



BUILDING ON CLEANUP SUCCESS



The challenge is nothing less than supporting the twin imperatives of producing the best trained military force in the world and providing the best environmental stewardship. National security and environmental security are mutually reinforcing.

— Dr. Paul Wolfowitz, Deputy Secretary of Defense

The Department of Defense (DoD) is charged with protecting the United States—its people, values, and resources. In fulfilling its defense mission, DoD manages an extensive inventory of installations and facilities where training activities and other operations essential to readiness are carried out. DoD is the environmental steward of federal lands entrusted to it, including the restoration of land environmentally impacted by its past activities. Through the Defense Environmental Restoration Program (DERP), DoD is protecting human health and restoring the environment at its active and closing installations, as well as at formerly used defense sites (FUDS). In all 50 states, the District of Columbia, and the 8 U.S. territories, DoD is making measurable progress in cleaning up contamination from past defense activities to protect its forces, their families, and civilian neighbors from environmental health and safety hazards.

DoD's Environmental Restoration Program

Until about 30 years ago, hazardous substances and wastes were often managed and disposed of using standard practices that were later found to be detrimental to the environment. The environmental and health concerns associated with contamination from those past activities are better understood today. Just as with private sector industries and businesses in many communities, similar past practices at military installations created thousands of environmentally contaminated sites that DoD must clean up. Acknowledging its responsibility, DoD started the long process of identifying, characterizing, and addressing environmental contamination at its installations in the 1970s.

In 1980, Congress enacted legislation to address environmental impacts from past waste disposal practices. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) required the identification, investigation, and cleanup of past releases of hazardous substances. Congress amended CERCLA in 1986, including formally establishing the DERP and its funding mechanism, the Defense Environmental Restoration Account (DERA). The DERP has three program categories that focus on DoD's primary goals:

- ✦ The identification, investigation, research and development, and cleanup of contamination from hazardous substances, pollutants, and contaminants
- ✦ Correction of other environmental damage (such as detection and disposal of unexploded ordnance, or UXO), which creates an imminent and substantial endangerment to the public health or welfare or to the environment
- ✦ Demolition and removal of unsafe buildings and structures, including DoD buildings and structures at sites formerly used by or under the jurisdiction of DoD.

During the past 20 years DoD focused most of its efforts on the first category. Also during the 1980s, to keep pace with modernization and changes required to support DoD's mission, Congress acted to eliminate excess infrastructure. Congress authorized four rounds of base realignment and closure (BRAC) in 1988, 1991, 1993, and 1995. DoD is cleaning up contaminated sites to ensure transferring BRAC property is safe and can support new uses. Congress has approved a new BRAC round in 2005 to further streamline and strengthen DoD.

Since the DERP's inception, the Office of the Secretary of Defense (OSD) has overseen the DERP and its implementation by the Military Components—the Army, Navy, Air Force, Defense Logistics Agency (DLA), and Defense Threat Reduction Agency (DTRA). Within OSD, the Cleanup Office of the Deputy Under Secretary of Defense for Installations and the Environment (ODUSD(I&E)/CL) has responsibility for oversight and reporting on the DERP. ODUSD(I&E)/CL managed the DERA as a single account until 1997, when it was divided into five Component-specific Environmental Restoration (ER) accounts to increase accountability. The Army, Navy, and Air Force manage individual ER accounts for response activities at their active installations. A fourth account funds the FUDS program, which addresses environmental restoration on property formerly owned, leased, or operated by DoD. The U.S. Army Corps of Engineers (USACE) executes the FUDS program for the Army, the Secretary of Defense's designated executive agent for FUDS. The last account, the Defense-wide account, supports OSD's oversight of the DERP and cleanup initiatives for DLA and DTRA. The separate BRAC account funds cleanup activities at closing and realigning installations.

In order to most effectively address the different contaminants likely to impact DoD installations and properties, DoD organized the DERP into three program categories—the Installation Restoration program (IRP), the Military Munitions Response program (MMRP), and building demolition/debris removal (BD/DR). Under the IRP DoD conducts response actions, similar to those required at old industrial sites and landfills, to address the toxicological risks associated with the release of hazardous substances, pollutants, or contaminants. Munitions response activities, however, are unique to DoD and very complex, as munitions present both potential explosive safety risks and potential toxicological risks from munitions constituents. Although some of the hazards associated with munitions were previously addressed under the IRP, the MMRP will more completely address the cleanup required at sites containing UXO, discarded military munitions, and the chemical constituents of munitions. DoD also addresses a small number of sites that require the demolition and removal of unsafe buildings or structures within the BD/DR category of DERP.

Focus on the Field**FUDS****Salmon Return to Beaver Creek after the Successful Cleanup of the Old Navy Dump at Manchester Annex**

Combined federal, state, and local efforts have restored the natural course of Beaver Creek and the salmon population's return to the area. Specifically, the U.S. Army Corps of Engineers Seattle District, Environmental Protection Agency (EPA) Region 10, the EPA Laboratory, National Marine Fisheries Service, U.S. Navy Manchester Fuel Depot, Manchester State Park, Washington State Division of Fish and Wildlife, the Suquamish tribe, and the local community contributed to the successful remediation of a former Navy dump, the adjacent shoreline, and inter-tidal sediment areas at Manchester Annex.

Originally constructed to provide harbor defense for Puget Sound during World War I, the Navy used the Annex for testing torpedoes, storing anti-aircraft artillery guns, and more recently, as the Navy's fire training school. As a result of its previous use, site contaminants included dioxin-contaminated debris, polychlorinated biphenyls, heavy metals, furans, asbestos and petroleum hydrocarbons. Additionally, an old dumping site interfered with the natural course of the adjacent Beaver Creek, impacting the existing salmon population.

Throughout the lifecycle of the project, the public was instrumental through their participation in the Restoration Advisory Board. All stakeholder groups have expressed favorable views of the effort and have declared restoration of the old navy dump and return of salmon to Beaver Creek a success.

DoD has built and maintained a successful program through the use of site-level data to identify response action requirements, the maintenance of a complete site-level inventory, and the successful implementation of a risk management strategy to help sequence the response action required and to track overall program progress in reducing risk. Site-level response action requirements serve as program drivers and help build the framework of the restoration program, ensuring that the DERP is successful in achieving its overall program objective of protecting human health and the environment. The site-level inventory tracks all requirements by program phase (e.g., study, cleanup, long-term management) and risk category, including cost-to-complete estimates.

DoD's risk management strategy involves three aspects—implementing a systematic process for prioritizing sites and sequencing work, developing program goals and performance metrics, and working with communities through improved stakeholder outreach. DoD program goals are used as targets for the Components to plan,

program, and execute. DoD uses metrics called measures of merit to evaluate progress toward program goals. These goals and performance metrics, such as those found in DoD's President's Budget exhibits, are essential for assessing program progress and success. Program goals are based on completing all requirements at each site on a "worst first" basis. This is accomplished by tracking the number of sites in each relative risk category from one year to the next; sites are tracked until remedial systems are in place and the responses at sites are complete. DoD determines the relative risk of each IRP site through the use of the relative-risk site evaluation. This evaluation method is discussed in detail in Chapter 3 of this report. A site prioritization protocol will be used in a similar manner for MMRP requirements. Using these prioritization tools, DoD follows through on its commitment to address the worst sites first. Finally, DoD's cooperation with and support from stakeholders allows DoD to implement environmental restoration activities more efficiently and effectively, saving both time and taxpayer dollars.

Framing the Future: DERP Initiatives

Although the DERP is a solid environmental restoration program with many proven successes, DoD continues to encounter new issues and challenges. In response to these challenges, the DERP is evolving and building on past cleanup successes, becoming more efficient and effective with every innovation. DoD's FY02 initiatives include:

- ✦ Employing best practices to move the environmental restoration process forward
- ✦ Expanding BRAC management approaches to expedite cleanup and facilitate transfer of property
- ✦ Providing instruction on land use control (LUC) policy to address complex issues
- ✦ Pursuing technological advances to improve restoration
- ✦ Building partnerships with stakeholders to streamline the cleanup process and improve decision making.

DoD's efforts in support of these initiatives are described in the remainder of this chapter.

Employing Best Practices Moves the DERP Forward

In March 2000, DoD held a forum to examine best practices and procedures in environmental restoration at military installations and properties. Participants identified several practices that promote optimal program performance, including:

- + Consistently developing and implementing cleanup plans
- + Maintaining effective communication between DoD and stakeholders
- + Identifying and implementing expedited remediation approaches.

DoD's FY02 environmental restoration efforts include examples of these program practices which strengthen the DERP's effectiveness.

Consistently Developing and Implementing Cleanup Plans

A Management Action Plan (MAP) serves as the blueprint for managing environmental restoration activities at an installation or FUDS property. A MAP is a planning document that helps streamline the environmental restoration process by identifying cleanup activities, projected schedules, and overall project funding requirements for the

installation. MAPs also aid in program planning, budget development, and execution decisions. When used properly, MAPs can also promote stakeholder participation and cooperation by giving regulatory agencies and community members the opportunity to help develop and review MAPs and to assist in the identification of cleanup priorities.

Components are required to maintain MAPs or their equivalent (e.g., site management plans and BRAC cleanup plans) for each installation, and must update them annually to ensure continued effectiveness.

Breaking Ground on New Munitions Policy

Throughout FY02, DoD worked to fulfill new requirements for munitions response, including development of:

- + The comprehensive MMRP site inventory
- + An estimation of costs to conduct responses at MMRP sites and operational ranges
- + A munitions technology baseline
- + A site prioritization protocol, which will assign a relative priority for response activities to each site in the inventory based on overall site conditions.

The MMRP chapter included in this report will discuss these program achievements in detail.

FUDS maintains state-wide MAPs, managing properties in groups according to the state in which they are located. This process will further increase stakeholder participation and buy-in, and will provide a coordinated strategy for site investigation and cleanup at FUDS within a state. As of FY02, FUDS has engaged with stakeholders in the development of 13 state-wide MAPs. These MAPs will help enhance overall communication and improve technical and budget determinations among parties involved in the environmental restoration process in these states.

Maintaining Effective Communication with Stakeholders

The FUDS Improvement Working Group (FIWG) was created in October 2000 to better address FUDS programmatic issues. The FIWG includes representation from the Association of State and Territorial Solid Waste Management Officials, Environmental Protection Agency (EPA), the Tribal Association of Solid Waste and Emergency Response, the Office of the Secretary of Defense, the Army, and the USACE. A primary goal of this interagency collaboration is to identify new or improved policies and procedures that will enhance communication among the Army, regulators, and other stakeholders, and facilitate the timely completion of environmental response actions at FUDS properties. The FIWG identified six major concerns in early meetings, including more consistent and expedited decision making, and more stable FUDS program funding. By continuing to increase and improve cooperation and communication, the FIWG facilitates consensus between DoD and interested parties by encouraging participation of and feedback from various stakeholders throughout all aspects of the cleanup process.

In FY02, the FIWG assisted USACE in drafting a new engineering regulation for management and execution of the FUDS program—*USACE Engineer Regulation 200-3-1*, which will replace the outdated regulation once it is finalized and released. The FIWG assisted USACE in revising this primary guidance and program management document: developing the new regulation process guidance on determining lead regulator authority at FUDS properties, defining how FUDS competes within DoD for resources, and defining requirements for development of state-wide MAPs. The FIWG also provided

input to an Army policy directing USACE to increase coordination with regulators on recently developed inventory project reports (INPRs) and to authorize states to receive funding to reexamine historical INPRs at the states' request.

Identifying and Implementing Expedited Remediation Approaches

DoD strives to maximize limited program resources by conducting environmental restoration activities in the most efficient and expedient manner possible. One tool that has been extremely helpful in evaluating and improving site remediation processes so that maximum risk reduction is achieved for each dollar spent is remedial process optimization. Remedial process optimization is a systematic, iterative process that assesses remediation efforts to enhance technical effectiveness and reduce overall site cleanup costs. This process evaluates remedial processes for overall system effectiveness, taking alternative remedial approaches and new technologies into consideration.

Remedial process optimization offers multiple benefits, including the evaluation of remedial progress through data collection and established cleanup goals; the acceleration of site transfer; reduced operation, monitoring, and maintenance costs; and superior protection of human health and the environment. Remedial process optimization is cyclical in nature and is designed to ensure that cleanup goals are met fully and efficiently.

The Air Force, Navy, and DLA have experienced success in implementing remedial process optimization. At the former George Air Force Base, remedial process optimization was used to find alternative groundwater remediation methods to supplement the installation's overextended pump-and-treat system. Remedial process optimization recommendations, such as the use of phytoremediation, may save more than \$5 million on the cost of pump-and-treat system operations at this base over the next 30 years. The use of remedial process optimization at DLA installations is expected to reduce cleanup costs by at least 20 percent. DLA has also experienced a less than two-year return on investment and an acceleration in site closure and transfer as a result of remedial process optimization. Overall, remedial process optimization has proven to be a valuable tool in environmental restoration.

Expanding BRAC Management Approaches Expedites Cleanup and Transfer

Of the 497 installations identified for closure or realignment in the four BRAC rounds, 206 required some type of environmental restoration action. At the close of FY02, 79 percent of BRAC IRP sites have achieved the remedy in place (RIP) or response complete (RC) milestones. These milestones are explained in detail in Chapter 3 of this report.

Environmental restoration at BRAC installations is based on three principles—protecting human health and the environment, making property available for reuse and transfer, and providing effective community involvement. The BRAC cleanup team, or BCT, assists in accelerating cleanup to support the reuse and transfer process. The BCT consists of the DoD BRAC environmental coordinator, the EPA, and the state remedial project managers. The BRAC cleanup plan maps environmental restoration work needed to satisfy CERCLA requirements for property transfer. The use of BCTs and BRAC cleanup plans has been effective, and DoD continues to build upon its cleanup successes at BRAC installations. The following section describes three additional approaches to expedite cleanup and facilitate property transfer—early transfer authority, partnering with regulators, and privatization methods.

Greater Use of Early Transfer Authority

Early transfer authority (ETA) provides the option of transferring property by deed while environmental restoration work is in progress. Using ETA benefits communities and DoD both economically and environmentally by integrating cleanup and redevelopment, remediating to levels appropriate for the intended use, increasing opportunities for investment, expediting property reuse, and relieving DoD of property management responsibilities. Property transferred under ETA allows the community and the property recipient, often the local redevelopment authority (LRA), to use the property to create jobs, contribute to revenue, and improve area aesthetics earlier than would otherwise be possible.

Focus on the Field

DLA



Defense Distribution Depot Ogden, Utah Paving the Way for Other Federal Sites

The hard work and dedication of installation personnel, coupled with a strong commitment from state and federal regulators, has resulted in several noteworthy cleanup accomplishments at the Defense Distribution Depot Ogden, Utah (DDOU). Among several 'firsts,' DDOU was the first DoD installation to attain a negotiated federal facility agreement and demonstrating Operating Properly and Successfully from Environmental Protection Agency Region VII. Additionally, in FY02 DDOU, a 1995 Base Realignment and Closure installation, became the first Defense Logistics Agency installation to close and transfer property. DDOU personnel surpassed all expectations by working as a team with regulators and the public to complete cleanup and property transfer to the local community as efficiently as possible.

DDOU met all of its original cleanup goals ahead of schedule through the use of innovative cleanup technologies, such as reactive barrier walls containing 15,000 gallons of soybean oil to collect hazardous contaminants and the use of bioventing for the cleanup and removal of underground storage tanks.

The expedited completion of cleanup and property transfer allowed DLA to return the property to the community for reuse, where it has become a thriving business center providing over 700 new jobs to the local community. This efficient transformation from closed depot to attractive new business center is recognized by state and federal regulators as an example of the success that can be achieved through innovative technologies and collaborative partnerships between DoD, regulators, and the surrounding community.

In April 2002, the U.S. General Accounting Office (GAO) recommended a broader use of ETA, suggesting that early transfers may reduce difficulties in establishing cleanup levels required for transfer and minimize conflict over the property's reuse. In response to GAO's findings, DoD has taken steps to further communicate the benefits of using ETA to communities, state and local regulators, and its own Components. Such efforts include the development of the *DoD Early Transfer Authority Guide*, planned for release in FY03. Through FY02, DoD has completed 15 early transfers of property, totalling approximately 13,500 acres of excess land for reuse.

Ensuring a Consistent Regulatory Approach

DoD recognizes that the involvement and cooperation of federal and state regulators in the cleanup process is essential in expediting the cleanup of property. Consequently, DoD has developed a memorandum of understanding (MOU) with EPA. This agreement helps facilitate consistent and expedited federal regulatory participation at sites on BRAC installations by detailing the respective environmental restoration responsibilities of both DoD and EPA and by providing funding for EPA's participation at these sites.

In FY02, the MOU was updated with new requirements, including metrics that focus on expediting environmental restoration activities and streamlining environmental restoration decisions to achieve BRAC cleanup goals of reaching RIP or RC milestones by the end of FY05. BCTs will now be required to submit milestone information on a semi-annual basis, ensuring DoD and EPA have current and more consistent data in their management information systems. The MOU remains effective through September 2005.

Privatizing to Accelerate Cleanup

Through the use of various privatization methods, DoD often is able to transfer ownership or control of property to the private sector more expediently than through the traditional cleanup and transfer process. When used in the BRAC context, privatization benefits both DoD and the community, as DoD is able to reduce its infrastructure while providing the community with usable property and facilities. In FY02, DoD participated in a pilot study called the Guardian Trust. The Guardian Trust focuses on maintenance of LUCs after cleanup is complete. Specific services covered under the Guardian Trust program include LUCs inspection, monitoring, and reporting; tracking land use records; and operation of engineering controls.

A pilot study of the Guardian Trust program was completed in February 2002 and yielded promising results. A private contractor and an advisory committee comprising personnel from EPA, Department of the Navy, and environmental protection officials from Pennsylvania, California, and Maryland headed the Pennsylvania-led study. The

results of the pilot study demonstrated the need for such a program, as services provided under the Trust are not presently offered through other property transfer methods. The success of the pilot study has prompted further development of the program.

Providing Instruction on LUC Policy

To expedite remediation, risk-based cleanup is widely used and accepted by the regulator community and other stakeholders as a viable cleanup option. Examples of this in a non-DoD context are EPA's Brownfields program and state voluntary cleanup programs. DoD often uses LUCs where there is residual contamination at permissible levels on the property. There are many situations where cleanup to unrestricted use is not feasible due to technical or economical impracticability. LUCs, which restrict the use of or limit access to real property, are put in place to protect human health, the environment, and the integrity of the engineering remedy by limiting activities that may occur at a particular site.

LUCs include any type of mechanism that limits the use of or restricts access to property in order to reduce risks to human health and the environment. These controls can be physical devices, such as fences and signs; legal measures, including restrictive covenants and deed notices; or administrative mechanisms, like land use plans, building permits, and ordinances.

In January 2001, OSD issued its policy for implementing LUCs on military installations and installations transferring out of DoD's control. This policy provided the Components with an overall framework for implementing, documenting, and managing LUCs for both active installations and BRAC properties.

Building on the policy provided by OSD, in FY02 the Air Force Base Conversion Agency (AFBCA) released a management strategy for implementing, monitoring, and enforcing LUCs and institutional controls (ICs) at the Air Force's BRAC installations. The management strategy addresses requirements established by DoD's LUC policy and

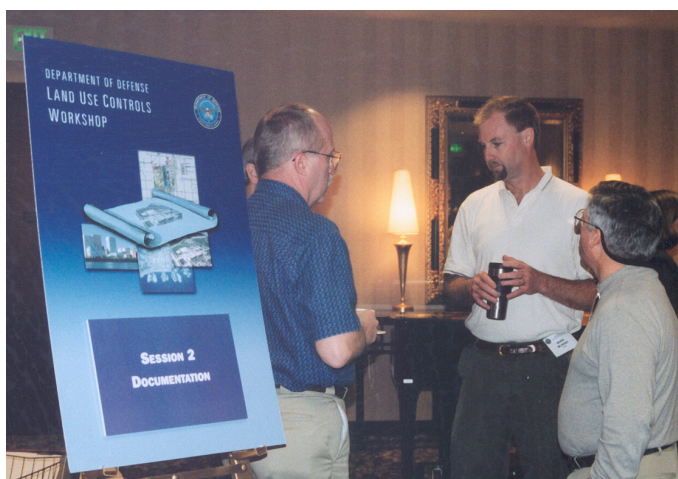


Policy on Land Use Controls Associated with Environmental Restoration Activities

https://www.denix.osd.mil/denix/Public/Library/Cleanup/luc_policyguidance.pdf

consists of four modules—the layering strategy worksheet, communications plan, IC management plan, and IC tracking module. The IC tracking module includes two separate databases—the first will aid in enforcement through its capability to generate reports and notices to individuals responsible for implementing layering strategies, while the second is linked to the management information system and contains IC classification information. The success of this type of strategy might become a model for DoD to implement a uniform strategy for LUC/IC management.

DoD hosted a series of workshops during FY02 to educate Component environmental and real estate personnel on the new LUC policy. The two-day workshops were hosted in Dallas, Texas; Charleston, South Carolina; and Seattle, Washington. Topics included implementation and management of LUCs, layering strategies, the use of state LUC tools, and the establishment of voluntary LUC agreements with regulatory agencies. The workshops allowed DoD policymakers to interact with installation personnel and discuss issues of general concern regarding LUC implementation. Through the workshops, DoD identified opportunities and challenges as well as potential recommendations for each issue.



Participants discuss ideas during a workshop on the new Land Use Control policy hosted by DoD.

Pursuing Technological Advances to Improve Restoration

Innovation in cleanup practices means more effective and efficient cleanup. DoD investigates emerging technologies that assist in meeting cleanup standards, as well as cost and schedule goals.

The Department has two programs that promote the research and assessment of cleanup technologies to identify those that are best suited to DoD's needs. The Strategic Environmental Research and Development Program (SERDP) is DoD's corporate

Focus on the Field

NAVY



Oxygen Releasing Compound Speeds Up Groundwater Remediation At NAB Little Creek

A new and innovative approach for treating groundwater contaminated with pentachlorophenol (PCP) has significantly reduced the amount of contamination and associated cleanup costs at Naval Amphibious Base Little Creek (NABLC). Wood treatment techniques conducted from the early 1960s until 1974, which involved the use of PCP and diesel fuel, contaminated the soil and surrounding groundwater. Although the Navy removed approximately 442 tons of contaminated soil from NABLC in 1999, residual PCP contamination remained in the groundwater.



Personnel applying the ORC™ biodegradation technique at NAB Little Creek.

The Navy, in coordination with the U.S. Environmental Protection Agency, the Virginia Department of Environmental Quality, and local community members investigated several innovative technologies that could enhance the biodegradation process. After testing two types of biodegradation techniques, the project team selected a product called Oxygen Release Compound (ORC™) to treat the contaminated groundwater at the site. During tests, approximately 1,400 pounds of ORC™ powder was mixed with water and injected into the water table aquifer at 17 injection points over an 800-square-foot area. The Navy also conducted six rounds of monitoring over a year to measure the PCP concentrations present in groundwater at the injection site. On average, PCP concentrations were reduced by over 90 percent.

In addition to its effectiveness in breaking down PCP, ORC™ is less likely to create toxic by-products and is more likely to provide the added benefit of breaking down the residual total petroleum hydrocarbons concentrations in the soil than other biodegradation techniques. Because ORC™ injection does not require a permanent treatment process plant, which traditional cleanup methods often require, implementation is simple. In addition, the technique involves no associated operation and maintenance costs, requires less monitoring and reporting, and drastically reduces cleanup timeframes. Overall, ORC™ has proven to be an efficient, viable alternative to conventional groundwater pump-and-treat facilities.

environmental research and development program. Planned and executed in full partnership with the Department of Energy (DOE) and EPA, SERDP focuses on identifying, developing, and implementing environmental restoration technologies that minimize or eliminate the environmental impact of DoD's activities. The Department also relies on the Environmental Security Technology Certification Program (ESTCP), a program that demonstrates, tests, and validates new technologies. In FY02, these programs contributed to DoD's research efforts in addressing emerging cleanup issues, such as the identification and remediation of perchlorate.

Perchlorate is a chemical found in fertilizers and used by DoD as a component of the propellant in many DoD weapons systems, and is highly soluble and mobile in water. DoD has been a leader in the development of innovative perchlorate treatment technologies, spending more than \$25 million to investigate treatment technologies over the past five years. DoD installations are currently field-testing these technologies to demonstrate their effectiveness.

Adopting a Proactive Approach to Perchlorate

DoD has been at the forefront of research to better characterize the potential effects of perchlorate exposure and balance operational readiness needs with public safety and environmental responsibilities. Since 1997, DoD has worked in partnership with EPA, NASA, state and local regulators, and Native American tribes to identify and manage potential risks associated with environmental releases of perchlorate. DoD led the establishment of the Interagency Perchlorate Steering Committee. Established in January 1998, the Committee now has representatives from 24 different government agencies. Its purpose is to ensure an integrated approach to addressing perchlorate issues and to inform and involve stakeholders.

DoD has funded many independent studies used by EPA to assess the potential health and ecological effects of perchlorate exposure. DoD will continue to promote the use of partnerships to generate the sound science needed for credible environmental decisions regarding perchlorate use, assessment, and cleanup.

DoD has developed a site dedicated to perchlorate issues on its environmental Web site. This Web site provides a framework for open and transparent sharing of information with internal and external stakeholders, including DoD environmental professionals, regulators and the public, and serves as a tool to inform all interested stakeholders about DoD's perchlorate initiatives. The Web site can be found at <https://www.denix.osd.mil/denix/Public/Library/Water/Perchlorate/perchlorate.html>.

Three recent SERDP-funded projects examined biological approaches for cost-effective in-situ, or in place, bioremediation of groundwater contaminated with perchlorate. DoD's goal in these studies was to understand the biological reduction of perchlorate and predict the viability of proposed technologies under field conditions. Through the SERDP projects DoD identified microorganisms capable of degrading perchlorate as well as other factors critical to developing effective treatment technologies. These efforts are



DoD's Perchlorate Initiatives

<https://www.denix.osd.mil/denix/Public/Library/Water/Perchlorate/perchlorate.html>

helping DoD take advantage of new scientific developments to further the environmental restoration program.

Building Partnerships with Stakeholders

From the beginning of the DERP, DoD has relied on partnerships with federal and state agencies, tribal governments, and communities to enhance the program's development and implementation. These partnerships support the program, providing insight necessary to most effectively carry out existing DERP functions while shaping the program's future. Through open communication and cooperation with regulators, DoD works to expedite the cleanup process and ensure that human health and the environment are protected. DoD has also established various methods to promote community participation and input in the environmental restoration process.

The 2002 EPA/State/DoD Environmental Colloquium

In May 2002, the EPA/State/DoD Environmental Colloquium was held in Baltimore, Maryland. More than 20 government organizations participated in the event, furthering DoD's efforts to build valuable partnerships with other agencies. Panel discussions provided a forum for attendees from various organizations to share their views and enabled DoD personnel to create constructive relationships with other stakeholders. The conference provided over 75 sessions, including topic-specific and regional-specific workshops, emphasizing DoD's commitment to cleanup at all levels.

Federal Remediation Technologies Roundtable

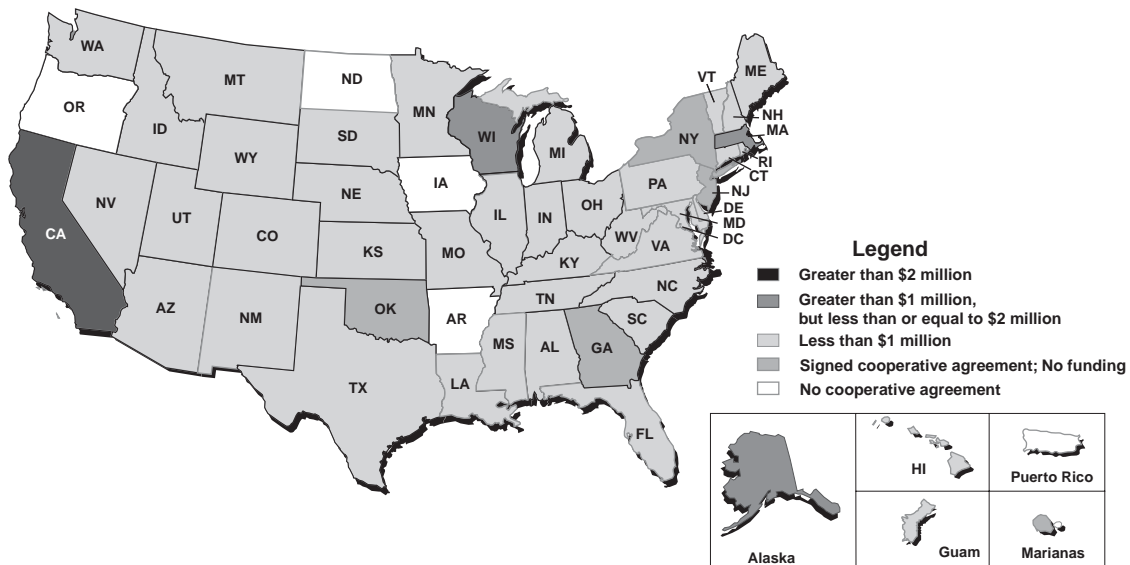
DoD is an active member of the Federal Remediation Technologies Roundtable (FRTR), an organization working to build a collaborative atmosphere among federal agencies involved in hazardous waste cleanup. Along with other member agencies—EPA, DOE, the Department of Interior, and the National Aeronautics and Space Administration—DoD works to develop a more consistent and unified federal approach to technology evaluation and regulatory acceptance. The FRTR has developed and updated technology screening tools; specifically, a remediation technologies screening matrix and a field sampling and analysis technologies matrix. DoD has been particularly supportive of FRTR in this arena by providing several cost and performance reports on innovative remediation technologies. These tools assist users in selecting time- and cost-effective technologies to characterize and clean up hazardous waste sites. Other FRTR focus areas include technology cost and performance and remediation optimization. Through active participation in the FRTR, DoD is working toward the common goal of improving site cleanup.

Partnering with States through DSMOA

Environmental restoration is most cost-effective and expeditious with state support of DoD's cleanup decisions. To encourage this involvement, DoD and a state sign a Defense and State Memorandum of Agreement (DSMOA), which establishes an ongoing partnership between DoD and the state. Through this well-established DSMOA program, DoD reimburses states for the services they provide in support of DERP activities, such as continued monitoring and program oversight. Once a DSMOA is signed, both parties enter into a cooperative agreement, which provides the planning and funding framework for the activities the state will conduct over the next two years. During FY02, DoD reimbursed states more than \$27 million for their assistance. Figure 1 shows reimbursements by state. As of September 30, 2002, DoD has signed 51 DSMOAs with 46 states, 4 territories, and the District of Columbia.

To further build the relationships between the states and Components, DoD hosted the Environmental Restoration/DSMOA National Workshop in July 2002. The primary objective of the workshop was to exchange information and facilitate discussion among participants from various state agencies, DoD headquarters and installations, USACE, and other DoD organizations. DoD is currently examining procedures, in coordination with states, to streamline the process and make the partnership more effective and efficient. Additional information on the DSMOA program is provided in Appendix D of this report.

Figure 1
DSMOA Reimbursements in FY02



Restoration Advisory Boards

Recognizing that community involvement is the most effective way to identify and address community concerns, DoD has Restoration Advisory Boards (RABs) at over 300 installations within the United States and its territories. RABs are advisory boards comprising local community members and representatives of the installation, EPA, and state, tribal, and local governments. RABs serve as a forum for stakeholders to provide input to the cleanup process. RABs also increase community understanding and support for the cleanup program by providing a venue for DoD to discuss and share information regarding cleanup activities. Additional information on RABs is provided in Appendix H of this report.

Focus on the Field**FUDS****USACE Taps Clean Water, Earns Public Trust**

After taking over the former Larson Air Force Base remedial investigation and feasibility study, the Seattle District of the U.S. Army Corps of Engineers (USACE) launched an intense and coordinated community relations effort to regain the trust of local residents in the Skyline neighborhood of Moses Lake, Washington. USACE involved the public in proactive decision-making, encouraged formation of a Restoration Advisory Board (RAB) early in the project, and took a “tell-all” stance when sharing information about plans for restoring clean drinking water to the affected community.

Preliminary results from the remedial investigation study indicated that the 10-mile study area, officially called the Moses Lake Wellfield Contamination Superfund Site, required several interim cleanup actions. Among the actions needed was restoration of clean drinking water to 87 households in the Skyline neighborhood. Much of the drinking water for the town of Moses Lake came from the A-Basalt aquifer, which was contaminated by past disposal of the solvent and cleaning agent trichloroethylene (TCE). While the town took steps to deepen its wells, bypassing the contaminated aquifer, the small neighborhood of Skyline, located just outside the city, was left with its own water system still drawing household water from the contaminated aquifer. The owners of the independently owned and operated water system could not afford to drill wells into a clean aquifer. To return clean-flowing household water to the affected residents, USACE drilled a replacement drinking water well to tap clean water beneath the contaminated aquifer.

Drilling began in the neighborhood at the end of July 2001. While the borehole for the replacement well was completed in October 2001, USACE halted the well construction because of an unanticipated discovery of TCE contamination in the deeper C-Basalt water aquifer. After months of further study, discussion and coordination, USACE deepened the borehole in the replacement well to a lower aquifer. The work was accomplished during the summer of 2002, and it has been determined that the deeper well will provide an adequate amount of clean water for the community.

The USACE project team employed various means of working with the community including providing one-on-one site information, drilling only during daylight hours, briefing the local Chamber of Commerce and RAB, conducting public tours of the site, issuing newsletters, and attending neighborhood meetings.

Broadening Web Access

DoD recognizes the need for efficient dissemination of information related to the DERP and, in FY02, continued to enhance the program's methods of community outreach.

The Internet provides new opportunities for DoD to communicate with its own personnel and stakeholders. The use of Web sites devoted to DERP projects has allowed the public to obtain current information on program-wide issues, as well as

information concerning activities at local installations and their communities.



ODUSD(I&E)/CL on the Web

www.dtic.mil/envirodod/

Information regarding DoD's Cleanup Office, the DERP, and stakeholder involvement, as well as previous DERP Annual Reports and various environmental restoration policies and documents can be found on the DERP Web site. Reconfigured in FY02 to improve public access, the Web site provides general information on DoD's cleanup efforts and specific restoration program data.



Defense Environmental Network and Information eXchange (DENIX)

www.denix.osd.mil

The Defense Environmental Network and Information eXchange (DENIX), another electronic information-sharing network, serves as a centralized platform for sharing environmental, safety and

occupational health news, policy, and guidance concerning DoD activities worldwide. DENIX provides customized communication tools, such as calendars, discussion forums, discussion lists, and publication repositories by subject area.

Also in FY02, the Navy made electronically available its pilot demonstration of the Land Use Control Information System (LUCIS) to provide public access to Navy's BRAC LUC records and reference sources. Through LUCIS, the public can access the Navy's BRAC LUC database from a central location on the Web, view original property boundaries, and easily view and download property-specific documents.



Navy's BRAC Land Use Control Database

www.navymcbracLucis.org

Although the Internet has proven an effective means of outreach, DoD also used traditional outreach and communication outlets in FY02 to provide direct and personal feedback between the Department and the community. Information repositories at local libraries and installations, educational programs and installation fact sheets for communities and RABs, and on-site tours were all avenues used to share information about the restoration program. To increase effectiveness, DoD also provided information in multiple languages, sponsored evening meetings, and posted information in local newspapers and on local television stations.



In FY02, DoD continued to improve the DERP. DoD has built on the success of the mature IRP category to provide direction in the development of the MMRP category, which is discussed in further detail in Chapter 4. Best practices collected and disseminated throughout DoD as well as proactive initiatives in management and technology have helped installation personnel move the environmental restoration process forward. The relationships established with federal agencies, state and tribal governments, and stakeholders have also assisted in the DERP's development and effective execution.

The purpose of this report is to fulfill the Department's statutory reporting requirements as identified by Congress. Chapter 1 highlights the successful strategy of the DERP and some of the initiatives DoD is pursuing to advance the program. Chapter 2 describes DoD's past, current, and future funding requirements to ensure continued DERP success. Chapter 3 details DoD's achievements in the Installation Restoration program category, and DoD's progress in building the Military Munitions Response program category is presented in Chapter 4.

