community involvement.

State of California

California has used DSMOA funding to assist DoD in avoiding an estimated \$430 million in cleanup costs. Successful consensus decision-making, fast-track cleanup strategies, and innovative technologies have helped to accomplish these savings.

Agency for Toxic Substances and Disease Registry

Norton Air Force Base, CA; Fort Devens, South Post, MA; and New London Naval Submarine Base, CT

The benefits of the partnership between DoD and ATSDR are illustrated by results from three installations.

Installation Experience Stories

Jacksonville Naval Air Station, FL

Successful efforts at this installation include regulatory agency partnering, innovative contract methodologies, DSMOA participation, and Restoration Advisory Boards.

Robins Air Force Base, GA

Sites at this heavily industrialized base will be remediated under both the CERCLA and RCRA programs. This installation has been recognized for efficient management of its environmental program, Restoration Advisory Boards, and partnering with regulatory agencies.

Fort Lewis, WA

This installation received the first delisting of a Federal facility site from EPA's National Priorities List, an effort accomplished by streamlining the restoration process and working closely with regulatory agencies.

Contact: Paula Wofford
(206) 967-5337

Defense Distribution Depot Ogden, UT

Efforts at this installation demonstrate how DoD can efficiently reach consensus and make decisions for remedial investigations through practical planning with regulatory agencies.

Sacramento Army Depot, CA

This model installation has thrived under the Fast-Track Cleanup Program, and has been transformed into one of the nation's largest computer manufacturers.

Contact: Dan Oburn
(916) 557-7936

Homestead Air Force Base, FL

Under the Fast-Track Cleanup Program, the installation is addressing 500 sites where contaminants may have been released as a result of Hurricane Andrew.

Alameda Naval Air Station, CA

The story of Alameda Naval Air Station illustrates the role of the Restoration Advisory Board, state interaction through DSMOA, and the link between future land use and relative risk factors at closing installations with great economic importance in the community.

West Virginia Ordnance Works, WV

This Formerly Used Defense Site (FUDS) was deeded to the State of West Virginia and became a wildlife refuge; this story illustrates the workings of the FUDS program.

Restoration Advisory Boards

Hill Air Force Base, UT

The installation received 155 applications for membership in the Restoration Advisory Board after conducting an outreach project targeted at the six surrounding communities.

Fort Carson, CO

Installation officials credit the ongoing training of Restoration Advisory Board members as an invaluable tool for keeping the community involved in the restoration process.

Contact: David Sealander
(719) 526-1722

McClellan Air Force Base, CA

The Restoration Advisory Board at this installation has formed a Base Reuse Subcommittee to monitor activities of the Local Redevelopment Authority. The Restoration Advisory Board has also focused efforts on environmental issues and avoidance of costly delays.

Contact: Margaret Gedding
(916) 643-1742

Whidbey Island Naval Air Station, WA

Input from the installation's Restoration Advisory Board was a crucial factor in the selection of a restoration alternative that allowed the Navy to avoid \$4.5 million.

Kirtland Air Force Base, NM

This installation's relative risk rankings accelerated site investigation projects. Kirtland Air Force Base was one of the first installations to complete relative risk evaluations of all its contaminated sites with the full involvement of stakeholders.

Contact: Kari Paseur
(505) 846-0053

North Island Naval Air Station, CA

This installation's Restoration Advisory Board recently gave the Navy high praise for its quick response to concerns about the cleanup of a shoreline site.

Contact: Cindy Turlington
(703) 602-5330

Cecil Field Naval Air Station, FL

The installation developed a training program for the Restoration Advisory Board that resulted in a compromise on stringent cleanup standards, resulting in a cost avoidance of an estimated \$15 to \$20 million for the Navy.

Fort Detrick, MD

The installation's Restoration Advisory Board has been instrumental in addressing the public's fears and correcting misperceptions. A public meeting held to discuss potential buried biological agents was broadcast on cable television and helped the installation gain credibility with the community.

Contact: Norman M. Covert
(301) 619-2018

Former Black Hills Army Depot, SD

The implementation of a Restoration Advisory Board has provided a forum for the community to have their concerns addressed at this formerly used defense site.

Contact: Kevin Quinn
(402) 221-3917

Index of other DoD Successes

The following summaries describe the accomplishments of installations that were nominated for but not included in the body or supplement of Volume 1 of this report. The summaries are categorized by theme alphabetically, with entries in each category arranged alphabetically by state.

Accelerating Cleanup

Fort Huachuca, AZ

Initial corrective actions to address a leaking underground storage tank (UST) included the removal and replacement of the UST system, followed by excavation and on-site thermal treatment of soil. An air sparging system installed in 1994, significantly reduced benzene concentrations, with complete site remediation anticipated within 2 to 3 years.

Contact: Frank Shirar
(502) 533-1285

Barstow MCLB, CA

An emergency removal action in July 1995 provided water to nearby residents, and carbon treatment units were installed on private drinking water wells. Groundwater remediation techniques include vapor extraction combined with air sparging.

Contact: Michael Cox
(619) 577-6887

Twentynine Palms MGAGCC, CA

Under the Pilot Expedited Environmental Cleanup Program, the installation has accelerated environmental cleanup, reduced cleanup costs, and achieved an environmentally clean facility in a timely manner.

Contact: Leon Bowling
(619) 830-5728

Fort George G. Meade, MD

Under BRAC, 7,000 acres were transferred to the Department of the Interior. Unexploded ordnance (UXO) remediation at another area revealed 14,000 pieces of UXO; more than

4,000 pieces were exploded by the 144th Ordnance Detachment during cleanup operations in FY95.

Contact: Don McClow
(301) 677-1361

Minneapolis-St. Paul Air Force Reserve Base, MN

The installation is currently working with EPA Region 5 to have a site deleted from the NPL. The site has progressed through the entire SI/RI/FS/ROD/RA process and it is believed that it will be the first Air Force site permanently removed from the NPL.

Contact: Joan Bentley
(612) 725-8132

Mississippi State Fair Grounds, MS

Commercial contractors digging utility lines uncovered glass vials containing chemical materiel. The U.S. Army Corps of Engineers remediated the area in one month with assistance from Aberdeen Proving Ground's Technical Escort Unit.

Contact: Robert E. DiMichele
(205) 895-1691

Missouri and New Mexico Army National Guard

Missouri and New Mexico are the first two Army National Guard units to remove all USTs.

Contact: Robert Gondek (NM)
(505) 473-3882

U.S. Military Academy, West Point, NY

A RCRA facility assessment determined that the Morgan Farm Landfill's embankment was unstable and metals were detected in groundwater and seeps. An interim remedial action was initiated through the U.S. Army Corps of Engineers, Omaha District to address the situation.

Contact: William J. Kavanaugh
(914) 938-4459

Camp Lejeune, NC

Camp Lejeune completed two time-critical removal actionsone for pesticide-contaminated soils and the other for dangerous metallic debris. In addition, two

groundwater remediation systems were installed to remove volatile organic compounds from USTs that are undergoing study and closure. Over 25,400 gallons of free product have been recovered from groundwater remediation systems at UST sites to date.

Contact: Neal Paul
(910) 451-5068

McAlester Army Ammunition Plant, OK

Under the Fast-Track Cleanup Program, this installation has achieved restoration goals in a timely and cost-effective manner.

Contact: Steven A. Creech
(918) 421-2551

Letterkenny Army Depot, PA

The Area K cleanup was completed and several emergency removal actions took place. Community involvement included the formation of a Restoration Advisory Board and publication of an environmental newsletter.

Contact: Alan R. Loessy

Tobyhanna Army Depot, PA

A removal action for contaminated soil at Area B addressed groundwater contamination concerns and saved about 75 percent of a \$4 million planned remedial action. The removal action was made possible through partnering efforts with EPA and PADEP and contracting assistance from the U.S. Army Corps of Engineers. Area residents were connected to the installation's water line.

Contact: Craig Coffman
(717) 895-6494

DGSC Richmond, VA

Exploratory trenching at a landfill provided data necessary for DLA to conduct a more detailed evaluation of cleanup alternatives. Construction of a groundwater remediation system began, a Record of Decision was signed, and six expanded site investigations were completed. In addition, DLA completed remedial investigation reports and a feasibility study report.

Contact: William Saddington
(804) 279-3781

Fort Pickett, VA

The installation is removing and replacing 76 heating fuel USTs with aboveground vaulted tanks. Fort Pickett's approach includes the selection of the oldest USTs for replacement under the initial contract.

Contact: David L. Foley
(804) 292-2630

Quantico MCCDC, VA

A removal action accelerated cleanup of a pesticide-contaminated site and prompted a no further action document for the site.

Contact: John Burluson
(703) 784-4030

Woodbridge Research Facility, VA

The BRAC Cleanup Team determined that an interim removal action was necessary to clean up PCB contamination near an outfall located just above an environmentally-sensitive wetlands area. The U.S. Army Corps of Engineers, Omaha District removed 1,100 tons of contaminated soil and concrete and treated more than 40,000 gallons of PCB-contaminated groundwater.

Contact: Robert P. Craig
(301) 394-4511

Building Partnerships

Yuma Marine Corps Air Station, AZ

This installation saved 2 to 3 years and about \$10 million by partnering with regulatory agencies to obtain concurrence on cleanup decisions.

Contact: Larry M. Leake
(520) 341-5215

Presidio of Monterey Annex (formerly Fort Ord), CA

Successful working relationships have been established among all members of the BRAC Cleanup Team (BCT), and the BCT conducts regularly-scheduled meetings to discuss and resolve comments before finalizing comment letters.

Contact: Gail Youngblood
(408) 242-7918

Eglin Air Force Base, FL

Through focused partnering efforts, an agreement was successfully negotiated with the State of Florida to accelerate cleanup, prioritize effectively, and involve regulators earlier in the assessment and cleanup process.

Contact: Steve Williams
(904) 992-2878 x594

Environmental Technology

Dutch Harbor, Unalaska Island, AK

An underwater, remote-controlled vehicle was used to locate waste after several hundred glass vials belonging to chemical agent identification sets were found off a commercial fishing dock. As part of the engineering evaluation/cost analysis, the U.S. Army Corps of Engineers explored the harbor, and no additional such materiel was discovered.

Contact: Robert E. DeMichele
(205) 895-1691

Fort Richardson, AK

An innovative cleanup approach was used to remove contamination from wetlands at Fort Richardson's Eagle River Impact Area. After white phosphorus from UXO was found to be causing waterfowl deaths in the area, the Army developed an electro-hydraulic, remote-control dredge to remediate pond sediments.

Contact: William A. Gossweiler
(907) 384-3017

Yuma Proving Ground, AZ

The Environmental Security Technology Certification Program is sponsoring the demonstration of technologies for detecting UXO originally developed for mine detection activities. A remote-controlled detector capable of differentiating explosive material from non-explosive shrapnel is being tested. Initial results indicate that a moderately skilled operator can survey seven times more area per hour than a highly skilled operator with a hand held detector. An advanced airborne based suite of active and passive sensors is also being tested for surveying large areas contaminated with UXO.

Camp Pendleton, CA

Cost control measures being implemented at the installation include: reduced sampling efforts; analytical testing for monitoring wells; elimination of production well sampling; maximizing the use of non-time critical removal actions; and streamlined engineering evaluation and cost analysis and feasibility studies by selecting proven treatments.

Contact: Keith LeBouef
(619) 725-9742

McClellan Air Force Base, CA

This installation is demonstrating soil gas and off gas treatment techniques to remediate chlorinated hydrocarbons in groundwater and soil.

Port Hueneme Naval Construction Battalion Center, CA

The installation is using sensor validation for Site Characterization and Analysis Penetrometer System (SCAPS) applications used in conjunction with fuel hydrocarbon and waste oil investigations and remediation activities. A biopile demonstration was also completed, and a HAVE demonstration has just begun.

Presidio of San Francisco, CA

The installation is using an innovative *in situ* groundwater treatment system developed in Germany. The method uses a vacuum system to move contaminated groundwater, the water flows upward where it is injected with tiny air bubbles that strip volatile organic compounds from the water. Preliminary results indicate that contaminants are being successfully removed by the system.

Contact: Thomas C. Appling, III
(415) 749-3205

San Diego MCRD, CA

This installation has been very effective in the assessment and removal of underground storage tanks. In addition to removing five tanks in less than 3 months, state-of-the-art technology has been used to develop a SCAPS summary report.

Contact: Eric C. Green
(619) 524-0655

Seal Beach Naval Weapons Station, CA

The Environmental Security Technology Certification Program is demonstrating enhanced *in situ* anaerobic bioremediation methods to remediate fuel-contaminated groundwater. Anaerobic degradation is anticipated to cost two-thirds less than traditional activated carbon treatment.

Groundwater Remediation Field Laboratory, Dover Air Force Base, DE

The first contained release cell was constructed at Dover Air Force Base to demonstrate site characterization, monitoring, and remediation techniques for dense nonaqueous phase liquid in groundwater.

Hawaii MCB, HI

The installation is using several innovative technologies to facilitate the cleanup and prevention of future pollution. Bioventing and bioslurping are being used to stimulate the aerobic biodegradation of contaminants in soil and recover free product from the water table. Biopile remediation is being used to apply native microorganisms to excavated fuel-contaminated soils, and research is being conducted to identify landfill cover materials that are cost-effective and that minimize the amount of rainwater infiltrating soil.

Contact: James Abbott
(808) 257-9974

Pacific Missile Range Facility, HI

The Environmental Security Technology Certification Program sponsored the Naval Facilities Engineering Service Center to demonstrate an integrated geophysical underwater survey technology to detect underwater UXO.

Savanna Army Depot, IL

The installation is conducting a technology demonstration at its largest contaminated site. Commercially available soil sifting and screening equipment is being used to remove debris created by testing, demilitarization, open detonation, and open burning of ammunition in contaminated soils. The debris-laden soil is excavated, initially screened in the field to remove very large items, and then transported to a building where it is screened to remove all debris.

Contact: James E. Sisk

Iowa Army Ammunition Plant, IA

The U.S. Army Environmental Center, under the sponsorship of the Environmental Security Technology Certification Program, is applying biotreatment techniques in a slurry reactor to treat explosives-contaminated soils. The technique is expected to provide advantages over conventional incineration options.

Fort Polk, LA

The U.S. Army Environmental Center and the Navy Facilities Engineering Support Center are jointly demonstrating under the Environmental Security Technology Certification Program a suite of technologies to remove lead bullets from berms at small

arms ranges and extract the remaining lead contamination from the soil. These technologies will allow the soil to be cost effectively cleaned and left on site.

Louisiana Army Ammunition Plant, LA

The Environmental Security Technology Certification Program has brought together the installation and the U.S. Army Waterways Experiment Station to demonstrate the advantage of natural attenuation as a low cost alternative to treating explosives contamination in groundwater.

Naval Air Engineering Station, NJ and New Orleans Naval Air Station , LA

The Navy, under the sponsorship of the Environmental Security Technology Certification Program, has demonstrated and validated the Laser-induced fluorescence Site Characterization and Analysis Penetrometer System (SCAPS). These demonstrations were done in coordination with local and regional regulators across the country to achieve regulatory acceptance of the technology.

Aberdeen Proving Ground, Building 103, MD

For a landfill site in the Canal Creek Study Area, the installation has signed a Record of Decision to install a new double-liner cap using a sodium bentonite geocomposite liner and geosynthetic membrane to reduce infiltration and animal intrusion. The installation has also consolidated waste from two nearby burn areas to reduce disposal costs. At another site, the installation is studying the potential use of natural attenuation and degradation to reduce volatile organic compound concentrations in a marsh area.

Contact: Kenneth Stachiw
(410) 671-3320

National Center for Integrated Bioremediation Research and Development, Wurtsmith Air Force Base, MI

The installation is evaluating bioremediation techniques designed to remediate fuel- and solvent-contaminated soil and groundwater. Survey site candidates have undergone comprehensive analyses, and the installation has conducted controlled subsurface injection and ecological biomarkers demonstrations.

Cornhusker Army Ammunition Plant, NE

The U.S. Army Environmental Center under the sponsorship of the Environmental Security Technology Certification Program and the installation have teamed to demonstrate a peroxone treatment technology for remediating explosives-contaminated groundwater. The demonstration has the potential to reduce costs compared to more traditional treatment methods.

Hastings Groundwater Contamination Site, NE

At this site, a new type of air sparging is expected to significantly improve groundwater quality by pumping air underground to vaporize volatile organic compounds across a larger area.

Contact: George Hanley
(816) 426-5241

Umatilla Army Depot, OR; Naval Submarine Base Bangor, WA

The Naval Research Laboratory, under the sponsorship of the Environmental Security Technology Certification Program, is demonstrating a fiber optic biosensor that would meet DoD's need for a hand-held device capable of detecting TNT contaminants in water. Fiber optic biosensing would drastically reduce the costs of and the time currently needed to obtain analytical results.

Erie Ordnance Depot, PA

The U.S. Army Corps of Engineers safely removed UXO remaining in Lake Erie sediments near the installation. A unique dredging technique employed closed-circuit television cameras and a conventional clamshell bucket fitted with explosion-proof blast shields to separate ordnance from sediments.

Contact: Robert E. DeMichele
(205) 895-1691

Tobyhanna Army Depot, PA

A powerful information management software known as the Executive Information System is being used in various environmental cleanup applications. The system applications equip executives, managers, and analysts with visual information access and an analysis reporting method with capabilities such as easy access to supporting data, trend analysis, calculations, cross-reference reports, and exception reporting.

Contact: Craig H. Coffman
(717) 895-6494

Camp Croft Infantry Replacement Training, SC

Two time-critical removal actions involving high levels of ordnance and explosives contamination were conducted in an area now used for a commercial landfill development and in another high-use recreation area. Cleanup activities have been effectively prioritized at live ammunition training ranges, a grenade court, a gas chamber, and other impact areas. The installation now contains a popular state park and residential, agricultural, and industrial areas.

Contact: Robert E. DiMichele
(205) 895-1691

Milan Army Ammunition Plant, TN

The Environmental Security Technology Certification Program has brought together the installation and the U.S. Army Environmental Center to demonstrate phytoremediation methods in constructed wetlands to treat explosives-contaminated groundwater.

Volunteer Army Ammunition Plant, TN

A SCAPS demonstration conducted at the installation characterized explosives and heavy metals contamination in groundwater and soil.

Naval Air Station Joint Reserve Base Fort Worth, TX

The Environmental Security Technology Certification Program is demonstrating plant-enhanced bioremediation techniques to remediate contaminated groundwater and soil. Plant bioremediation promises a natural, energy-conserving, and economical method that can be used alone or in conjunction with other methodologies.

Puget Sound Naval Shipyard, WA

An innovative technology, steam sparging, is being used to remove oil from the subsurface environment.

Contact: Dave Rodgers
(206) 396-0056

Badger Army Ammunition Plant, WI

The Armament Research, Development, and Engineering Center has teamed with the installation under the Environmental Security Technology Certification Program to demonstrate bioremediation of nitrocellulose-based energetic materials in soils. The technique is considerably less costly than incineration and composting processes.

Opportunities for Small Business

Redstone Arsenal, AL

A \$325 million total environmental restoration contract for the entire installation will be awarded to one contractor in 1996. Before releasing the request for proposal, a networking session was held for small businesses to meet prime contractors, as the contract award requires 40 percent of subcontracts to go to small businesses and 8 of the 40 percent to go to small-disadvantaged businesses.

Contact: James N. Parker, Jr.
(912) 652-5279

USACE Little Rock District, AR

The U.S. Army Corps of Engineers, Little Rock District, has contracted with a small business to remove hazardous waste at the Gurley Pit. The contractor provided an air monitoring prototype that was later used by EPA as a model for other sites.

Contact: Paula Crane
(501) 324-7194