

INTRODUCTION

“OUR FORCES TODAY RECOGNIZE THAT DEFENSE ENVIRONMENTAL PROTECTION IS GOOD MANAGEMENT, GOOD CITIZENSHIP, GOOD STEWARDSHIP, AND A GOOD WAY TO PROTECT THE HEALTH AND WELFARE OF THE FORCES. AND WE’RE PROVING THAT THE DEFENSE DEPARTMENT CAN BE A LEAN, MEAN FIGHTING MACHINE—AND A LEAN, GREEN FIGHTING MACHINE AT THE SAME TIME.”
—**WILLIAM S. COHEN, SECRETARY OF DEFENSE**

This Report to Congress documents the accomplishments made by the Department of Defense’s (DoD) Environmental Cleanup Program during fiscal year 1997 (FY97). As demonstrated throughout the report, the Defense Environmental Restoration Program (DERP) has made significant progress in protecting the environment and reducing risks to U.S. troops, their families, and local communities from pollutants due to past DoD practices. In addition to FY97 achievements, the report addresses the technical and financial status (as of the end of FY97) of the program and outlines plans and funding requirements for future progress. DERP goals and performance metrics used to evaluate progress are discussed, and projections for the entire Environmental Restoration Program are provided. The Office of the Deputy Under Secretary of Defense (Environmental Security), in cooperation with the Military Departments and the Defense Logistics Agency, has prepared this report in accordance with the statutory requirements listed at the end of the introduction.

In reporting on the DERP’s status in FY97, the focus is on the road to Site Closeout. The DERP is faced with the challenge of performing environmental restoration at 27,454 identified sites at 1,767 installations and 2,541 Formerly Used Defense Sites (FUDS) properties across the nation and in U.S. territories. To ensure that resources and efforts produce optimal value, the program focuses

squarely on the finish line: getting sites cleaned up, returning properties to productive use, and completing the program. The key program concepts—reducing risk to human health and the environment through Relative Risk Site Evaluation, setting goals and implementing performance metrics to measure the program’s progress, devolved funding authority, and stakeholder participation—are discussed throughout the report.

Progress toward Site Closeout is measured by the number of sites with Remedies in Place (RIP) and by the number of sites where response is complete. A site is counted as RIP when the cleanup remedy (Remedial Action) has been constructed and is operating successfully. In some cases, a site moves immediately from RIP to Response Complete (RC), which indicates that cleanup is complete. In other cases, Remedial Action Operations—the continued operation of a remedy until cleanup goals are met—are needed before the site can be deemed RC. Completed sites, however, may sometimes require continued long-term monitoring of contaminant levels. RIP and RC information is highlighted throughout this report to demonstrate DoD’s program accomplishments. The DERP FY97 report also discusses emerging challenges for the program, including changes in laws, regulations, and policies affecting the program.

FY97 was a transition year for the devolvement of the Defense Environmental Restoration Account (DERA). The centralized DERA account was partitioned into five Component Environmental Restoration (ER) accounts: Army, Navy, Air Force, FUDS, and the continuing Defense-wide account.

Decentralizing funding authority means that more accountability and responsibility are vested in the Components. Each individual Component can now provide closer oversight over its funding and can prioritize resources with primary emphasis on relative risk reduction.

Another important principle of the DoD cleanup program is the enhancement of working relationships with regulators and with the communities surrounding installations.

This effort continued to be a priority in FY97. DoD believes that a successful cleanup program must include ongoing partnerships based on mutual trust and cooperation. Community involvement and cooperative activities with states and tribal nations are firmly embedded in the restoration process.

Although the Department has advocated stable funding, levels of funding for the five ER accounts will increase in the near future as a result of the expiration of the Base Realignment and Closure (BRAC) account, scheduled for the end of FY01. The total amount needed for completion of BRAC cleanup activities is estimated at approximately \$4.3 billion (FY98-completion). DoD Components are programming funds for these cleanup activities in the appropriate Component Environmental Restoration account.

STATUTORY REPORTING REQUIREMENTS

This FY97 Defense Environmental Restoration Program Annual Report to Congress was prepared by the Office of the Deputy Under Secretary of Defense (Environmental Security) in response to the requirements of 10 U.S.C. §2702(d), 42 U.S.C. §9620(e)(5) (CERCLA §120 (e)(5)), 10 U.S.C. §2706 (SARA §211), and Public Law 104-201 §325(h).

This report also contains a supplement detailing the activities and expenditures of DoD's restoration advisory board (RAB) program. The FY97 RAB Supplement was prepared in response to the requirements of the National Defense Authorization Act for Fiscal Year 1997. Finally, although the Defense and State Memorandum of Agreement funding requirements of the National Defense Authorization Act for Fiscal Year 1996, amending SARA §211(d), do not require response until the FY98 report, DoD presents information in this report to fulfill those reporting requirements. Specific statutory reporting information can be found in Appendix E.

BACKGROUND

“THE DEFENSE DEPARTMENT MUST HAVE AN ENVIRONMENTAL PROGRAM THAT PROTECTS OUR TROOPS AND FAMILIES; THAT MANAGES OUR TRAINING AND LIVING AREAS CAREFULLY; THAT FULFILLS OUR OBLIGATION TO BE GOOD CITIZENS; AND THAT SETS A GOOD EXAMPLE TO OTHER MILITARIES AROUND THE WORLD.”

—**SHERRI W. GOODMAN, DEPUTY UNDER SECRETARY OF DEFENSE
(ENVIRONMENTAL SECURITY)**

The Department of Defense’s (DoD) environmental cleanup activities began in 1975 under the Installation Restoration Program (IRP) before any formal federal requirements or program was established. DoD instituted its IRP to address past practices that often did not take long-term environmental effects into account. In time, growing public and congressional concern and increasing knowledge about the environment led to a legal and regulatory framework that required a more systematic, far-ranging DoD effort. Chief among the environmental laws driving the present Defense Environmental Restoration Program (DERP) is the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, commonly known as Superfund.

The DERP was formally established in October 1986 with the passage of the Superfund Amendments and Reauthorization Act (SARA). SARA set requirements for the DERP and its funding mechanism, the Defense Environmental Restoration Account (DERA). DERA funding was available in 1984 before the formal establishment of the DERP. The time line in Figure 1 illustrates the evolution of the DERP and key environmental legislation.

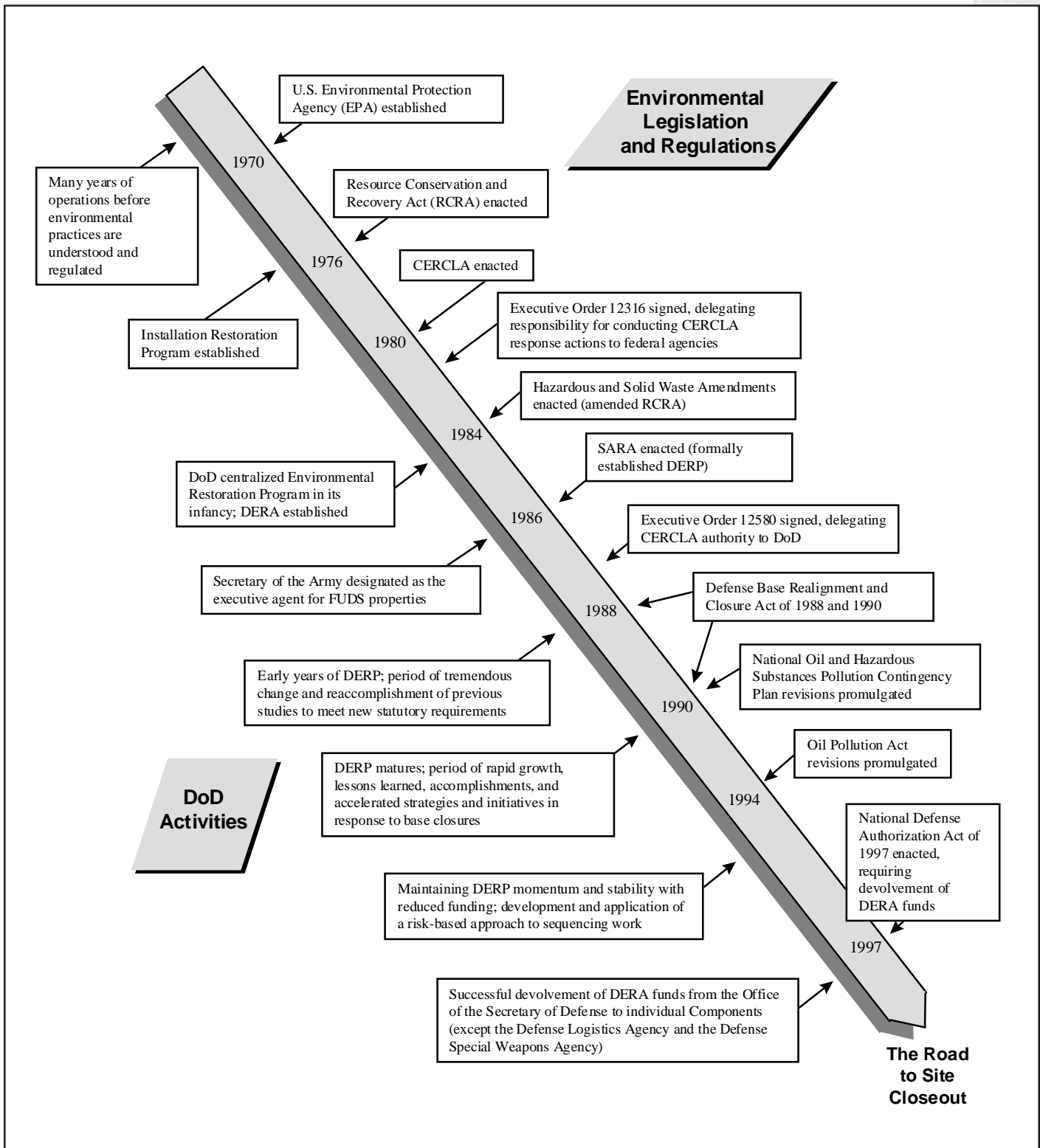
DoD’s Environmental Restoration Program consists of three programs: Installation Restoration (IR), Other Hazardous Waste, and Building Demolition/Debris Removal (BD/DR). This report focuses specifically on IR

activities at operational installations, Formerly Used Defense Sites (FUDS), and Base Realignment and Closure (BRAC) installations as described below.

◆ **Installation Restoration** is a program for identifying, assessing, investigating, and cleaning up contamination from hazardous substances, pollutants, and wastes resulting from past activities at operational installations (active bases and facilities) and other sites where DoD is the principal responsible party. This effort is the main component of the DERP and includes most of DoD’s environmental activities at installations; however, other legislation may mandate and direct other aspects of DoD’s environmental restoration projects.

◆ **Formerly Used Defense Sites** are sites that DoD or its Components (the military service branches and the Defense Logistics Agency) formerly owned, leased, or otherwise operated. Although these properties may be owned by private citizens, local governments, or private organizations, DoD must address and remediate contamination problems to restore the land to safe and productive use. Investigation and cleanup procedures used at these sites are similar to those used at DoD-owned installations and are funded by DoD, but cleanup at FUDS involves gathering additional information and meeting additional requirements.

Figure 1
The Evolution of the Defense Environmental Restoration Program



◆ **Base Realignment and Closure** installations must comply with DERP requirements. The DERP requires all installations to address environmental cleanup, but BRAC sites also must address closure-related environmental compliance and environmental planning for property reuse and redevelopment. Cleanup of BRAC sites is funded separately from cleanup of IRP installations.

The cleanup program includes investigation and cleanup. In addition, Interim Actions may be implemented at any point in the program to protect human health and the environment.

DERP implementation is driven primarily by CERCLA requirements. CERCLA requires, among other things, evaluation of existing federal and state environmental laws that may apply at a contaminated site. This means that although other federal environmental laws, such as the Resource Conservation and Recovery Act (RCRA) and underground storage tank

regulations, may apply at a DoD installation or property, CERCLA is usually the primary legal authority governing the cleanup activities at the installations and FUDS. Each step in the cleanup process encompasses activities defined by CERCLA, or in some cases by RCRA. Table 1 shows how activities defined by CERCLA fit into the DERP and also presents the corresponding RCRA terminology. For more information on the application of other laws at sites where CERCLA is the primary cleanup authority and on how federal facilities must comply with CERCLA, see the following Internet location.



The Superfund Home Page
<http://www.epa.gov/superfund>
Information on EPA's Superfund program

How CERCLA and RCRA Relate to the DERP

CERCLA

CERCLA established a framework for identification, investigation, and cleanup of releases of hazardous substances. CERCLA authorizes the President to respond when a release or a threat of release is discovered. Executive Order 12580 (signed in 1987) directed the Secretary of Defense, in consultation with the U.S. Environmental Protection Agency (EPA), to investigate and clean up releases of hazardous substances at installations and FUDS under the Secretary's jurisdiction. The National Oil and Hazardous Substances Pollution Contingency Plan establishes EPA's response policy and lays out the key steps for implementing CERCLA. DoD's program for meeting its responsibilities under CERCLA is the DERP. All DoD installations and FUDS properties, whether they are on the National Priorities List (NPL) or are non-NPL installations, follow requirements consistent with CERCLA.

RCRA

RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), prescribes a comprehensive program for the management of hazardous wastes. HSWA provides authority for the investigation and cleanup of hazardous waste sites and creates a corrective action program that is substantially equivalent to the CERCLA response process (although some requirements are different). DoD installations that are required to have a RCRA permit to manage hazardous wastes are subject to EPA-imposed or authorized state-imposed corrective action requirements for all known or suspected releases of hazardous wastes or hazardous constituents from solid waste management units or other areas of concern at the installation. Investigation and cleanup of past contamination are eligible for funding under the DERP.

Table 1
DERP Cleanup Process

DERP Cleanup Activity and Description	CERCLA Response Process as Implemented by DoD	RCRA Corrective Action
<p>Investigation</p> <p>An analysis to characterize the nature, extent, and risk of releases of hazardous substances into the environment and to develop and select a cleanup remedy</p>	<p>Preliminary Assessment (PA) Site Inspection (SI) Remedial Investigation (RI) Feasibility Study (FS) Engineering Evaluation/Cost Analysis (EE/CA) Record of Decision (ROD)</p>	<p>RCRA Facility Assessment (RFA) RCRA Facility Investigation (RFI) Corrective Measures Study (CMS)</p>
<p>Interim Action</p> <p>Early measure for reducing the risk of releases of hazardous substances before the initiation of cleanup remedies that are more complicated, comprehensive, and long-term—e.g., placing fences around contaminated areas or removing and treating or disposing of contaminated soil</p>	<p>Removal Action Interim Remedial Action (IRA)</p>	<p>Interim Measures</p>
<p>Cleanup</p> <p>Action for designing, constructing, and implementing a final cleanup remedy</p>	<p>Remedial Design (RD) Remedial Action Construction (RA-C) Remedial Action Operations (RA-O) Long-Term Monitoring (LTM)</p>	<p>Corrective Measures Design (CMD) Corrective Measures Implementation (CMI) Long-Term Monitoring (LTM)</p>



DoD Environmental Cleanup Home Page

<http://www.dtic.mil/envirodod/index.html>

Web resource for up-to-date information on DoD's cleanup program

THE ROAD TO SITE CLOSEOUT

“WE ARE AT THE BEGINNING OF THE END OF OUR CLEANUP PROGRAM.”

—**SHERRI W. GOODMAN, DEPUTY UNDER SECRETARY OF DEFENSE
(ENVIRONMENTAL SECURITY)**

After more than a decade of effort and billions of dollars of expenditures, the Defense Department’s environmental cleanup program is moving with increasing rapidity toward Site Closeout at a majority of its installations and sites. The initial focus of the program was on finding the sites with problems (site identification), deciding how best to handle cleanup at these sites (remedy selection), determining which sites to clean up first (risk-based prioritization), and beginning the cleanup process (remediation design and beginning construction). Today the Department’s progress can be measured by the number of Remedies in Place (RIP) and the number of sites categorized as Response Complete (RC), which indicate that sites are reaching the last milestones in the often lengthy cleanup process. The phrase “road to Site Closeout” highlights DoD’s objective of completing the cleanup program.

As of the end of fiscal year 1997 (FY97), 580 of the 27,454 sites that were identified as needing cleanup had achieved RIP status, and 15,265 sites had reached the RC milestone. Some stage of cleanup is in progress at the remaining 12,189 sites.

In this report, the term “site” is used to identify any area on a Defense Department installation or former DoD property where cleanup actions are under way or where the possibility of

contamination is being investigated. In most instances, there will be several sites on a military installation or property.

The previous section provided background information on the various cleanup programs, their funding sources, and the legislative authority required for their implementation. This section identifies the process by which sites are investigated and cleanup mechanisms are put in place. All stages in this process guide response actions toward eventual Site Closeout.

Sites identified at any operational installation or any installation selected for closure or realignment under BRAC legislation must be managed in accordance with certain procedures prescribed by environmental laws and DoD policy. When a new site is discovered, it enters an investigation phase and is evaluated to determine the extent and significance of contamination. If no problem is found, the site requires no further action and is categorized as Response Complete. If cleanup is warranted, potential remediation options are developed and evaluated. The cleanup process at a site begins after the remedy has been selected and cleanup objectives have been determined. After RC has been achieved, long-term monitoring (LTM) and a 5-year review may be required to confirm that Site Closeout is possible. Figures 2a and 2b show the process described above.

Figure 2a
Concept-Level View of the Cleanup Process for Sites at Operational and BRAC Installations

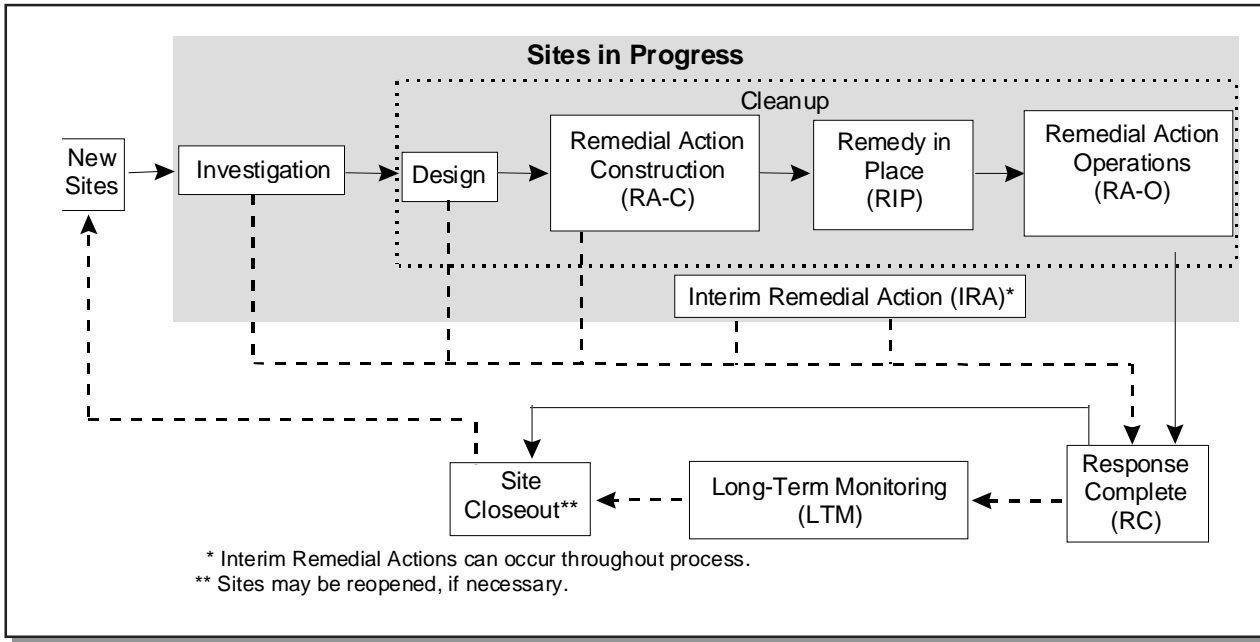
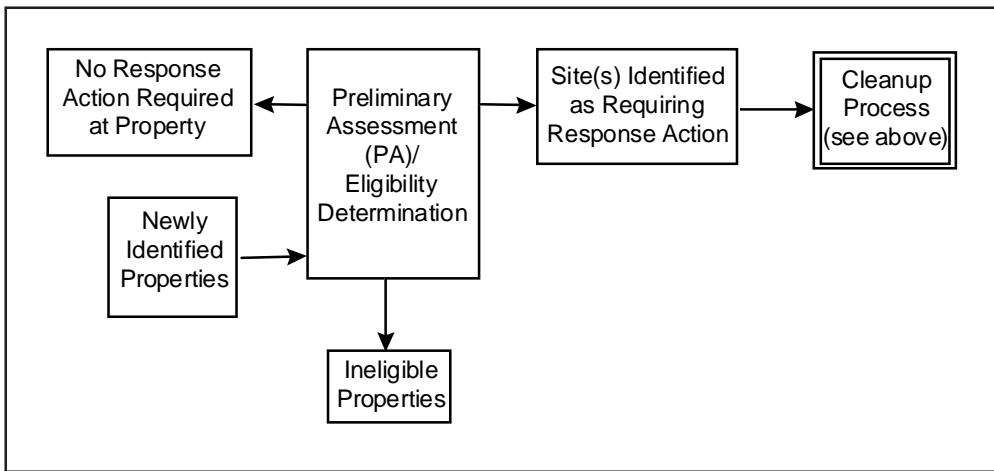


Figure 2b
Cleanup Process for FUDS Properties



Sites in the investigation phase or cleanup phase are considered “in progress,” a term that is used frequently throughout this report. Only when all cleanup and monitoring activities are complete and DoD receives regulator approval can a site be officially closed out. The total number of sites may fluctuate as new sites are identified, closed sites are reopened, and existing sites are determined to require no additional action.

The restoration program at FUDS is similar to that at DoD’s operational (active) and BRAC installations. FUDS consist of real property that was formerly owned by, leased to, used by, or

otherwise under the operational control of DoD. Information concerning land and transfer, current ownership, and the origin of contamination must be evaluated to determine whether a site is eligible for DoD funding. During the Preliminary Assessment (PA) phase, an inventory is taken to determine whether the property is eligible for Environmental Restoration (ER) funds and whether there is any contamination. If the property is eligible for funding and a further response is required, the identified site or sites begin the standard restoration process (see Figure 2b).



Cleanup Program in Action

Olmsted Air Force Base

The former Olmsted Air Force Base in Harrisburg, Pennsylvania, was used by DoD for engine and aircraft testing, as a warehouse and supply site, and for general base operations and maintenance activities for almost 50 years.

In 1983, the Pennsylvania Department of Environmental Resources discovered groundwater contamination at the old Air Force Base. As with all properties once owned by the Defense Department, cleanup of the area fell to the U.S. Army Corps of Engineers (USACE). An additional challenge was created by the placement of Olmsted on the National Priorities List (NPL) in 1986.

USACE began cleanup activities shortly after it was given cleanup responsibility in 1992 under the FUDS program. Remedies included installation of a U.S. Environmental Protection Agency-required water treatment system for contaminated groundwater. In addition, USACE removed 15 underground storage tanks and 15 electric transformers and associated contaminated soil and demolished almost 10,000 feet of underground fuel pipeline.

In June 1997 the property, now owned by the Pennsylvania Department of Transportation and known as Middletown Airfield, was officially delisted from the NPL. The removal of the site from the NPL was the result of a productive partnering process that found ways to safely accelerate the cleanup.

900 BY THE YEAR 2000 INITIATIVE

In his 1997 State of the Union address, President Clinton expressed his support for his Administration's effort to accelerate the pace of environmental restoration activities nationwide. The President set a goal for cleanup at the 1,205 identified Superfund sites (i.e., sites on the National Priorities List, or NPL), challenging federal agencies (e.g., EPA, DoD, and the Department of Energy) to complete construction of cleanup remedies at 500 more NPL sites by the year 2000. Accomplishment of this goal would bring the total number of sites in the construction complete category to 900.

EPA's construction complete category includes sites where the physical construction of the

cleanup remedy has been finished, all immediate threats have been addressed, and all long-term threats are under control.

DoD is responsible for cleanup action at 146 of the 1,205 NPL sites. The Army has one installation on the Construction Complete List (Riverbank Army Ammunition Plant) and has scheduled two more installations for inclusion on the list in FY98. The Defense Logistics Agency (DLA) submitted four installations as candidates for the list in FY97. DoD estimates that 28 installations will be eligible for the Construction Completion List by the end of FY99 and that 42 installations will be eligible for the list by the end of FY00.



Cleanup Program in Action

Riverbank Army Ammunition Plant

The Army is working hard to support the President's Superfund 900 challenge. In September 1997, Riverbank Army Ammunition Plant in central California became the first DoD NPL installation to be placed on EPA's NPL Construction Complete List. Construction complete indicates that physical construction of all cleanup activities is finished, all immediate threats have been addressed, and all long-term threats are under control. Working to reach this milestone shows DoD's commitment to supporting the President's initiative and to expediting remediation as much as possible.

Riverbank was placed on the NPL in 1990. Four years later, Riverbank became the first DoD NPL installation to complete all environmental cleanup studies and sign a final Record of Decision for all sites. The Record of Decision documents selection of a cost-effective remedy for the sites. Once the cleanup remedy was selected, construction of the remedy began, leading to the actual restoration of the sites.

Riverbank is the first of several Army NPL installations scheduled to achieve construction complete status before the year 2000. The next installation in line for construction complete status is Schofield Army Barracks in Hawaii. The Army estimates that the Schofield Barracks will reach this goal by February 1998 and will be considered by EPA for NPL delisting by June 1998. The Army also has requested construction complete status for a former landfill at Fort Dix in New Jersey. The landfill is the only site at Fort Dix on the NPL. These significant cleanup milestones achieved by the Army are bringing the President's Superfund 900 goal one step closer to becoming reality.

PROGRAM STATUS AND PROGRESS

“WHAT WE DO COUNTS, BECAUSE WE ARE A LARGE ORGANIZATION WITH A BIG JOB, AN ENORMOUS APPETITE, AND A POTENTIALLY HUGE IMPACT ON THE ENVIRONMENT. SO EVERY ENVIRONMENTAL ACTION WE TAKE ADDS UP TO A CLEANER, BETTER WORLD.”

—WILLIAM S. COHEN, SECRETARY OF DEFENSE

Beginning in FY97, the DERP’s planning, programming, and budgeting were devolved from the Office of the Secretary of Defense (OSD) to the Components. Devolvement of the program’s funding was intended to increase the consistency, stability, and accountability of the program by requiring environmental restoration needs to compete for resources with other mission requirements. The DERP’s post-devolvement structure is based on accepted management systems and practices.

Performance goals for the DERP are provided in the Defense Planning Guidance (DPG). In general these goals include reducing risk to human health at sites, making property at BRAC bases environmentally suitable for transfer, and having final Remedies in Place. The specific DPG goals for the IR program are to have final Remedies in Place or to achieve Response Complete status for:

- ◆ 50 percent of high-relative-risk sites by the end of FY02
- ◆ All high-relative-risk sites by FY07
- ◆ All medium-relative-risk sites by FY11
- ◆ All low-relative-risk sites by FY14.

(More information on relative risk reduction is presented in the MOM 1: Relative Risk Reduction section, page 13.)

The specific DPG goals for the BRAC program are:

- ◆ 75 percent of the acres in Categories 5, 6, and 7 suitable for transfer by FY01 and 100 percent of this acreage suitable for transfer by FY05
- ◆ 75 percent of installations RIP or RC by FY01 and 100 percent RIP or RC by FY05
- ◆ 90 percent of sites RIP or RC by FY01.

(For more information on the BRAC categories refer to Appendix D.)

OSD provides continuing guidance on meeting these goals, and DoD Components plan the program and budget resources with the goals in mind. OSD oversees the DERP through several mechanisms established to gauge progress toward the DPG goals. These mechanisms include data collection and evaluation of performance metrics, or measures of merit (MOM). In the past year OSD has sharpened its focus on oversight, policy development, and coordination in response to the new post-devolvement model of five accounts under one program.

This section describes how cleanup program activities were coordinated with FY97 program funding and how DoD measures program effectiveness. It begins with a discussion of the measures of merit, which include relative risk reduction, phase progress at sites, milestones, and Remedies in Place or Response Complete

status at DoD installations and FUDS properties. A second discussion concerns program funding, which includes the budget process, DERP funding, devolvement, ER account status, and BRAC status.

MEASURES OF MERIT

MOMs are the primary tool for measuring and reporting progress toward DPG goals. As performance metrics, they provide a consistent benchmark for reporting on and evaluating the program, as well as information for use in adjusting budget projections and program requirements. DERP MOMs fall into four separate categories:

- ◆ MOM 1: DERA and BRAC relative risk reduction
- ◆ MOM 2: DERA and BRAC phase progress
- ◆ MOM 3: DERA and BRAC milestones
- ◆ MOM 4: DERA and BRAC RIP/RC.

The Components have made great strides in adopting and applying the DPG goals and MOMs in their implementation of the DERP. Initially, it was difficult to obtain even rough projections about achievement of milestones. Each Component is now fully focused on achieving the DPG goals.

The following sections discuss and display the DERP's FY97 status for each measure of merit. The integrity of inventory management, performance measures, and reporting is essential to an accurate evaluation of the program. OSD has issued guidance on the minimum requirements for information management systems and data collection and continues to emphasize the importance of maintaining a consistent, credible record of past activities and performance.

MOM 1: Relative Risk Reduction

DoD has adopted a risk management strategy to ensure that higher risk sites are addressed first and receive the funding they need for implementing the cleanup process. Relative risk evaluation separates sites into high, medium, and low relative-risk categories (as shown in Tables 2 and 3 and Figures 3 and 4).

The reduction over time in the number of sites in each relative risk site evaluation category is used on a programmatic level as an indicator of overall risk reduction achieved and progress toward the program risk reduction goals. Relative risk provides a common, consistent framework for site cleanup. Combined with other factors, it helps DoD determine the sequence in which sites will be addressed and helps DoD identify the sites where cleanup is most urgently needed so that resources can be focused on those sites first.

All DoD sites on operational and BRAC installations and certain sites on FUDS properties are required to perform Relative Risk Site Evaluations. Sites are exempted from this requirement if they exclusively address BD/DR, unexploded ordnance (UXO), or potentially responsible party (PRP) requirements or if they are classified as having all Remedies in Place, as being Response Complete, or as lacking sufficient information for evaluation.



DoD Relative Risk Site Evaluation Primer at <http://www.dtic.mil/envirodod/relrisk/relrisk.html>
Provides information on the Relative Risk Site Evaluation framework that DoD uses and presents instructions on conducting relative risk evaluations

Table 2
End of FY97 ER Relative Risk Site Evaluation Status

		DoD Component*					ER Total	
		Army	Navy	Air Force	DLA	DSWA		FUDS
Sites with Response Complete		7,556	1,450	2,176	272	2	1,628	13,084
Relative Risk of Sites in Progress	High	1,147	863	781	25	0	224	3,040
	Medium	553	435	416	6	0	94	1,504
	Low	757	469	417	13	0	42	1,698
	Not Evaluated	143	173	209	27	26	895	1,473
	Not Required**	72	60	298	12	8	1,245	1,695
Total Number of Sites		10,228	3,450	4,297	355	36	4,128	22,494

* Including FUDS

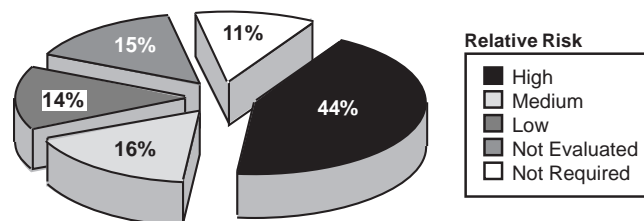
** Sites that have Remedy in Place, Response Complete, or no-further-action-required designations do not require relative risk evaluation, because DoD has committed to funding Remedial Action Operations and LTM requirements at these sites. In addition, Relative Risk Site Evaluations are not required at sites that exclusively address unexploded ordnance (UXO), BD/DR, or PRP requirements.

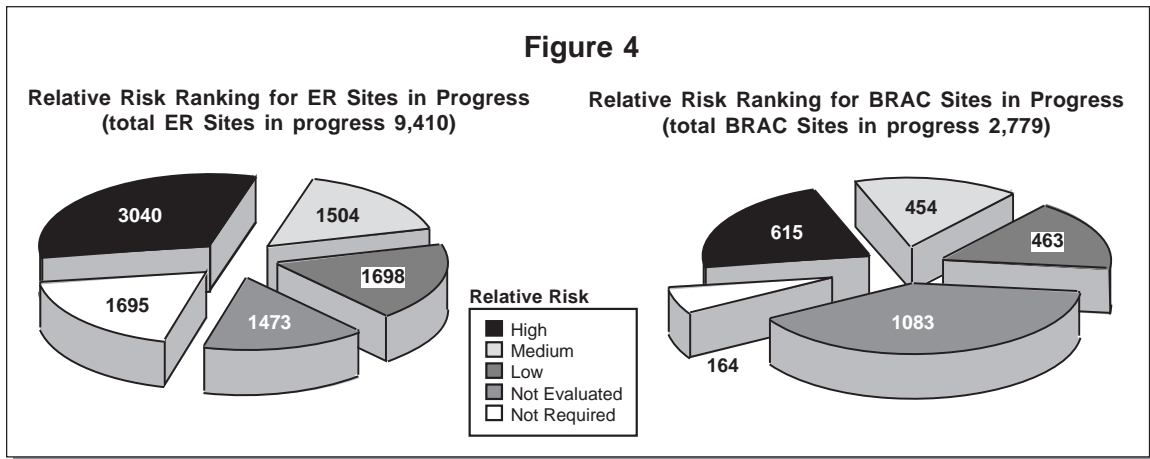
Table 3
End of FY97 BRAC Relative Risk Site Evaluation Status

		DoD Component				BRAC Total
		Army	Navy	Air Force	DLA	
Sites with Response Complete		898	403	785	95	2,181
Relative Risk of Sites in Progress	High	196	247	145	27	615
	Medium	153	173	99	29	454
	Low	206	112	114	31	463
	Not Evaluated	695	60	222	106	1,083
	Not Required*	12	3	146	3	164
Total Number of Sites		2,160	998	1,511	291	4,960

* Sites that have Remedy in Place, Response Complete, or no-further-action-required designations do not require relative risk evaluation, because DoD has committed to funding Remedial Action Operations and LTM requirements at these sites. In addition, Relative Risk Site Evaluations are not required at sites that exclusively address unexploded ordnance (UXO), BD/DR, or PRP requirements.

Figure 3
Relative Risk Ranking of Sites Planned for Cleanup Funding from FY98 through FY03 (%)





MOM 2: Phase Progress

Accurate measurement of progress, identification of issues, and analysis of trends are critical to successful, cost-effective program implementation and to reliable planning, programming, budgeting, and oversight.

OSD and the Components carefully track the number of sites in each phase of the cleanup process. A site is considered to be in the investigation phase until the investigation is completed, regardless of whether an Interim Action has been implemented. By looking at the number of sites in the investigation, cleanup, and Response Complete phases at the end of each fiscal year, one can see the program's progress toward Response Complete and ultimately Site Closeout. Figure 5 displays the status of all DoD's operational and BRAC installations, and Figure 6 shows the status of all FUDS properties, as of September 30, 1997. For definitions of the terms used in Figures 5 and 6, refer to the Glossary in Appendix E.

MOM 3: Milestones

In this MOM, sites with actions accomplished are counted. An installation or property is considered Response Complete when every contaminated site at the installation has been

investigated and all necessary responses are complete. Because a single DoD installation can have many sites, it is necessary to measure completed cleanup steps at each site in order to show overall cleanup progress. DoD counts the following accomplishments: the number of sites that are only in the investigation phase, the number of sites that have implemented an Interim Action, the number of sites that have Remedies in Place, and the number of sites in the Response Complete category.

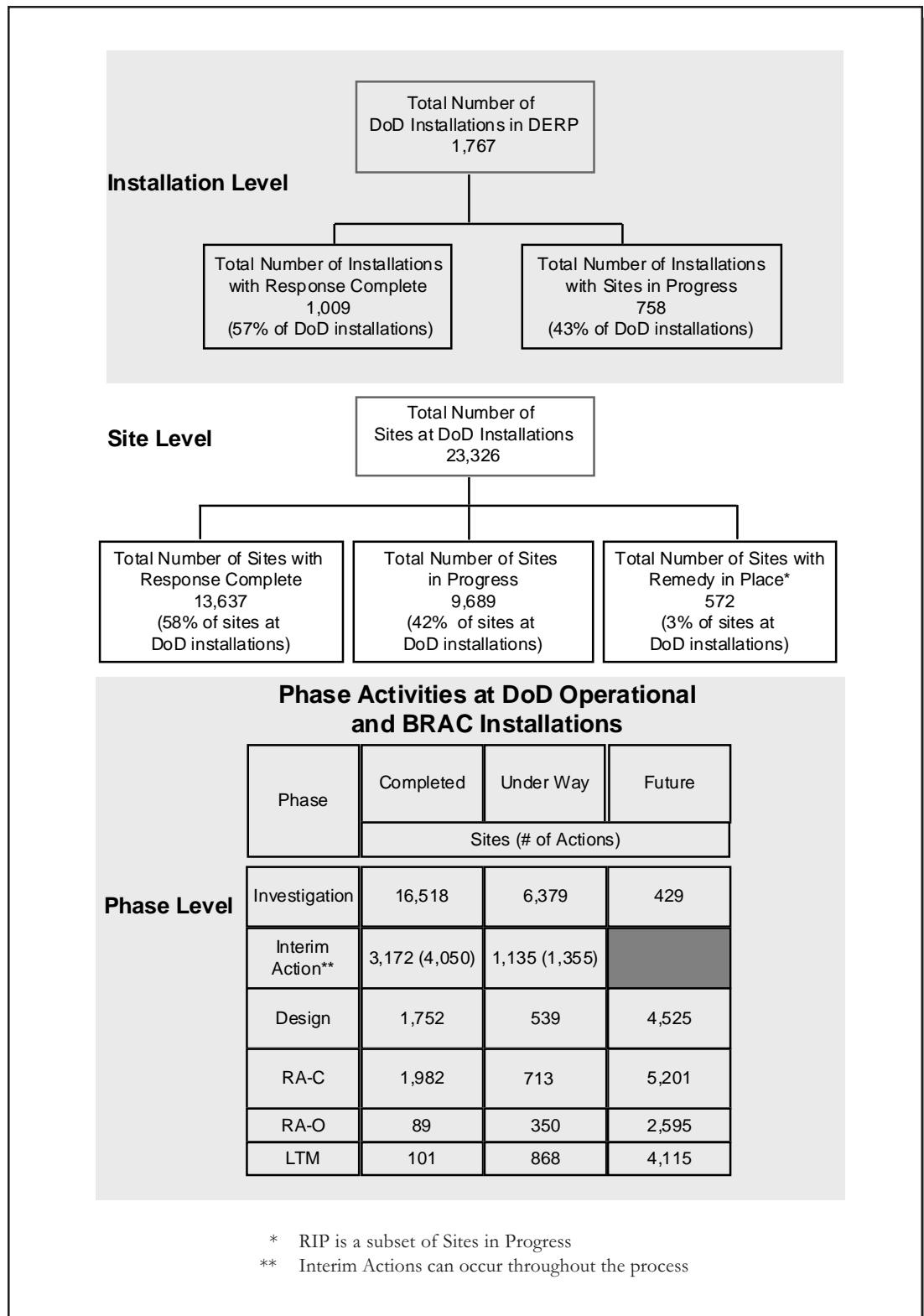
Actions Completed

Accelerating environmental cleanup and reducing risk are high priorities in the Environmental Restoration Program. As of September 30, 1997:

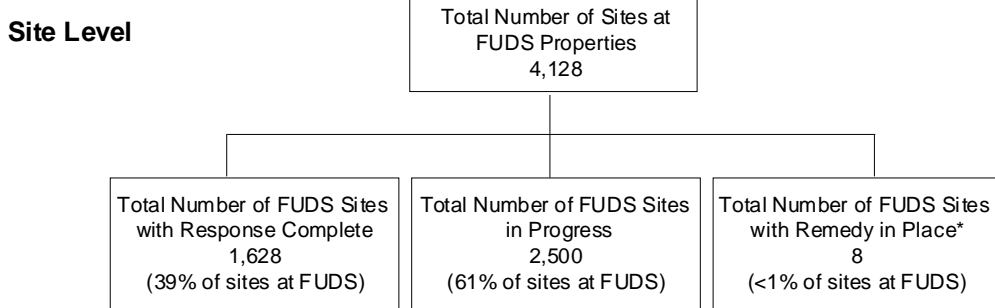
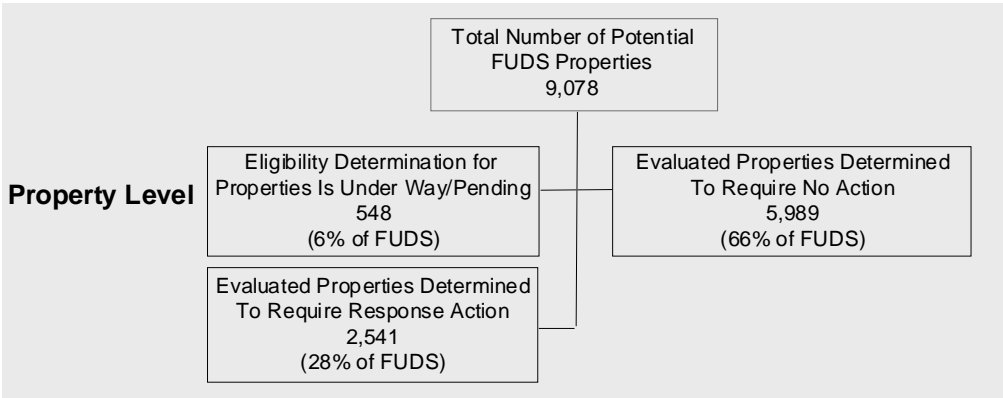
- ◆ 4,163 Interim Actions had been completed at 3,285 sites (overall cleanup program).
- ◆ 2,997 Interim Actions had been completed at 2,335 operational installation sites and FUDS properties.
- ◆ 1,166 Interim Actions had been completed at 950 BRAC sites.

Figure 7 shows the number of Interim Actions completed through FY97 for ER (operational installations and FUDS) and BRAC sites.

**Figure 5
FY97 Status of DoD Operational
and BRAC Installations**



**Figure 6
FY97 Status of Formerly Used
Defense Site Properties**



Phase Activities at Formerly Used Defense Sites

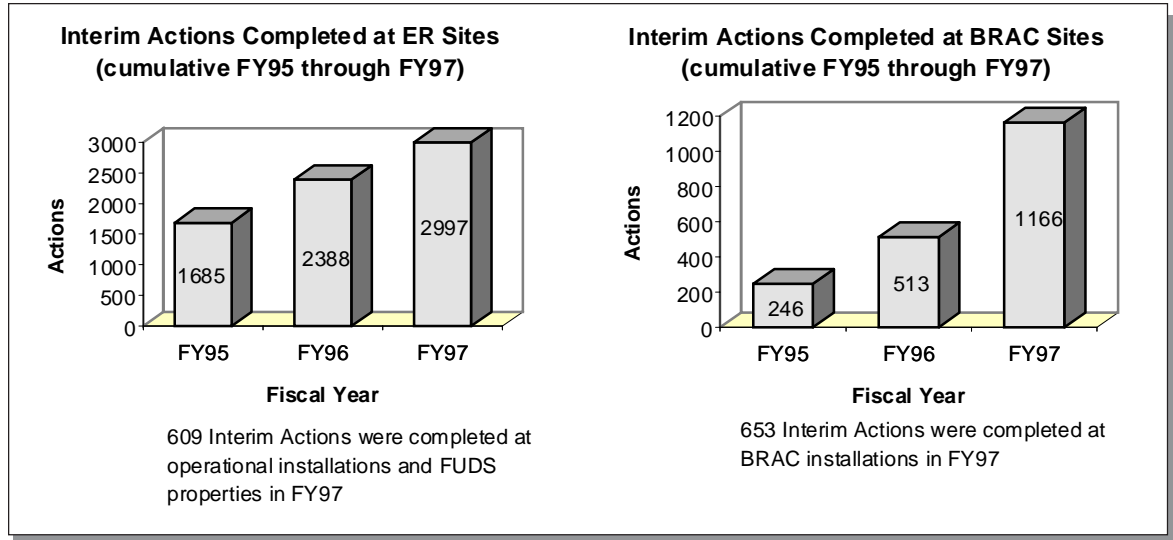
Phase Level

Phase	Completed	Under Way	Future
	Sites (# of Actions)		
Investigation	2,868	1,056	204
Interim Action**	113 (113)	44 (44)	
Design	858	289	1,349
RA-C	767	447	1,480
RA-O	0	22	210
LTM	5	34	239

* RIP is a subset of Sites in Progress

** Interim Actions can occur throughout the process

Figure 7

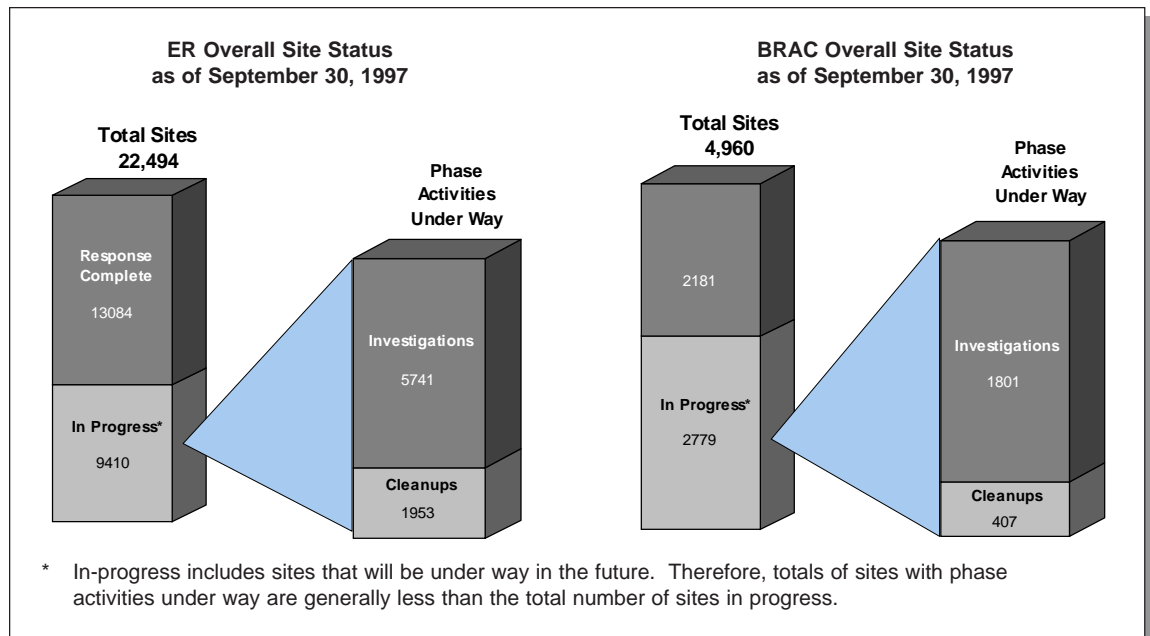


Sites in Progress

Ongoing cleanup activities are measured according to the number of sites in progress, including sites in the investigation, design, Remedial Action Construction, and Remedial

Action Operations (RA-O) phases. There are now 9,410 sites in progress at 10,711 operational DoD installations and FUDS properties and 2,779 sites in progress at 205 BRAC installations (see Figure 8).

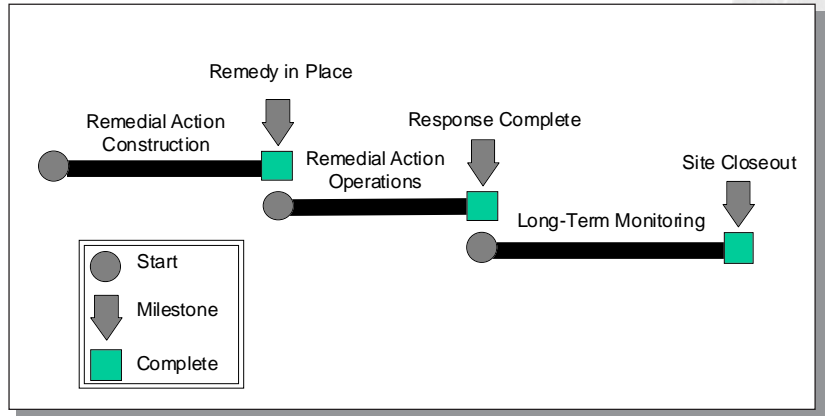
Figure 8



Remedies in Place

The number of sites with Remedies in Place is a useful milestone for measuring DoD's progress toward Response Complete and ultimately Site Closeout. Of 27,454 sites at DoD operational installations, FUDS properties, and BRAC installations, 580 sites have Remedies in Place. A site is deemed to have a Remedy in Place when the Remedial Action is constructed, as shown in Figure 9.

**Figure 9
Milestones**

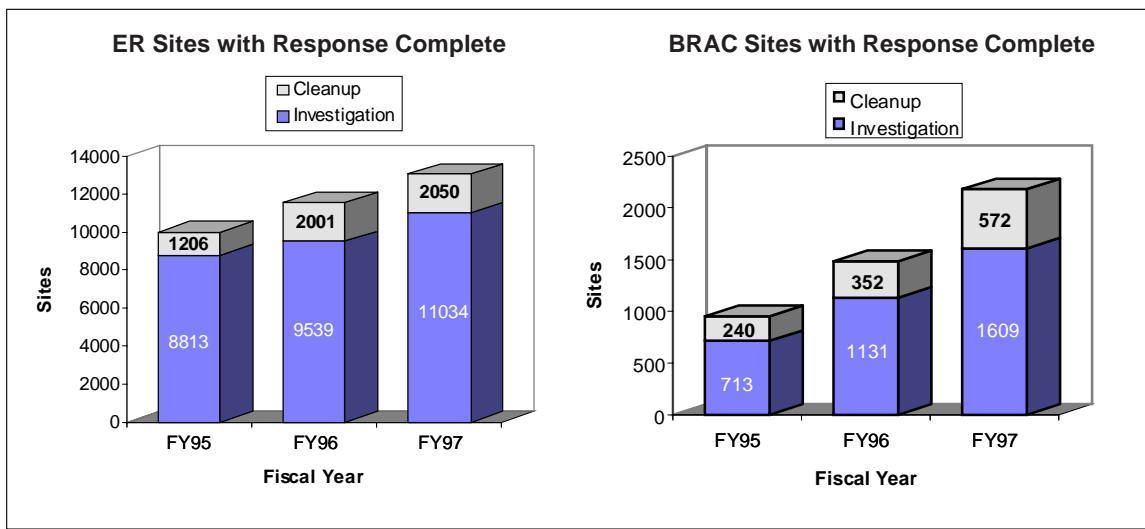


Response Complete

The final milestone is the number of sites in the Response Complete category. Of 18,366 DoD operational sites, 62.4 percent are categorized as Response Complete. Of 4,960 BRAC sites, 44 percent are categorized as Response Complete. Overall, more than half of the DoD sites in the restoration program are in the final stages of the cleanup process. Figure 9 shows the milestones in the cleanup phase. A site is counted as Response Complete after the remedy

is in place and RA-O has been completed (see Figure 10). Sites can also be Response Complete if a Remedial Action is not required after investigation. In fact, most sites are determined to be Response Complete as a result of investigation. If a site requires further monitoring after the response is complete, the site may proceed to the LTM phase before eventual Site Closeout.

Figure 10



MOM 4: Remedies in Place or Response Complete

MOM 4 presents a broader picture of DoD’s cleanup progress. Where MOM 3 looks at site milestones, MOM 4 measures the RIP or RC status of entire DoD operational and BRAC installations and FUDS properties. When the last contaminated site at an installation attains either RIP or RC, the entire installation or property is considered to be RIP or RC.

Figures 11a and 11b show the progress that DoD’s cleanup program has made through FY97, as well as projections of when DoD expects installations to reach the RIP or RC stage of cleanup. Figure 11a shows accomplishments and projections for operational installations and FUDS properties; Figure 11b shows BRAC installation status.

Figure 11a
Operational Installations and FUDS Properties*
Achieving Final RIP or RC (cumulative from 1986 through 2014)

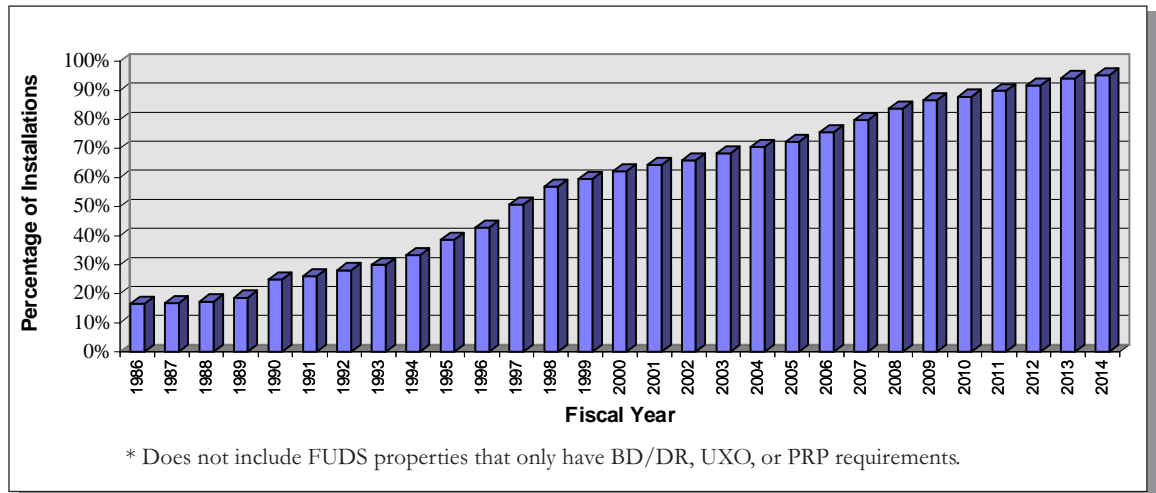
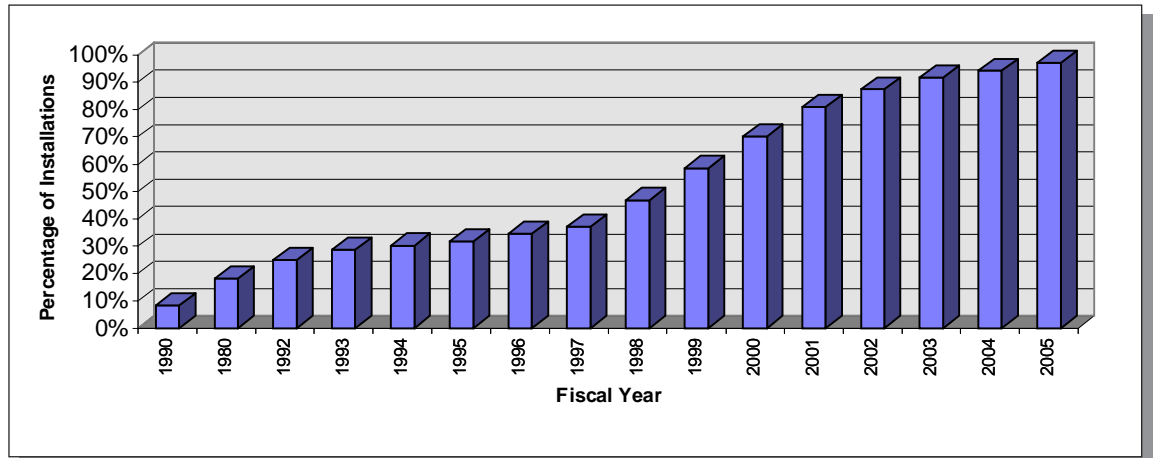


Figure 11b
BRAC Installations Achieving Final RIP or RC
(cumulative from 1990 through 2005)





Cleanup Program in Action

The Air Force Academy

The Air Force Academy is well known for turning out accomplished young officers and, more often than not, a winning football team. What most people don't know about this elite institution is that it has just completed its final cleanup actions in FY97. Only long-term monitoring activities remain.

Because the Academy is a school rather than a major operations base, its restoration program is small (only 13 sites). After several years of environmental studies and minor cleanup activities, the Academy undertook construction of two landfill caps. A full complement of Academy resources was assembled to plan, program, and execute the project. Craftsmen from the civil engineering shops set up utilities for the operation; heavy equipment operators helped by moving 30,000 cubic yards of topsoil and compost; and natural resource experts assisted with the construction of erosion control measures while reseeding with native grasses to protect the sensitive habitat of a proposed endangered species. The Academy's focus on minimizing the cost of the landfill caps while expediting the work provided the results the Academy aimed for.

Constant communication, close working relationships, and a team approach were critical to the success of the cleanup program at the Academy. As a result, the cleanup program is categorized as Response Complete and visitors to the Academy can now observe a herd of elk grazing atop the caps that seal the former landfill.

PROGRAM FUNDING

The DERP's funding process, status, and progress are presented in this section. There is a direct correlation between funding and execution from one fiscal year to another. Dramatic decreases in program funding may increase costs by reducing efficiency over the long term. DoD's aim is to achieve stable funding from year to year to meet the needs of the Environmental Restoration Program now as well as 5, 10, and even 20 years into the future.

The Budget Process

Funding for cleanup is limited, and specific restoration activities must be assessed early if they are to receive appropriate funding. Funding for cleanup is influenced by many factors, including changing priorities in the cleanup process, identification of new sites, and, in some cases, changes in national security

policy and priorities. Other issues considered in determining the sequence in which sites will be addressed are the statutory and regulatory status of a particular installation or site (e.g., whether it is on the NPL); stakeholder concerns; program execution considerations, such as remedy selection; and economic factors. These elements are combined with the relative risk information to determine the actual funding priority for a site. DoD works with other federal agencies and stakeholders, including state regulators and restoration advisory boards (RAB) and other community entities, to determine priorities.

To accommodate these various considerations, the budgeting for the DERP requires flexible planning. At the same time, the planning must be rigorous and consistent over time to meet the requirements of the DoD budget process. This process consists of four interrelated phases: planning, programming, budget development and execution. These phases are shown in Figure 12.



Cleanup Program in Action

The Army's Installation Action Plan (IAP) Workshops*

During 1997, the Army hosted 12 workshops in nine states to enhance its partnering efforts with EPA, state regulators, and RAB community members. At each workshop, the participants reviewed the action plan of a different installation. Such plans involve relative risk rankings for every site undergoing cleanup, current cleanup activities, proposed future actions, and estimated funding requirements.

The process used in these workshops enables the decision makers to evaluate every cleanup project on an installation, including future activities. The Army in turn gains valuable insights and learns opinions on the work plan from the regulators and RAB community co-chairs, all of whom are very knowledgeable about cleanup activities for the installation. Samuel Johnson, community co-chair for the Fort Carson RAB, said, "This several-day meeting, during which every SWMU [solid waste management unit] at Fort Carson was discussed in detail, gave me ample opportunity both to observe the risk assessment and prioritization processes and to give candid advice based on my sense of the community's interests and perceptions."

As partners, the participants prioritize projects and come to consensus on what should be funded first on the basis of the installation's fiscal year budget. All participants understand that an installation's budgetary constraints often prevent the funding of all requirements during a single fiscal year. In addition, all participants are aware that every action must be in compliance with state and EPA regulations and must adhere to DoD policies and guidance.

State participants can use the information developed at a workshop to prepare their resource estimates for future DoD cleanup activities, as stated in the Defense and State Memorandum of Agreement (DSMOA) grant application. Under the DSMOA program, states and territories are reimbursed by DoD for services they provide in support of DoD restoration activities. A state regulator for the California Department of Toxic Substances Control said, "The IAP partnering workshop was an important process for building on the trust and cooperative working relationship of the existing project team."

These workshops offer an ideal forum for building rapport, opening lines of communication, and developing trust among those involved in the cleanup at an installation. Bringing stakeholders together early in the cleanup process results in faster and more efficient environmental cleanups, a goal that everyone shares.

*Army IAPs are equivalent to Management Action Plans.

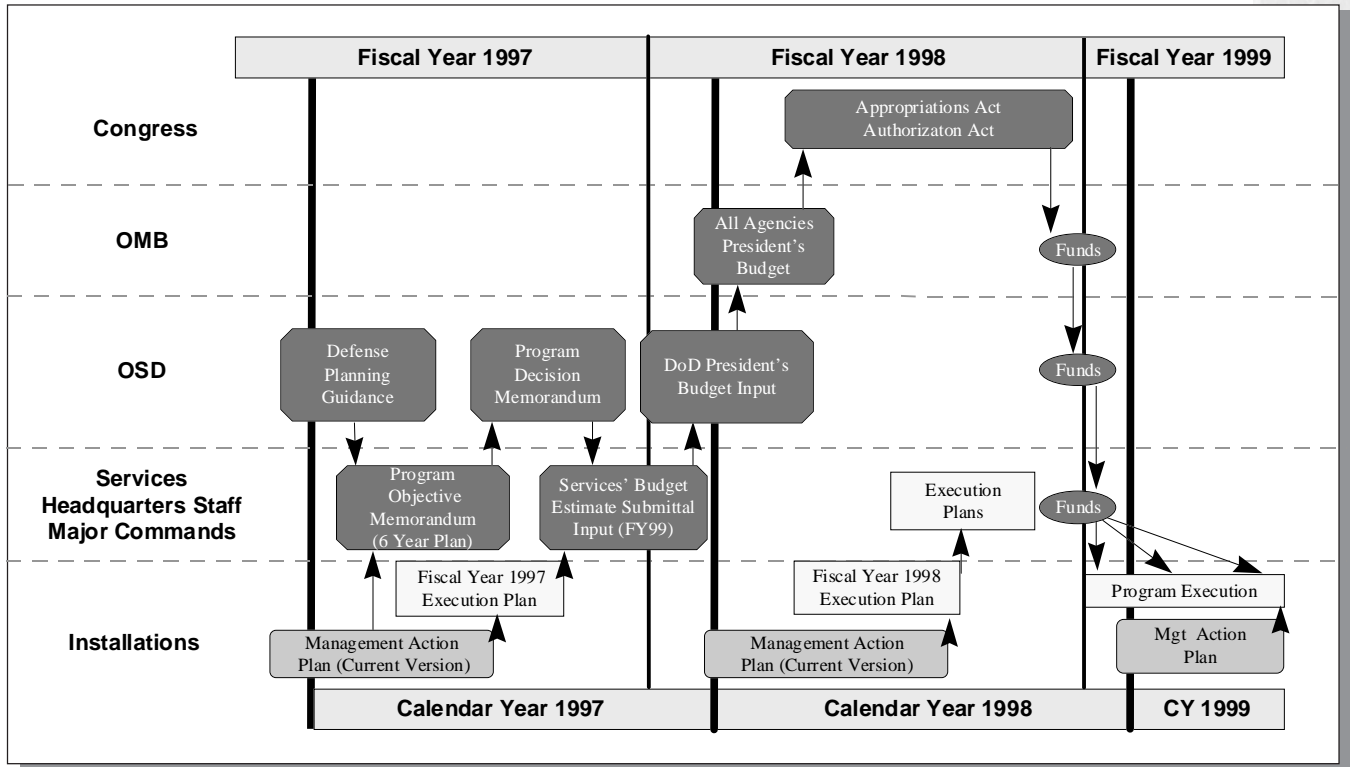
The Planning Phase

DoD develops and provides program goals and guidance on how to achieve the goals. Based on the goals and guidance, each installation develops site-level requirements for accomplishing these goals in its Management Action Plan (MAP). These requirements are officially updated at least once each year to take into account changes in priorities, policies, legislation, performance measures, and availability of funding; the requirements can change significantly over time.

The Programming Phase

Components use the requirements identified in their respective MAPs to prepare Program Objective Memorandums (POM), which are long-range plans covering a 6-year time frame. POMs are reviewed by OSD in an annual program review process, and any program decisions, if necessary, are issued to establish guidance on preparing the budget.

**Figure 12
Cleanup Budget Process**



Budget Development and Execution

The Military Departments and Defense Agencies develop and submit budget estimates to OSD for review and approval. Any questions or concerns are resolved through a strenuous budget review process conducted over a 2- to 3-month period. The DoD budget is then submitted to the Office of Management and Budget (OMB) for further review and approval before being forwarded to the President for signature. The President's budget is submitted to Congress early in the following calendar year (CY). The time frame associated with the development of the budget encompasses many years. For instance, the first FY99 budget was submitted to Congress in early CY97 as part of the FY98–FY99 budget submission. An amended (updated) FY99

budget was submitted to Congress in early CY98. The requirements for restoration in each of the FY99 budget submissions were identified and updated in installation MAPs from 1995 through 1997. The best opportunity for stakeholder involvement and input occurs at the beginning of the programming and budgeting process when programs are first identified in the MAP. Stakeholders have opportunities to participate in Relative Risk Site Evaluations and in development of updates to the MAP. These are the points at which the requirements at each installation are evaluated and decisions on sequencing are made.

DERP Funding

As of September 30, 1997, DoD's Environmental Restoration Program investment exceeded \$16 billion (see Figure 13). In FY97 alone, Congress appropriated \$338.5 million for ER, Army; \$287.1 million for ER, Navy; \$391.6 million for ER, Air Force; \$255.9 million for ER, FUDS; and \$38.0 million, for ER,

Defense-Wide. Congress now appropriates funding specifically for each of these five programs. In addition, the FY97 BRAC environmental funding investment was \$671.7 million. Figures 14 and 15 present post-devolvement funding profiles for ER installations and FUDS and for BRAC installations, respectively.

Figure 13
DERP Funding History

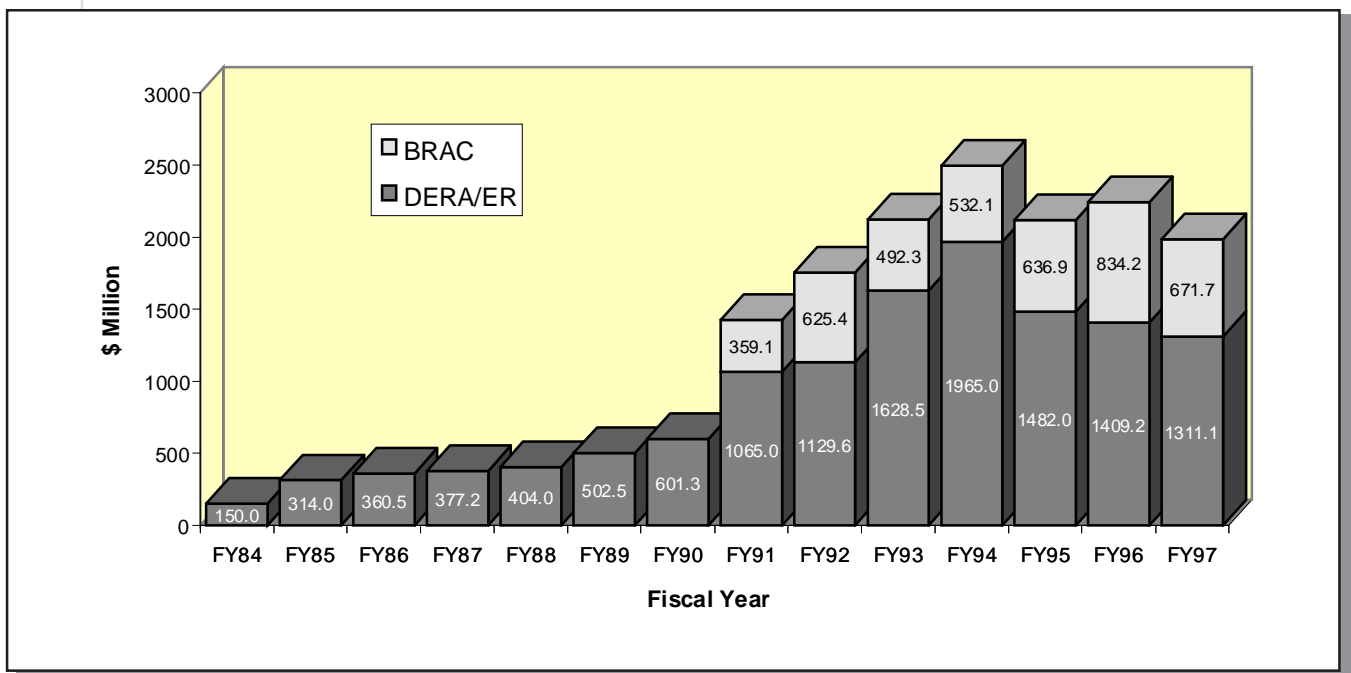


Figure 14
Environmental Restoration
Funding Profile for OSD and
Components (in millions of dollars)

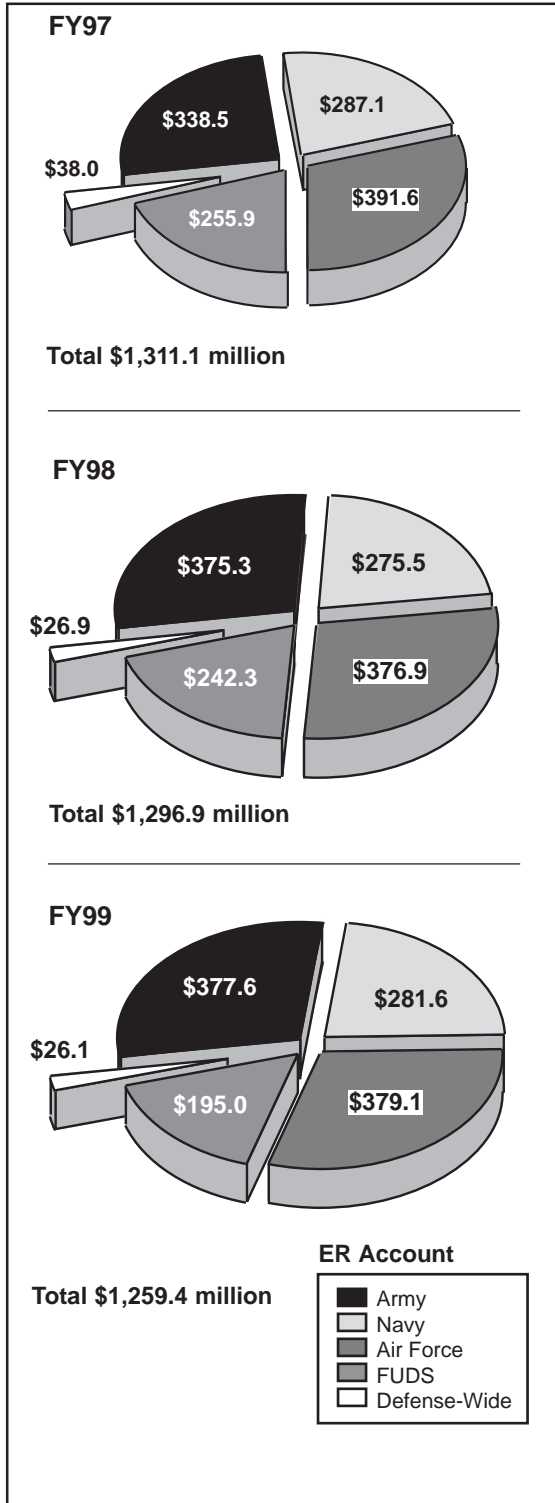
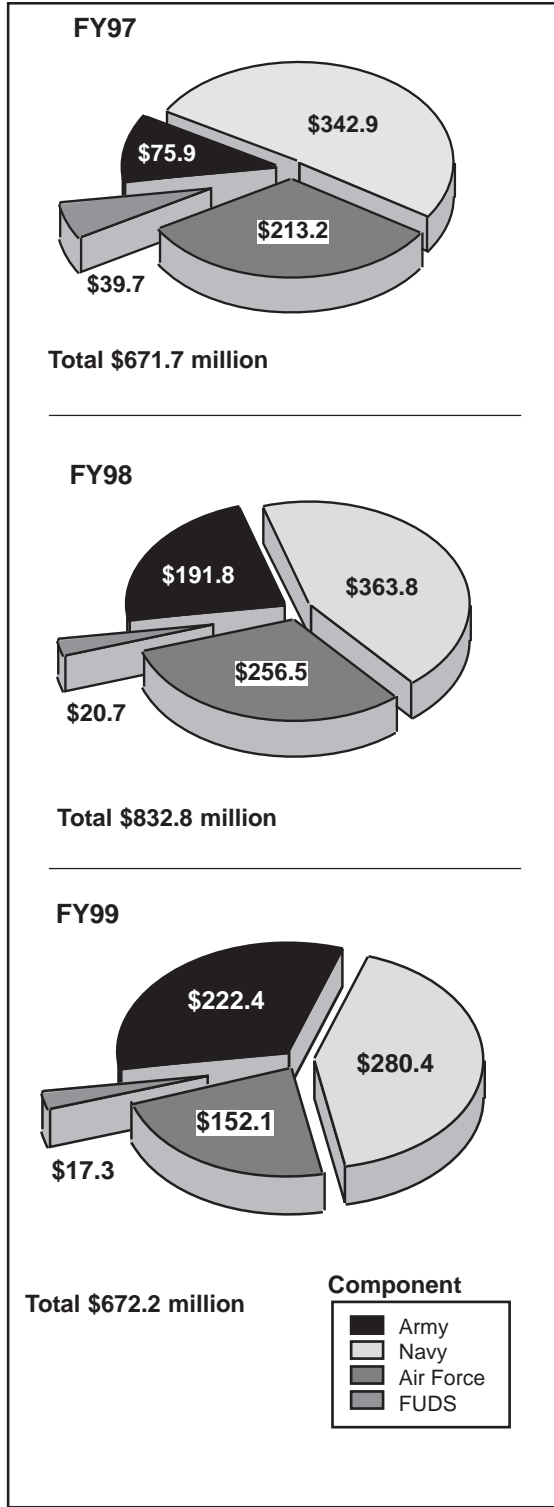


Figure 15
BRAC Environmental Funding Profile
for Components
(in millions of dollars)



ER Status

Since FY95, funding has been relatively stable, enabling DoD to more efficiently plan needed funding for the environmental cleanup program. Figure 16 illustrates the DERA/ER funding

trend from 1984 to the present and projects funding to the year 1999.

The DERA/ER funding distribution profile in Figure 17 shows actual program obligations for program support (management and work

Figure 16
DERA/ER Funding Trend

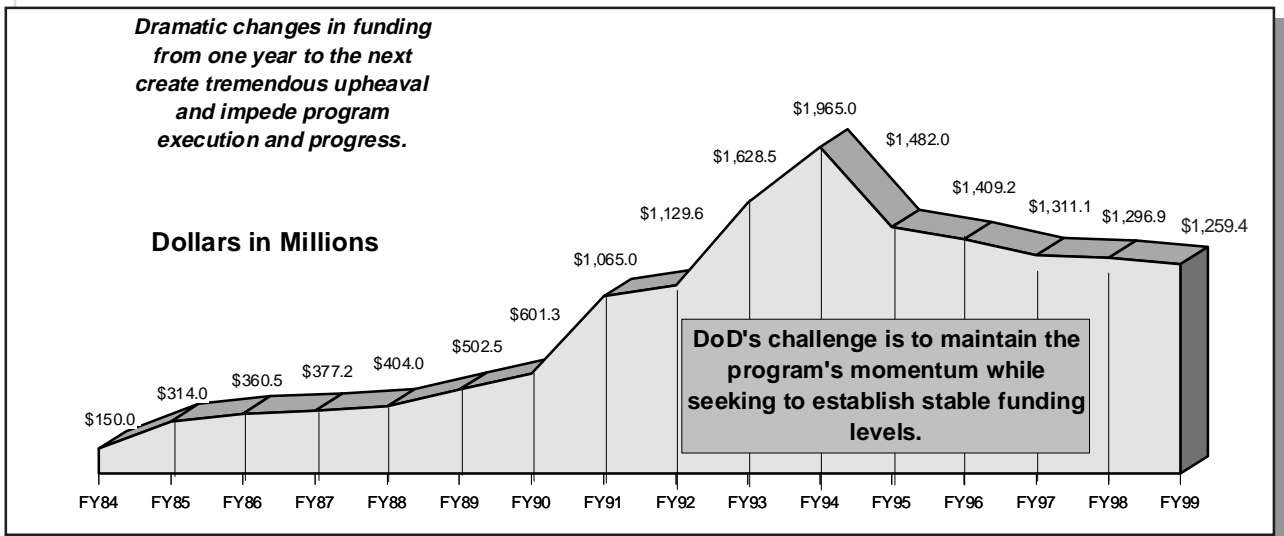
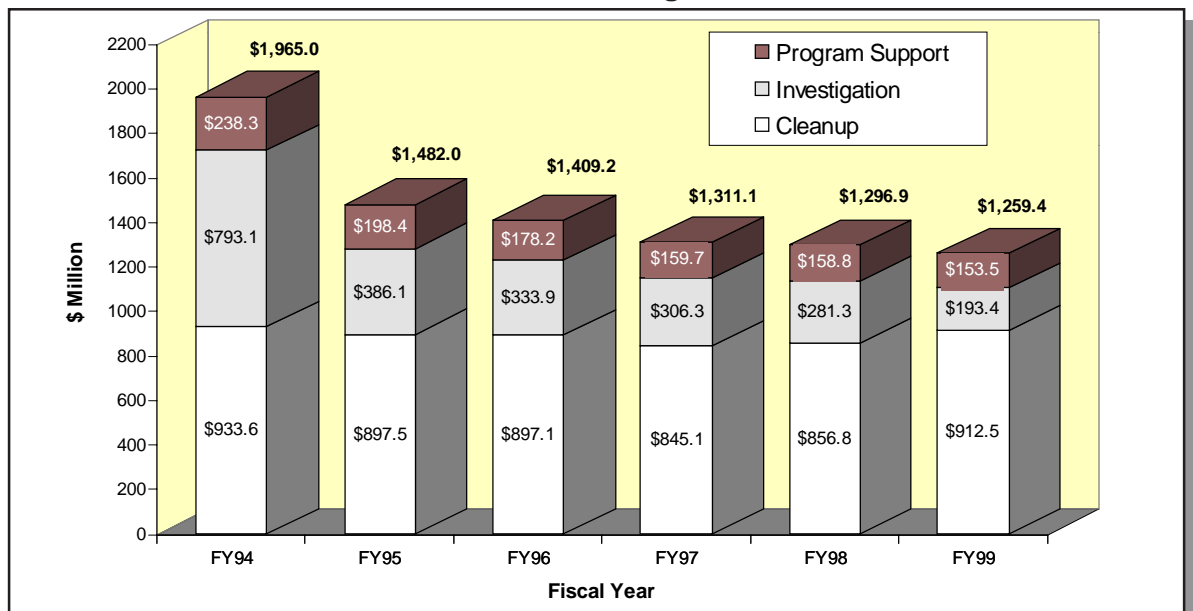


Figure 17
DERA/ER Funding Profile



years), investigation, and cleanup for FY94, FY95, FY96, and FY97 and planned obligations for these categories in FY98 and FY99. DoD has an established strategy and a systematic process in place for identifying, measuring, and continuously improving performance for the Environmental Restoration Program. By focusing on reducing risk and on setting priorities for appropriate investigation and cleanup work (in accordance with risk reduction and Site Closeout goals), DoD directs its goals and investment strategy toward completing the overall program in accordance with statutory requirements.

Balancing Funding

The FY96 National Defense Authorization Act (NDAA) required DoD to demonstrate its progress toward the goal of spending at least 80 percent of ER funding on cleanup and no more than 20 percent on program support, studies, and investigations by the end of FY97. Table 4 shows DoD's progress toward meeting this goal as the Environmental Restoration Program matures.

**Table 4
Cleanup and Other Program Obligations and
Planning Estimates for Fiscal Years 1993 through 1997**

Category	Millions of Funding Dollars Obligated				
	(% of Total Obligated Funds)				
	FY93	FY94	FY95	FY96	FY97
Studies & Investigations	761 (47)	793 (40)	386 (26)	334 (24)	306 (23)
Program Support	247 (15)	238 (12)	198 (13)	178 (13)	160 (12)
Total Non-Cleanup Funds	1,008 (62)	1,031 (52)	584 (39)	512 (36)	466 (35)
Cleanup	631 (38)	934 (48)	898 (61)	897 (64)	845 (65)
TOTAL DERA/ER FUNDING	\$1,629	\$1,965	\$1,482	\$1,409	\$1,311

Notes: This table and the accompanying discussion satisfy the reporting requirement specified in Section 323(b) of the FY96 National Defense Authorization Act regarding DoD's goal of limiting DERA expenditures for program support, studies, and investigations.

Obligation categories are listed in accordance with the language in Section 323(a) of the FY96 National Defense Authorization Act.

<p>Program support includes costs for management and work years. Management costs consist of program administration expenses, such as travel, training, and other support. The management cost category also includes Agency for Toxic Substances and Disease Registry and Defense and State Memorandum of Agreement funding. Work years costs are the costs incurred for DoD program management.</p>	<p>Investigation includes Preliminary Assessment, Site Inspection, and Remedial Investigation/Feasibility Study costs.</p> <p>Cleanup includes Interim Actions, Remedial Design, Remedial Action Construction, Remedial Action Operations, and Long-Term Monitoring costs.</p>
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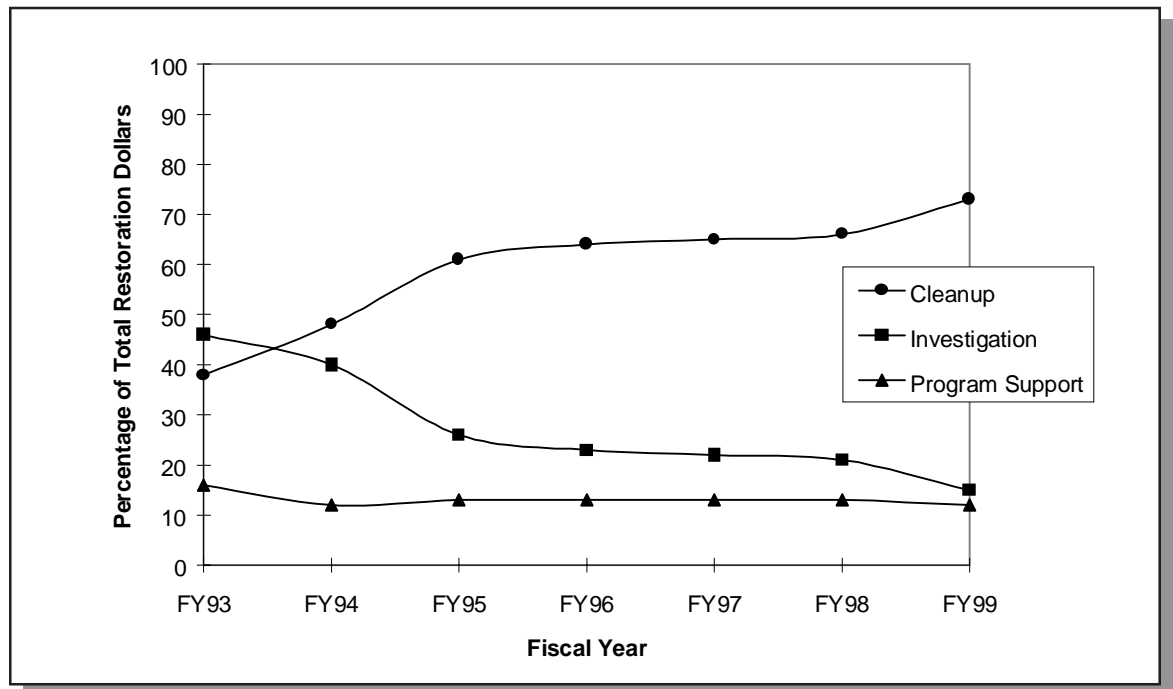
Thorough investigation and studies at some sites show that expensive cleanup remedies are usually unnecessary. As shown in the installation story on page 29, significant cost savings can result from careful analysis.

Figure 18 shows the funding allocation trends associated with the maturing of the Environmental Restoration Program. As the cleanup program has progressed, a larger percentage of funding has gone toward cleaning up DoD installations and a smaller amount has been spent on site investigations. Program support costs remain relatively low.

BRAC Status

The funding for the BRAC environmental program is part of the overall BRAC account and supports more than environmental restoration efforts. Congress has approved four BRAC rounds to date—BRAC 1988, BRAC 1991, BRAC 1993, and BRAC 1995. With each BRAC round adding new installations to the program, it has been necessary to increase BRAC funding over the years. The BRAC environmental funding profile shown in Figure 19 reflects environmental funding allocations from FY93 through FY97, and projected funding for FY98 and FY99, by BRAC round.

Figure 18
Portion of Funding Used for Cleanup, Investigation, and Program Support





Cleanup Program in Action

Defense Distribution Center New Cumberland Site

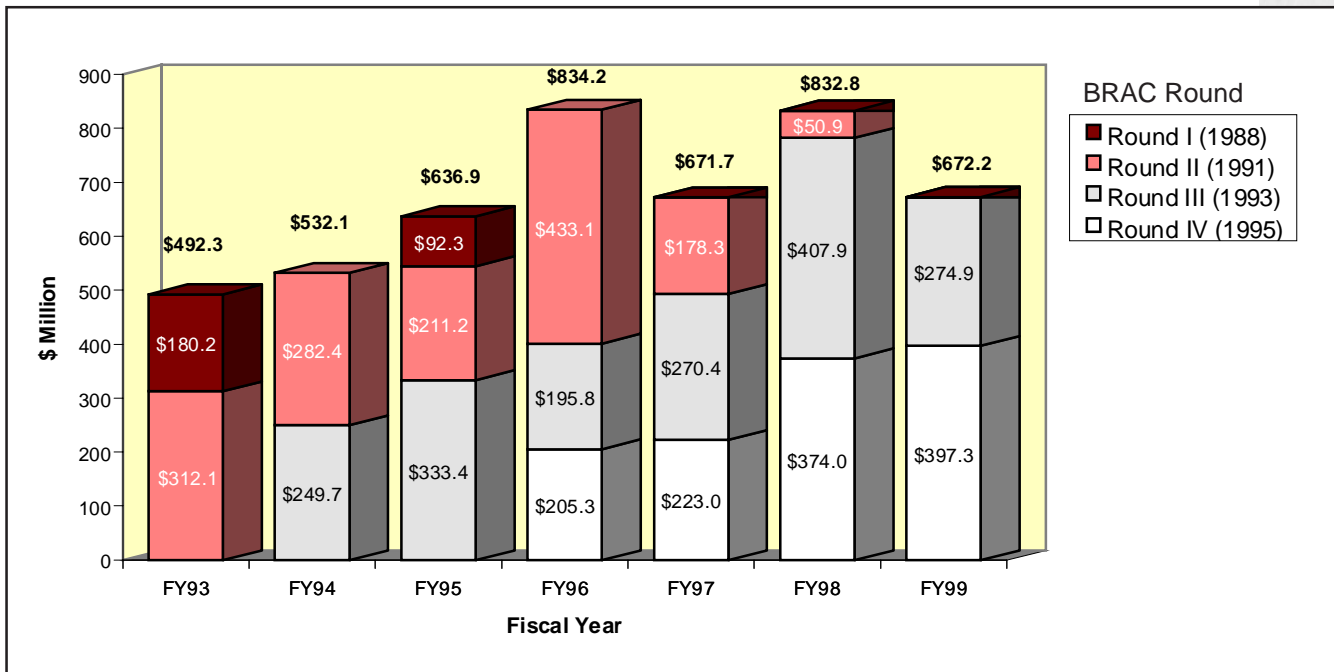
The 851-acre Defense Distribution Center (DDC) New Cumberland Site (formerly called Defense Distribution Region East) has been in operation for over 80 years, primarily as a major supply depot. Much of the site's need for environmental cleanup is attributable to Army aircraft maintenance activities that took place there between 1960 and 1984.

Recently, DDC New Cumberland Site has been implementing a dynamic cleanup program whose core philosophy involves fast-tracking projects, using the most effective environmental technologies, and fostering close working relationships with stakeholders. In less than 2 years, contaminated portions of the facility's 20-acre Transport Control Area were characterized, a remedial approach was developed, regulatory approval was obtained, the remediation contract was awarded, and the cleanup was completed (May 1997).

To address groundwater contamination at the Aircraft Maintenance Shop Area, the DDC used state-of-the-art groundwater modeling techniques. By comparing groundwater pump-and-treat alternatives with natural attenuation, the installation determined that natural attenuation would be equally protective of human health and the environment. The DDC will save more than \$10 million over the life of the program by implementing this alternative remedy.

By employing area-specific standards for cleanup, under the Pennsylvania Land Recycling and Environmental Remediation Standards Act, the installation transformed a 300,000-cubic-yard contaminated wood disposal area at the facility into a protected natural area. This approach enabled DDC New Cumberland Site to reduce remediation costs by approximately \$300,000 while extending a nature preserve that borders Marsh Run and the Pennsylvania Turnpike. It is estimated that by the year 2000, DDC's environmental cleanup program will consist solely of operation and maintenance of the implemented remediation systems.

Figure 19
BRAC Environmental Budget Funding Profile



PARTNERSHIPS

“WE HAVE ALREADY BEGUN TO CUT INFRASTRUCTURE AND IMPROVE EFFICIENCIES THROUGH TECHNOLOGY AND MANAGEMENT INNOVATION, PRIVATIZATION, AND BY BUILDING MEANINGFUL PARTNERSHIPS WITH INDUSTRY, REGULATORS, TRIBAL NATIONS, NONGOVERNMENTAL ORGANIZATIONS, AND THE PUBLIC.”

—**SHERRI W. GOODMAN, DEPUTY UNDER SECRETARY OF DEFENSE
(ENVIRONMENTAL SECURITY)**

DoD views partnering as an important way to improve the quality of decisions and accomplish its environmental mission. According to DoD’s July 1996 Partnering Guide: “Partnering is designed to break down organizational barriers that block performance. Typically, the ‘partners’ are organizations that in the past have worked at arm’s length, or have even had competitive or adversarial relations. For DoD’s environmental mission, partners might include DoD agencies and contractors, EPA and state regulatory agencies, other federal and state agencies, local governments, Tribes, RABs, other community groups, and private individuals.”



Partnering Guide for
Environmental Missions of the Air
Force, Army, and Navy (1996)

[http://www.hq.usace.army.mil/
cemp/c/partner.htm](http://www.hq.usace.army.mil/cemp/c/partner.htm)

This publication is helpful in
understanding the partnering
process, its benefits, and its
applications

DoD actively seeks to partner with states and communities in cleaning up sites at active and closing installations and at FUDS. These partnerships are integral to the continued success of DoD’s cleanup program. The

Department shares success stories and lessons learned and continues to pursue new opportunities and better tools for facilitating these relationships as the DERP moves toward a successful conclusion.

PARTNERING WITH TRIBAL NATIONS

“WE FEEL THAT WITH THIS AGREEMENT THE DEPARTMENT OF DEFENSE SHOWS RESPECT FOR AND RECOGNIZES OUR DESIRE TO RETAIN TRIBAL AUTHORITY OVER OUR OWN LANDS.”

— **EMMA FEATHERMAN-SAM, DIRECTOR,
BADLANDS BOMBING RANGE PROJECT**

Partnering with tribal nations in government-to-government relationships is an important aspect of DoD’s partnering initiative. In FY97, DoD entered into a Memorandum of Agreement (MOA) with the Oglala Sioux tribe concerning the Formerly Used Defense Site known as the Badlands Bombing Range (BBR), which is located on the Pine Ridge Reservation in South Dakota. The MOA and the accompanying Cooperative Agreement (CA) that serves as the funding mechanism for the MOA outline the technical review and services that will be



Cleanup Program in Action

Amchitka Island

Amchitka Island is a Formerly Used Defense Site that occupies 71,000 acres of environmentally sensitive land in Alaska. Conducting environmental cleanup activities on the island can be very challenging and costly because of the island's remote location. It was also significant that Amchitka Island is part of the Alaska Maritime National Wildlife Refuge and is home to the Aleutian Canada Goose, a threatened species.

The cleanup team, consisting of the U.S. Army Corps of Engineers (USACE), the Department of Energy (DOE), and the Navy, is weathering the island's harsh conditions to clean up contaminated areas and reduce the risk to human health and the environment. The team also consulted the U.S. Department of the Interior because of the sensitive ecological areas on the island.

The cleanup project on Amchitka Island is truly a team effort. After the cleanup contract was awarded by USACE, fieldwork began. Because there are no habitable facilities on the island, the effort included establishment of a camp to support 35 cleanup personnel. More than 40 percent of the total contract was allocated to small or disadvantaged business concerns. In fact, Alaska native-owned enterprises provided much of the transportation, camp services, and logistical support. DoD often prefers to hire locally owned businesses, especially in remote areas, because they are the most familiar with the terrain and the sometimes unpredictable conditions.

Mobilization of equipment and personnel to work in this remote location also posed a challenge. Because DOE and the Navy shared mobilization and logistics costs with the Army, the amount of fieldwork that could be performed was increased by 30 percent. In addition, by pooling the resources of the federal partners, the team saved over \$250,000.

provided by the Oglala Sioux tribe at this site. The agreement marks the first government-to-government environmental agreement between DoD and a tribal nation.

DoD used BBR as a training range during World War II. As a result, there is a large quantity of unexploded ordnance on the site. Because of the safety risks associated with this unexploded ordnance, the Oglala Sioux cannot fully enjoy their rights to their ancestral lands.

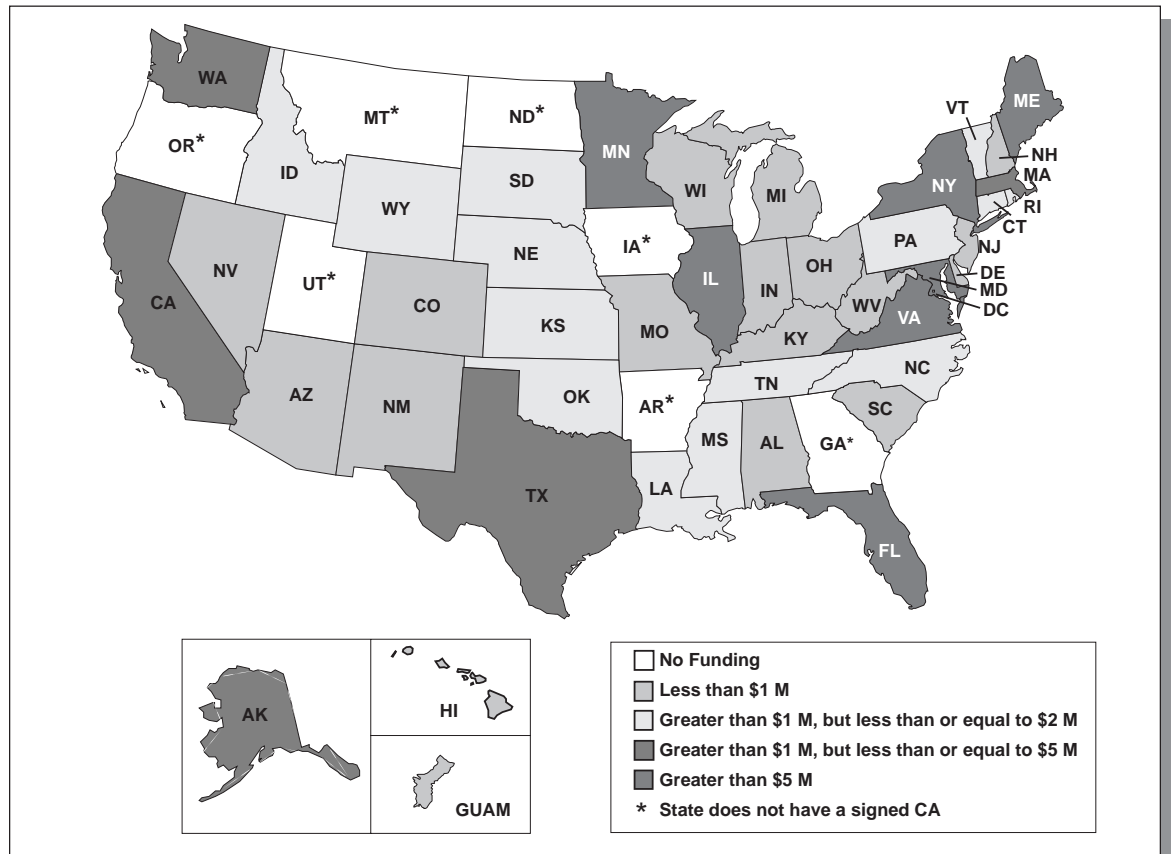
Under the CA, members of the tribe will be trained to assist in restoring the former range. Tribe members not only will have a direct role in cleaning up their lands, but also will be learning technical skills that may lead to future employment. This training and participation are of particular importance because the tribe has a high rate of unemployment.

DEFENSE AND STATE MEMORANDUMS OF AGREEMENT / COOPERATIVE AGREEMENTS

The Defense and State Memorandum of Agreement (DSMOA) is one of several mechanisms used to foster partnerships with states. The DSMOA program, which is administered by the U.S. Army Corps of Engineers (USACE), provides a means of reimbursing states and territories for the technical services they provide in support of investigation and cleanup efforts at DoD facilities. It also establishes a procedural framework for payment. A DSMOA represents a commitment between DoD and a state or

territory, but it does not obligate or commit funds. Actual funding authority is provided by a Cooperative Agreement, which provides a specific 2-year plan for restoration activities in the designated state or territory and provides a projection of activities for the following 4 years. At this time, 48 states and territories have signed DSMOAs, and 45 states and territories have entered into CAs with DoD (Figure 20). More information concerning specific DSMOA and CA programs is provided in Appendix C.

Figure 20
DSMOA Reimbursements
FY90—FY98



Services that qualify for reimbursement through CAs include, but are not limited to, technical review, comments, and recommendations on documents or data; identification and explanation of state or territorial requirements; site visits; participation in public education and community involvement activities, such as technical review committees (TRC) and RABs; independent quality assurance/quality control efforts; activities associated with the preparation and administration of the DSMOA/CA agreement; and other state or territorial services enumerated in installation-specific agreements.

The DSMOA program applies to all active and closing installations, beginning at the site

identification stage and continuing through Site Closeout. FUDS also are covered by the DSMOA program after site eligibility for ER funding has been determined, provided that there is no pending litigation by the state against DoD concerning that site and that no supplemental funds from DoD or other federal sources have previously been provided. Reimbursement is provided for up to 1 percent of ER or 1.5 percent of BRAC environmental cleanup costs.



DSMOA
<http://www.mrd.usace.army.mil/mrded-h/access/DSMOA/dsmoa.html>

A guide to the DSMOA program and process



Cleanup Program in Action

Naval Ordnance Station

In September 1995, the Navy announced that the Naval Ordnance Station in Louisville, Kentucky (NOSL) was scheduled for closure under the Base Realignment and Closure Act. As with many BRAC properties, the community around NOSL will have to chart a new course for this once vital economic hub.

The Louisville Jefferson County Redevelopment Authority (LJCRA) was formed shortly after the announcement of the decision to close NOSL. LJCRA's redevelopment plan involved leasing the property to the redevelopment authority, which would then sublease parcels to private industries. The plan stipulated that the Navy will continue limited operations on the base in the capacity of a private firm. This plan of action would enable operations to continue, while saving jobs for the community.

Although the base's future had been determined, problems from its past still had to be remedied. Years of operations at the base required the Navy to perform several environmental cleanup projects. Various environmental laws and regulations require state regulators to review and approve all planned cleanup activities. The DSMOA program provides a vehicle for accelerating the document review process. The BRAC cleanup team and the Kentucky Department for Environmental Protection meet monthly to review and revise cleanup plans and documents. These meetings have enabled the Navy to reduce the number of documents submitted to the state. In addition, addressing the state's concerns before documents are submitted for review has accelerated the review process.

The Navy estimates that it has saved at least \$60,000 through its partnering efforts with the state of Kentucky. This success is attributed to a simple formula: effective and frequent communication between partners. As the Navy works to clean up NOSL, the community can search for new and productive uses for the property.

COMMUNITY INVOLVEMENT

“COMMUNITY PARTICIPATION IN DoD’S CLEANUP PROGRAM IS THE KEY TO OUR SUCCESS. WE TAKE GREAT CARE TO KEEP THE PUBLIC INFORMED AND INVOLVED IN ENVIRONMENTAL CLEANUP DECISIONS WHICH IMPACT THEM.”

—**SHERRI W. GOODMAN, DEPUTY UNDER SECRETARY OF DEFENSE**
(ENVIRONMENTAL SECURITY)

Community involvement in DoD’s environmental cleanup efforts remains a strong component of the DERP. The major vehicle for involving citizens who live on or near a military installation in the cleanup decision-making process is the restoration advisory board. RABs complement other community involvement activities, such as public meetings, mailings, and local information repositories. These boards bring together persons who reflect the diverse interests of a community and who can help identify issues of concern. In addition to members of the local community, RABs include representatives of the installation, EPA, the state, and tribal and local governments.

During FY97, 332 military installations in the United States and its territories participated in RABs. The *Restoration Advisory Board Report to Congress for Fiscal Year 1997* is included as a supplement to this report. It details recent progress and successes in the RAB arena.

TECHNICAL ASSISTANCE FOR PUBLIC PARTICIPATION

Technical Assistance for Public Participation (TAPP) is a program designed to help community members of RABs and TRCs provide advice on cleanup of DoD installations and FUDS. It enables private sector sources to help community members understand the scientific and engineering issues underlying an installation’s environmental restoration activities. This assistance fosters increased citizen trust, confidence, and involvement.

TAPP represents the fruition of congressional and DoD efforts to provide the public with technical assistance on environmental restoration issues. In the FY95 NDAA, Congress authorized the provision of such assistance to foster public participation. In response to this authorization, DoD published a Notice of Request for Comments on May 24,



RAB Information Home Page
<http://www.dtic.mil/envirodod/rab/>
Lists publications and information regarding RABs



RAB Resource Book
<http://www.dtic.mil/envirodod/rab/rabresource/>
Tools for establishing and operating RABs; this web site also provides several other sources of information



Proposed RAB Rule
http://www.dtic.mil/envirodod/rab/rab_fedr.html
DoD’s 1996 proposed rule, which is awaiting finalization

1995, seeking alternative methods of funding the technical assistance. Congress revised this authority in the 1996 NDAA. Subsequently, DoD proposed a rule that includes regulations for providing technical assistance to RABs and TRCs and specific requirements for obtaining this assistance. The proposed rule was issued on December 27, 1996, and public comments were considered and incorporated where appropriate. The final rule was published on February 2, 1998. In FY97, DoD pilot-tested the program at Naval Air Station North Island with successful results.



Final TAPP Rule
http://www.dtic.mil/envirodod/rab/63fr_tapp.html
 DoD's rule on facilitating public participation in its Environmental Restoration Program



Environmental Security Technology Certification Program
<http://estcp.xservices.com/>
 Provides general information, project descriptions, and documents that describe the program



DOIT (Develop On-site Innovative Technologies) Committee Report
<http://www.westgov.org/wga/publicat/doitweb.htm>
 Committee report containing recommendations from committee findings on cooperative approaches to technical solutions

ENVIRONMENTAL TECHNOLOGY

Environmental technology is yet another focus of the cleanup program and another area in which partnerships are producing benefits for the DERP. By developing better environmental technologies, DoD can reduce costs, accelerate cleanups, and increase the overall effectiveness of the program. Because many site investigations have been completed, DoD knows what the most common site contaminants are (fuels and cleaning solvents in groundwater and heavy metals, such as lead and mercury, in soil and groundwater). Thus, technology development and application efforts can be focused on these specific problems.

DoD has a major role in the collection and dissemination of data on technology availability and performance. By evaluating existing technology programs, and collecting and disseminating data on technology cost and performance, DoD is helping the technology community to meet Defense cleanup needs. During FY97, DoD continued its collaboration with other federal agencies and with local and state governments on developing methods and performance standards to evaluate the effectiveness of new and innovative technologies. DoD's Environmental Security Technology Certification Program closely coordinates with sister programs to ensure that developing technologies are identified, evaluated, tested, and employed to best benefit the DERP.



Cleanup Program in Action

Davis-Monthan Air Force Base

The environmental staff at Davis-Monthan Air Force Base in Arizona is currently cleaning up a large area of jet fuel-contaminated soil via an innovative, low-cost soil vapor extraction (SVE)/combustion system. Earlier site investigations showed that the jet fuel had migrated from the ground surface to approximately 260 feet below ground at average concentrations of 320,000 mg/kg of total fuel hydrocarbons in the soil.

Vapor extraction and combustion uses an internal combustion engine to extract and burn vapors from the soil using a vacuum generated by the engine. The exhaust gases pass through standard catalytic converters for oxidation before safely exiting to the atmosphere. At Davis-Monthan Air Force Base a full-scale SVE/combustion system using two engines is operating at a total volatile organic compound removal rate of 2,200 pounds per day.

To date, the SVE system has proved to be reliable, versatile, and cost-effective. The Air Force has removed over 225,000 pounds of fuel from the soil and maintained compliance with one of the nation's most stringent emissions standards.

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ON THE HORIZON

“POLICY MAKERS ARE BEGINNING TO DELVE MORE DEEPLY INTO THE CAUSES AND CONSEQUENCES OF CONFLICT AND INSTABILITY IN THE POST-COLD WAR ERA. IT IS BECOMING INCREASINGLY CLEAR THAT ENVIRONMENTAL ISSUES PLAY A KEY ROLE IN THIS COMPLEX EQUATION.”

—**SHERRI W. GOODMAN, DEPUTY UNDER SECRETARY OF DEFENSE**
(ENVIRONMENTAL SECURITY)

Even as the DERP matures and brings an increasing number of sites to the final milestones of the program, new issues and events continue to emerge. In response, DoD must issue policies and guidance, create prioritization criteria, reallocate resources, and develop management and oversight systems within the framework of the restoration program. In some cases, these issues and events may be substantial enough to eventually reshape the DERP. This section looks to that horizon, briefly describing a few of the issues confronting DoD on the road to Site Closeout.

RANGE RULE

Unexploded ordnance is commanding increased attention from DoD, which plans to expand its efforts to clean up this material. DoD addresses the problem of UXO in its proposed Range Rule, which was published in the *Federal Register* on September 26, 1997. The proposed rule addresses explosives safety, human health, and environmental concerns related to ordnance on closed, transferring, and transferred (CTT) ranges. Efforts to survey, investigate, and remediate UXO on CTT ranges are eligible for ER funding; similar efforts on active ranges are currently ineligible for such funding.

DoD recognizes the need to build a framework for a UXO program and has initiated a process to more fully integrate UXO requirements into the POM. Efforts are under way to identify requirements, review policy, and fill data gaps to provide a comprehensive evaluation of the need for a UXO program. Ongoing DoD UXO-related efforts include developing draft instructions for CTT and active ranges, developing draft Defense Planning Guidance goals, and developing draft POM preparation instructions. In addition, the Services are identifying UXO requirements in the POM and are participating in integrated process teams to support information gaps in areas such as contracting and training qualifications.



Proposed Range Rule
http://www.gpo.gov/su_docs/aces/aces140.html (Query Page)

EXPIRATION OF BRAC FUNDING

The BRAC implementation period is scheduled to end on July 13, 2001. It is not certain at this time whether Congress will provide additional BRAC environmental appropriations after FY01. An estimated \$2.4 billion additional investment is required for the BRAC program beyond FY01. After FY01, the Components will be responsible for programming and for budgeting funds for these requirements from other accounts unless Congress extends the BRAC account.

The Department of Defense has proposed the extension of the BRAC account as part of its legislative proposal for two additional rounds of BRAC—one in FY01 and another in FY05. This proposal would extend the BRAC account for 6 years beyond the date of the second round, postponing expiration of the BRAC account until the end of FY11.



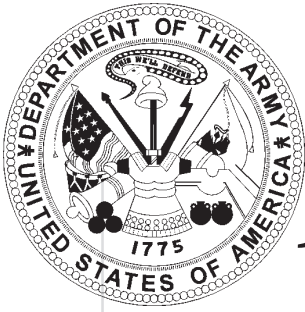
Cleanup Program in Action

Dolly Sods Wilderness Area

Hikers, hunters, and campers have long known the Dolly Sods Wilderness area of the Monongahela National Forest for its peaceful plains and sweeping vistas. The 10,000-acre area has one of the highest use rates of any wilderness site in the eastern United States. But long before nature lovers discovered the area, Dolly Sods was well known to the U.S. Army. During World War II, the Army conducted training exercises there on what was then known as the West Virginia Maneuvers Area.

The Army's training exercises involved use of mortar and artillery fire, armor-piercing bullets, and high explosives—materials defined by the military as ordnance. Not all of the ordnance fired during training exploded. Such unexploded ordnance can remain buried for decades without posing a threat to people or the environment. But if unearthed, unexploded ordnance can be quite dangerous.

The Army cleared the training area after World War II, but at least 21 pieces of unexploded ordnance have been discovered at Dolly Sods in recent years. One person has been severely injured. In response to this potential threat, the U.S. Army Corps of Engineers began an extensive search for unexploded ordnance at Dolly Sods during 1997. The \$1.2 million project covers 21 miles of trails and 8.5 acres of camp sites. To date, workers have unearthed 14 live mortar rounds and have made the area safe. The U.S. Army Corps of Engineers' ordnance experts plan to continue working on the project, using the most advanced technology, until the project is completed next summer.



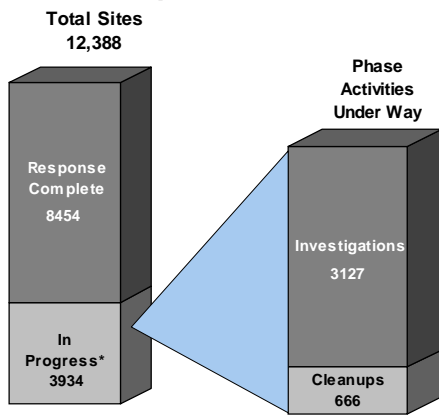
ARMY

CLEANUP STATUS AND PROGRESS

"CONGRESS IS CHALLENGING US TO DO MORE WITH LESS. THE ARMY'S ENVIRONMENTAL SUCCESS STORIES INCLUDE INNOVATIVE WAYS TO DO MORE WITH FEWER RESOURCES. OUR USE OF INNOVATIVE TECHNOLOGIES AND OUR PARTNERSHIPS WITH FEDERAL, STATE, AND LOCAL OFFICIALS ARE YIELDING VERY POSITIVE RESULTS."

—RAYMOND J. FATZ, DEPUTY ASSISTANT SECRETARY OF THE ARMY

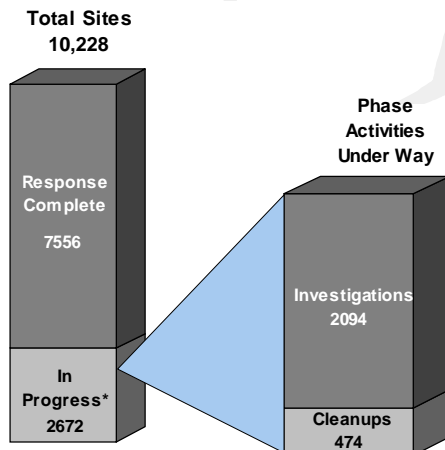
ER, Army and BRAC Status as of September 30, 1997



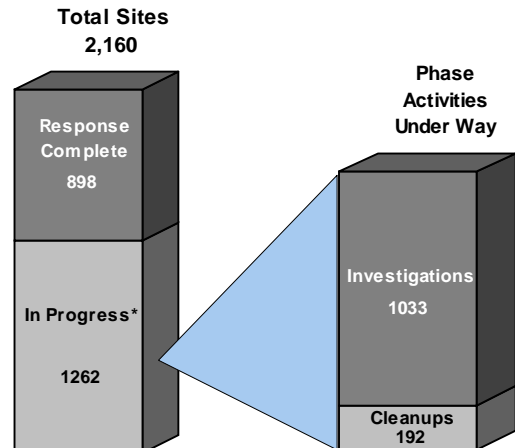
The devolvement of the central Defense Environmental Restoration Account (DERA) to individual service accounts and the Army's initiative decentralizing execution of its cleanup program made fiscal year 1997 (FY97) a challenging year for the Army's Installation Restoration and Base Realignment and Closure (BRAC) remediation programs. Army program managers and technical managers met these challenges, exceeding expectations for executing the program.

To date, the Army has identified 12,388 potentially contaminated sites at 1,187 installations. Of these sites, 8,454 require no further action, except for long-term monitoring. Restoration activities are planned or under way at 3,934 sites. The Army has completed final remedy construction at 919 sites, 84 of which require Remedial Action Operations. In addition, the Army has completed 1,853 interim cleanups at 1,379 sites.

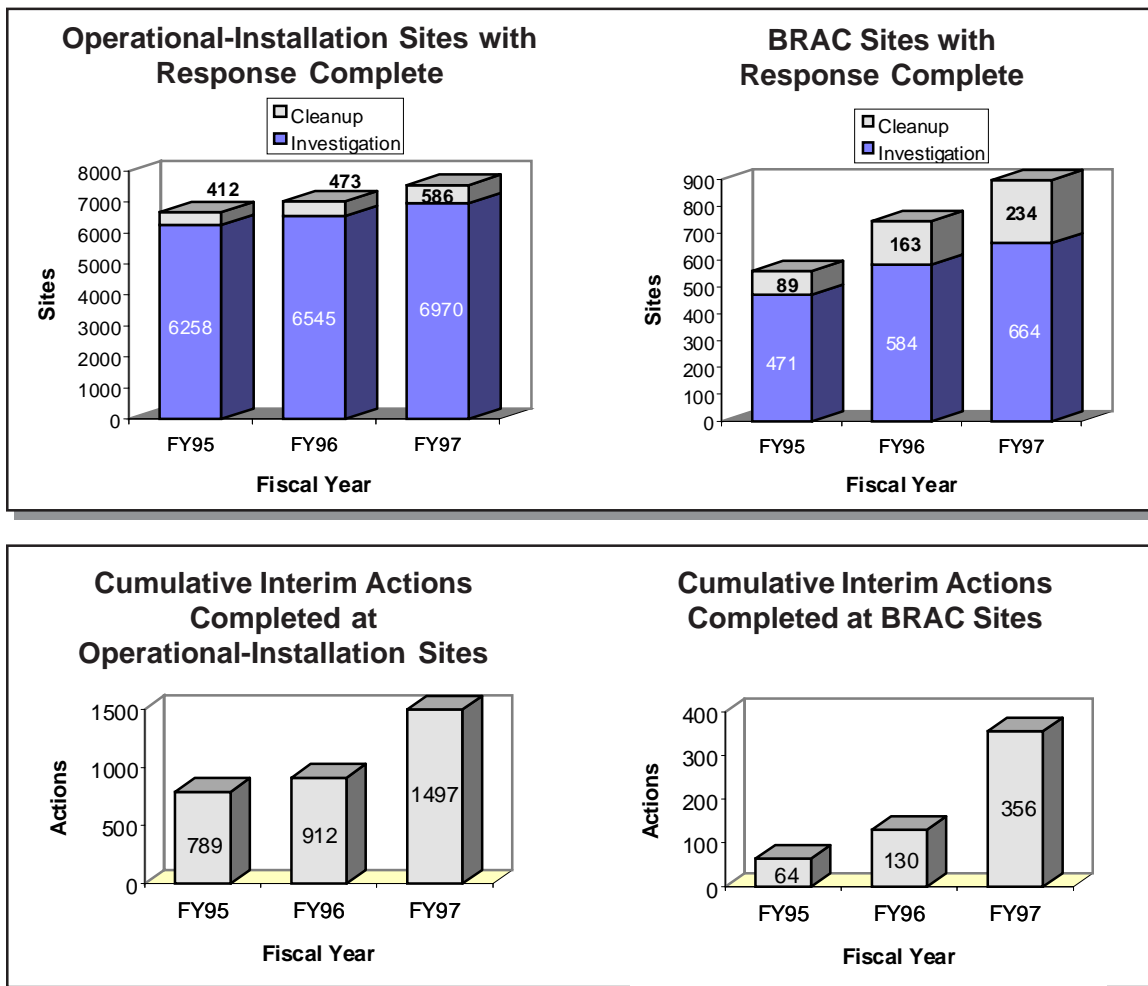
ER, Army Site Status as of September 30, 1997



BRAC Site Status as of September 30, 1997



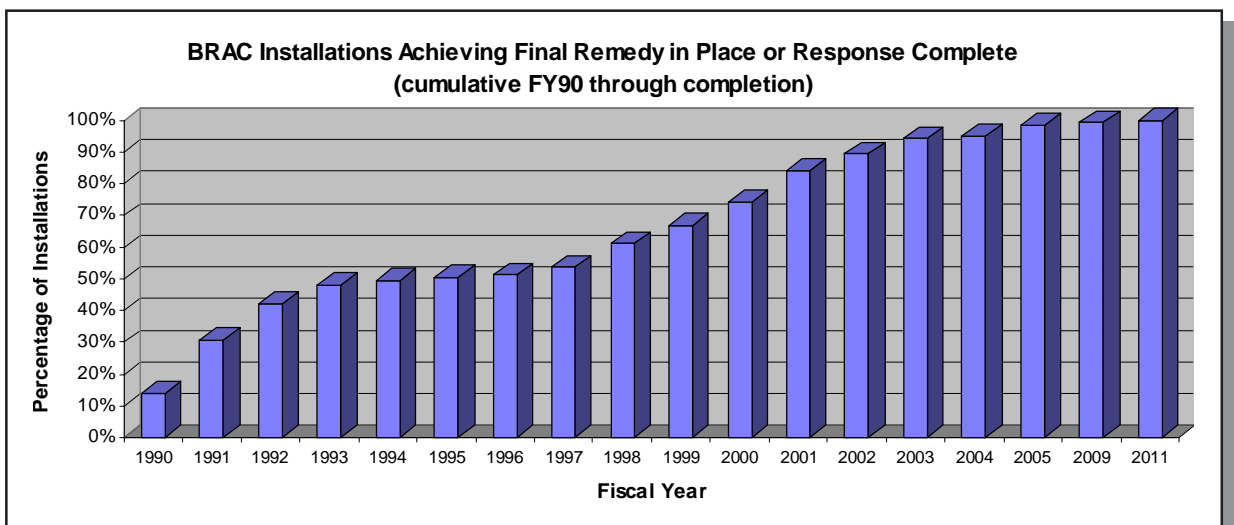
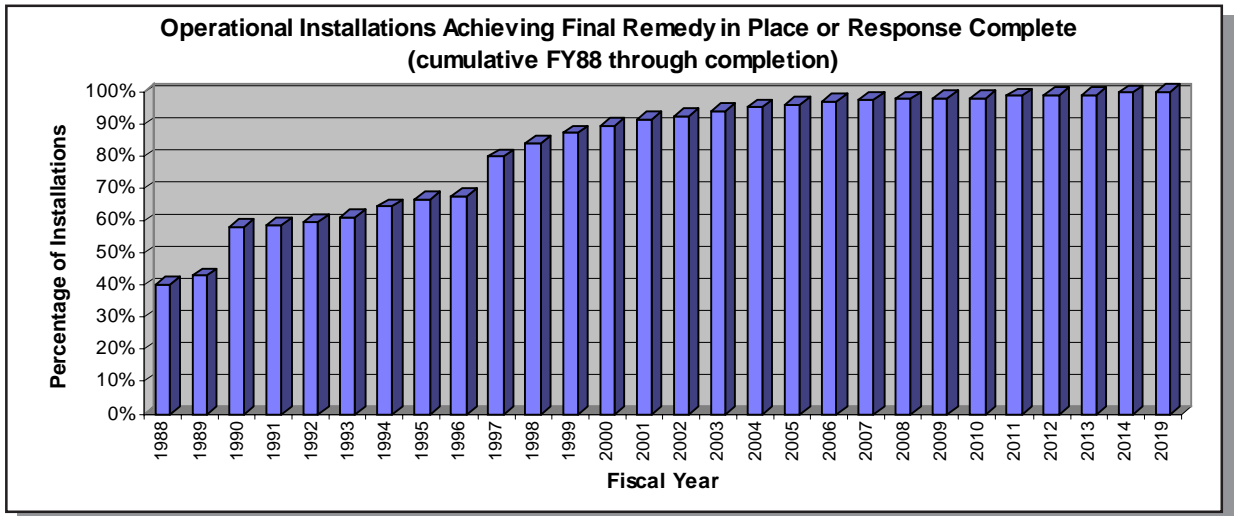
* NOTE: IN-PROGRESS INCLUDES SITES THAT WILL BE UNDER WAY IN THE FUTURE. THEREFORE, TOTALS OF SITES WITH PHASE ACTIVITIES UNDER WAY ARE GENERALLY LESS THAN THE TOTAL NUMBER OF SITES IN PROGRESS.



Restoration activities are in progress at most of the 112 installations that are being closed and most of the 27 installations being realigned under the BRAC 1988, 1991, 1993, and 1995 rounds. Thirty-nine BRAC cleanup teams have been formed to support fast-track cleanup at installations where there is excess property. At all other locations, the Army has appointed a point of contact for fast-track cleanup. In FY98, the Army will complete all Environmental Baseline Surveys for installations affected by the 1995 BRAC round.

GOALS AND PRIORITIES

The Defense Planning Guidance requires that the Services have Remedies in Place at 50 percent of all high-relative-risk sites by the end of FY02, and that they have Remedies in Place at all high relative-risk sites by FY07. If program requirements remain stable and program guidance is supported, the Army will meet these goals. The Army continues to refine its estimates for completing cleanup of its hazardous waste sites. Careful examination of cleanup assumptions, application of innovative technologies, and validation of data from outstanding cleanup sites have yielded a total



cost-to-complete estimate of \$9.1 billion: \$7.6 billion for Installation Restoration at active bases and \$1.5 billion for BRAC installations. This total is \$1.2 billion less than the cost-to-complete last year.

A major effort for the Army in FY97 was the development of a Proposed Range Rule. The Office of the Secretary of Defense directed the Army to develop such a rule, covering remediation of unexploded ordnance and constituent contaminants at ranges that have been closed or transferred or are undergoing transfer. This rule and decisions on its

implementation could have a significant effect on the Army's restoration program. The rule must ensure that the Department of Defense (DoD) is responsive and responsible and must include methods for conducting range responses within DoD authority. The rule will specify procedures that protect human health and safety and the environment and should result in cost-effective responses. The proposed rule was published in the *Federal Register* on September 26, 1997, with comments due by December 29, 1997. DoD will develop proposed responses to comments received. One milestone in FY98 will be the publication

of the interim Range Rule risk assessment methodology, which is necessary for applying the Range Rule consistently at all DoD closed, transferring, and transferred ranges.

In its BRAC environmental restoration program, the Army is focusing on making property environmentally suitable for transfer. In addition to addressing imminent threats to human health and the environment, the BRAC program emphasizes property reuse potential when establishing cleanup priorities. The Army's last Remedy in Place (RIP) action for a BRAC installation is projected to occur by 2011; its last Response Complete (RC) action for a BRAC installation is projected to occur by 2032.

PROGRAM ACCOMPLISHMENTS

Several installations achieved significant cost savings in their FY97 restoration efforts. Fort Bliss, Texas, saved \$5.4 million by using alternative, less stringent cleanup levels based on future land use. Twin Cities Army Ammunition Plant in Minnesota saved \$5 million by adopting a proposed U.S. Environmental Protection Agency (EPA) revision concerning cleanup levels for dioxin-contaminated soil. At the former Fort Ord in California, the Army and regulators agreed on a remedy that uses on-site disposal of contaminated soil. Use of this remedy resulted in a large cost savings over traditional off-site disposal. Fort Ord also was able to implement its groundwater treatment systems within 14 months of signing the Record of Decision for the systems.

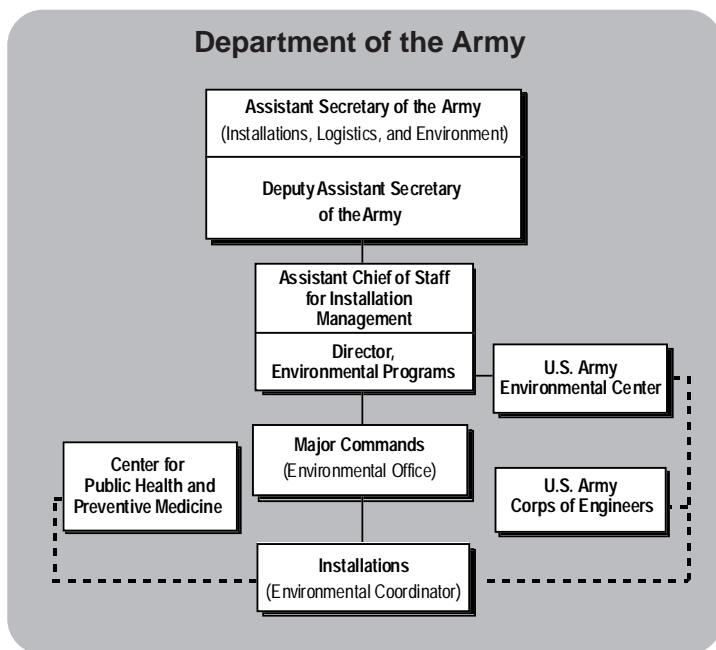
Other installations were equally successful in expediting site remediation. Fast-track cleanup of the Army Research Laboratory in Woodbridge, Virginia, led to completion of the

Remedial Investigation and Feasibility Study and the Record of Decision for the installation within 30 months. Lake City Army Ammunition Plant saved money and time by using an innovative application of multiphase soil vapor extraction for remediation of soil contaminated with hydrocarbons. In this remedy, water is pumped to lower the groundwater level, thus permitting deeper in situ soil treatment. Obtaining EPA's approval for this innovative remedy allowed the installation to avoid costly and time-consuming excavation of contaminated soil.

At BRAC installations, future uses of installation property are of primary concern. At the former Fort Ord, lead is being removed from beach ranges, which will then become part of a recreation area along Monterey Bay. At the former Fort Sheridan in Illinois, the Army and regulators determined that no further action was needed at two landfills, clearing the way for transfer of a large land parcel in the Historic District. Two other landfills at Fort Sheridan require cleanup. Data on these two landfills support construction of a cap instead of excavation and disposal of contaminated material. But, because some residents favor excavation and disposal as the means of remediation, the Army has agreed to continue collecting and reviewing data after the cap's installation, to ensure that the remedy adequately protects human health and the environment.

MANAGEMENT INITIATIVES AND IMPROVEMENTS

The Army successfully tested a pilot peer review program at four BRAC installations. The program involved a 1- to 2-week review of the technical, administrative, and managerial aspects



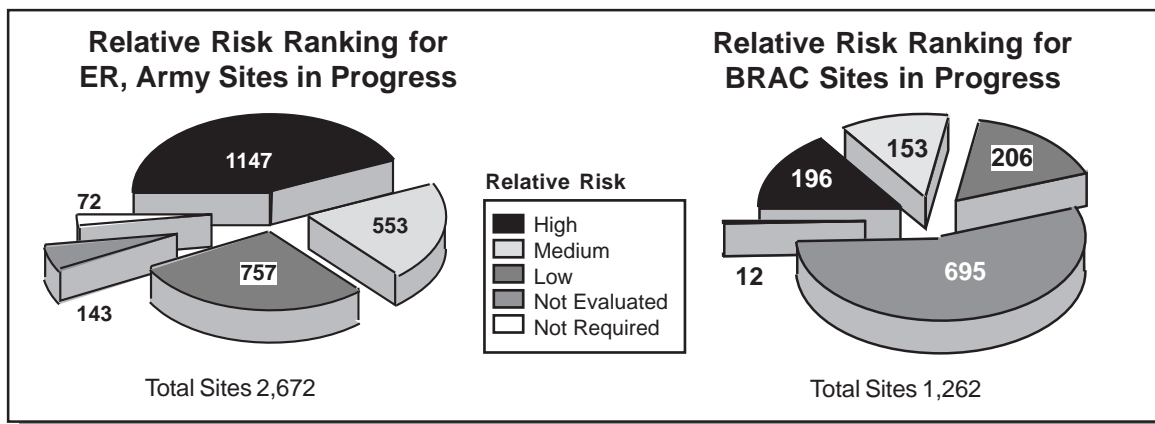
of an installation's cleanup program by a panel of Army and non-Army experts. Advice emerging from the review ranged from specific remedies for cleanup sites to ideas on how to deal with regulators and the public on controversial issues. If the four participating installations successfully implement the reviewers' recommendations, the Army will avoid approximately \$10 million in cost. The success of these pilot tests and the Air Force's success with a similar program led the Army to plan peer reviews at 10 to 15 BRAC installations and 2 active installations for FY98.

At the Rocky Mountain Arsenal in Colorado, a Remediation Venture Office, consisting of representatives of the Army, the U.S. Fish and Wildlife Service, and Shell Oil Company, developed a program management contract for the arsenal's remediation activities. The contract will provide central program management of the installation's 31 remediation projects and will help the Army meet public expectations for the cleanup of the Army's largest and most complex National Priorities List site. Contract planning and development occurred in FY97, and the contract was awarded in December 1997.

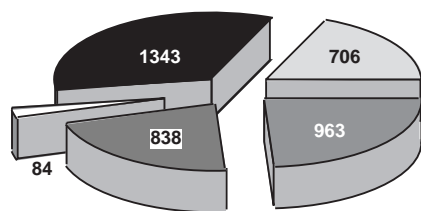
In addition, in FY97 the Army made the transition from centralized management and execution of the restoration program by the Army Environmental Center to decentralized management and execution by the Major Army Commands (MACOM). This initiative resulted primarily from the Army's wish to give those responsible for environmental restoration at the installations the authority and the resources to execute the program. The need to reduce headquarters staffing was another motivating factor. According to indicators such as obligation rates, execution of planned activities, and a reduction in the number of high-relative-risk sites requiring remediation, the MACOMs have exceeded expectations for their first year. In addition, the MACOMs and installations have developed closer relationships with the regulators because they can speak with authority about planned actions.

RELATIVE RISK IMPLEMENTATION

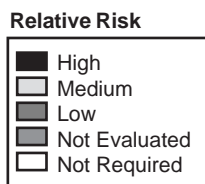
The Army has pledged to substantially reduce the number of sites that have not been evaluated for relative risk. These evaluations are essential to cleanup efforts at active installations because they are used to sequence cleanup efforts. Although at BRAC installations the Relative Risk Site Evaluation is less important than the potential for reuse of the property, such evaluations still help the Army determine the sequence of cleanup efforts at BRAC installations. The Army is reducing the number of unevaluated sites. At active installations, the number has decreased from 937 to 143. The BRAC program has 695 unevaluated sites. By the end of FY98 the Army should complete all BRAC evaluations.



Relative Risk Ranking for ER, Army and BRAC Sites in Progress



Total Sites 3,934



The Army continues to use the Internet to improve communication, sharing of lessons learned, and access to guidance. DoD's and the Army's key guidance documents have been posted on the Army's Defense Environmental Network and Information Exchange (DENIX). DENIX, in turn, is linked to all appropriate DoD and other federal sites. The Army's BRAC Office and the Army Environmental Center now have web sites of their own to enhance communication.



The Army Environmental Center can be found on the World Wide Web at [http://aec www.apgea.army.mil:8080/](http://aec.www.apgea.army.mil:8080/)



The Army BRAC Web Site is <http://www.hqda.army.mil/acsimweb/brac/braco.htm>

INFORMATION AND TECHNOLOGY TRANSFER

In FY97, the Army began efforts to merge its financial information into the Defense Site Environmental Restoration Tracking System (DSERTS). Consolidating this information in a central database that can be linked to other environmental databases is expected to improve program reporting. These efforts are scheduled for completion in FY98. The Army already has fielded improved software tools, which have improved data quality for this report.

OUTREACH

In August 1997, the Army held a Defense Environmental Restoration Program Workshop in Denver, Colorado. There were more than 300 participants, representing staff from all levels of the Army, as well as state and federal regulatory agencies. The workshop covered such topics as program goals, budgeting, community involvement, partnering, innovative technologies, case studies, and regulatory issues.

The Army will conduct another workshop in FY99.

During the FY97 workshop, EPA's Chief of the Federal Facility Restoration and Reuse Office challenged the Army to overcome a perception within his agency that the Army was less cooperative and proactive than the other services in dealing with regulators. This challenge prompted the Army to initiate partnering sessions between key Army decision makers from Army Headquarters and MACOMs and their counterparts in the EPA regions. This initiative will begin in FY98. It should establish a framework for future cooperation between the Army and EPA and will improve EPA's understanding of the Army's program.

The U.S. Army Forces Command (FORSCOM) already has taken the initiative to involve the appropriate regulators in planning restoration activities at its installations. FORSCOM scheduled 2-day meetings with regulators to complete the Installation Action Plan at each installation. Regulators are given the opportunity to participate in deciding which cleanup sites should have the highest funding priority and to suggest technical solutions that might stretch available resources to additional sites. This initiative has done more than any other initiative in recent memory to improve relations between regulators and decision makers in the Army's cleanup program.

Other partnerships with stakeholders have occurred at various levels. Formal partnering agreements with regulators, as well as informal efforts, were established. At the Army Research Laboratory—Watertown, Massachusetts, partnering with EPA, the state, and the installation's restoration advisory board (RAB) cut 1 year from the restoration schedule. This will allow expedited property transfer.

The U.S. Army Corps of Engineers (USACE) accelerated site investigation and improved

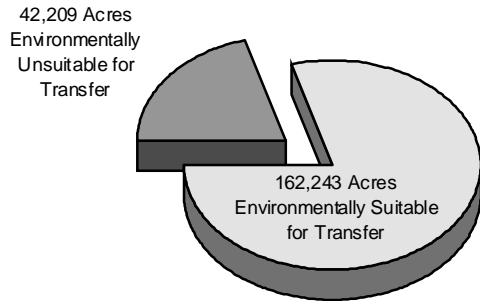
community relations at Fort Greely, Alaska, by holding an environmental partnering workshop. The workshop was designed to improve coordination and understanding among the various entities with a vested interest in the successful realignment of the Fort. Participants included the Local Reuse Authority; members of the RAB; EPA; the Alaska Department of Environmental Conservation; U.S. Army Alaska; USACE Alaska District; and the USACE Total Environmental Restoration Contractor, Jacobs Engineering. During the workshop, USACE and other workshop participants developed an accelerated schedule to allow investigation of all prioritized sites at the installation. The 9-week schedule reduction achieved by this effort was particularly significant because of the short season available for studies and construction in Alaska. In addition to shortening the schedule, the USACE-sponsored workshop led to an understanding between the parties, an important accomplishment given the sensitivity of the issues.

The Army established 10 RABs in FY97, 7 at active installations and 3 at BRAC installations. The Army now has 59 RABs.

BRAC HIGHLIGHTS

The BRAC program is using several property transfer mechanisms, including Economic Development Conveyances, which are scheduled and tracked closely. The investigation and cleanup for the property in question are expected to be conducted so that those conveyances can proceed. Installations at which such conveyances are expected include Detroit Arsenal, Letterkenny Army Depot, Jefferson Proving Ground, and Fort Benjamin Harrison. The Army also is preparing for the first time to use CERCLA §120(h)(3)(c) early transfer authority. The Army's first early transfer (which will occur at the Tooele Army Depot) is expected to take place in FY98. The BRAC program continues to stress expediting environmental responses to meet property transfer goals and is using removal

Environmental Condition of BRAC Property



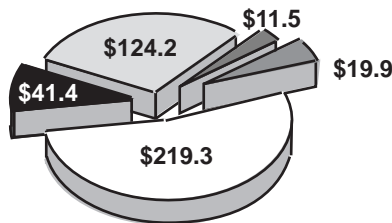
authority to a greater extent in order to achieve these goals. Decision makers within the BRAC program also are aware that they may not be able to meet environmental requirements with planned funding. Therefore, they are emphasizing efficiencies and cost avoidances. The peer review program, which will be implemented fully in FY98, is designed to help identify such cost avoidances.

DEVOLVEMENT

As reported for FY96, the devolvement of the DERA has had the desired effect. Now that the Army has fiscal responsibility for all aspects of its cleanup program, its leadership — from installations to major commands to department headquarters — has taken a greater role in programming, budgeting, and executing cleanup requirements at active Army installations. This increased leadership involvement has resulted in a better justified FY98 program; better long-term programming, as reflected in the current Program Objective Memorandums; and a greater accountability for FY97 program execution. In essence, the Army now has, and accepts, ownership of its Installation Restoration Program.

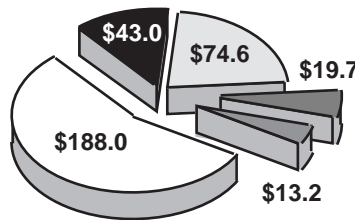
Army Environmental Restoration Funding Profile (in millions of dollars)

FY96 DERA Funds Executed

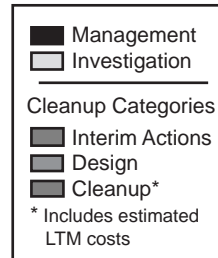


Total = \$416.3 million

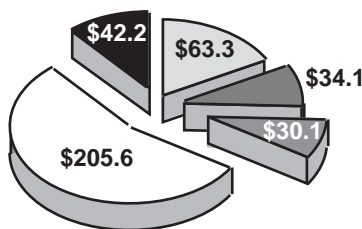
FY97 ER, Army Funds Obligated



Total = \$338.5 million

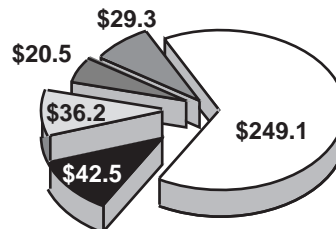


FY98 ER, Army Execution Planned



Total = \$375.3 million

FY99 ER, Army Planning Estimates



Total = \$377.6 million



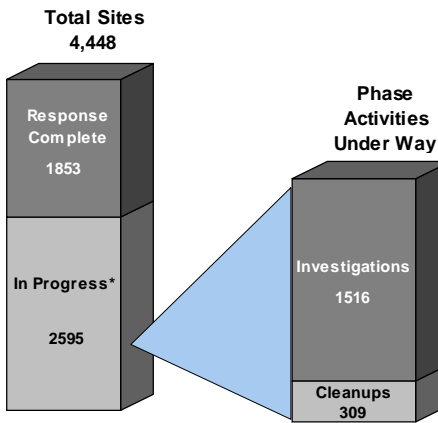
NAVY

CLEANUP STATUS AND PROGRESS

“OPEN AND COOPERATIVE DECISION-MAKING WITH REGULATORS AND COMMUNITIES IS AN IMPORTANT TOOL FOR SUCCESS IN OUR ENVIRONMENTAL PROGRAMS. SUCCESSFUL PARTNERING EFFORTS MAKE BETTER USE OF CLEANUP MONEY BY PROMOTING COMMUNICATION AND TEAMWORK AMONG DIVERSE INTERESTS, REDUCING THE TIME BETWEEN STUDY AND ACTUAL CLEANUP OF CONTAMINATION, AND SUSTAINING PERFORMANCE OF THE OVERALL CLEANUP EFFORT.”

— ROBERT B. PIRIE, JR., ASSISTANT SECRETARY OF THE NAVY (INSTALLATIONS AND ENVIRONMENT)

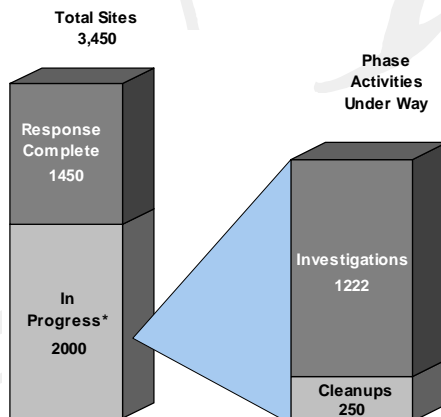
ER, Navy and BRAC Status as of September 30, 1997



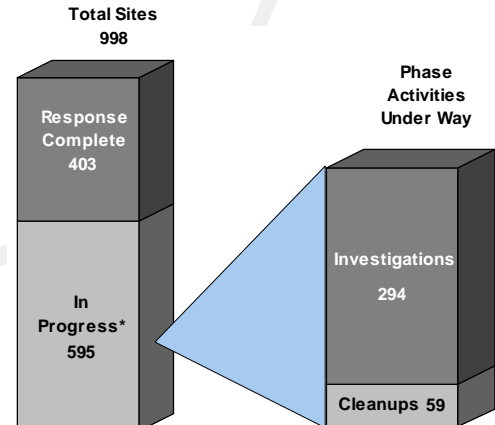
The Department of the Navy (DON) continues to make substantial progress toward completion of its Environmental Restoration Program in the face of unusual and complex challenges. Some of those challenges are directly associated with DON's mission and related operational factors. Most Navy and Marine Corps installations are located in coastal areas, which generally have environmentally sensitive habitats and populous surrounding communities. The heavily industrialized operations that typically exist at naval installations to support ships and aircraft add to the complexity of cleanup. Installations slated for closure or realignment also have a significant impact on the program, particularly in the areas of land reuse and fast-track cleanup.

To date, the Navy has identified 4,448 potentially contaminated sites at 240 installations. Of these sites, 1,853 require no further action. Restoration activities are planned or under way at 2,595 sites. The Navy has completed

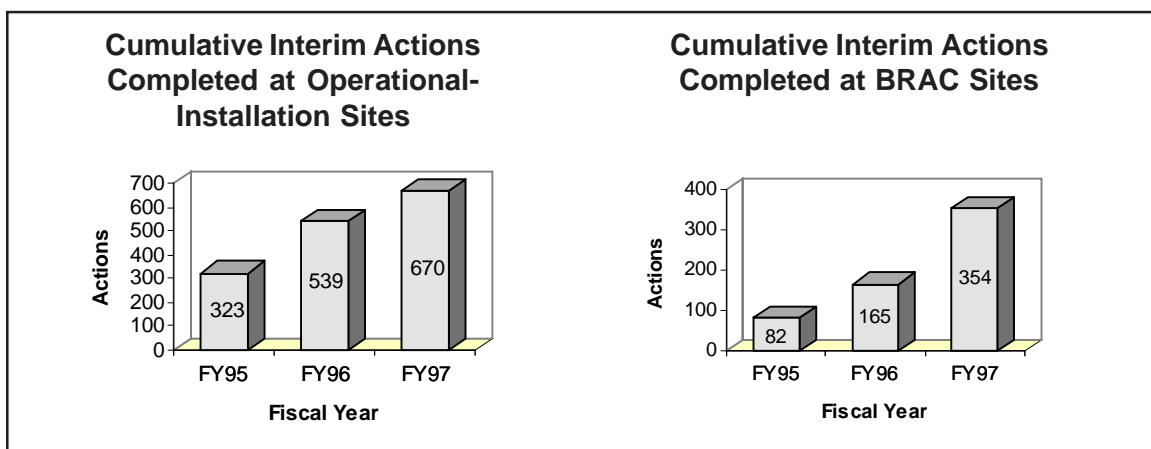
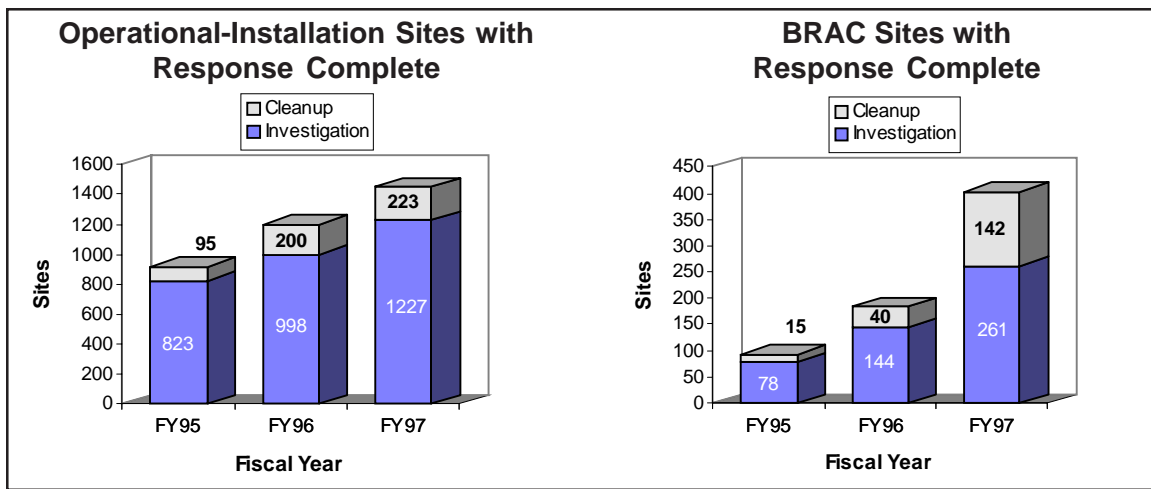
ER, Navy Site Status as of September 30, 1997



BRAC Site Status as of September 30, 1997



* NOTE: IN-PROGRESS INCLUDES SITES THAT WILL BE UNDER WAY IN THE FUTURE. THEREFORE, TOTALS OF SITES WITH PHASE ACTIVITIES UNDER WAY ARE GENERALLY LESS THAN THE TOTAL NUMBER OF SITES IN PROGRESS.

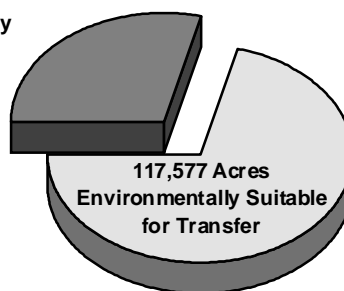


final Remedial Actions at 420 sites. Ninety-four of these sites require Remedial Action Operations. Interim Actions have been completed at 787 sites. Cleanup at Navy's 3,450 operational-installation sites is now funded by the Navy's Environmental Restoration Account (ER, Navy). Devolvement of the central Defense Environmental Restoration Account (DERA) to the services is discussed briefly in the next section.

The Base Realignment and Closure (BRAC) 1988, 1991, 1993, and 1995 lists included 53 Navy installations (including all BRAC-funded Navy installations). Navy installations have formed 40 BRAC cleanup teams to support

Environmental Condition of BRAC Property

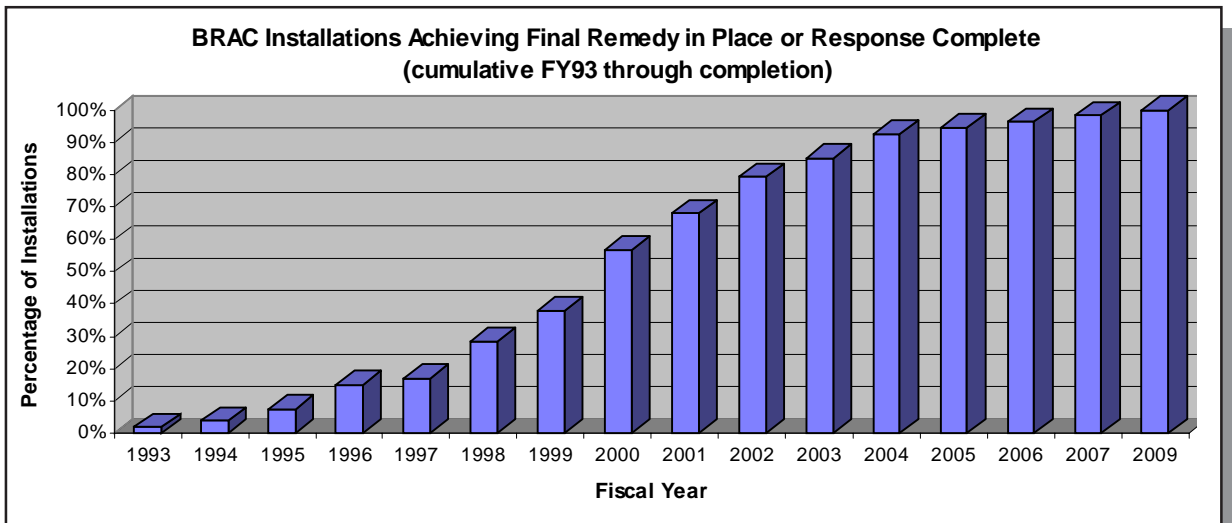
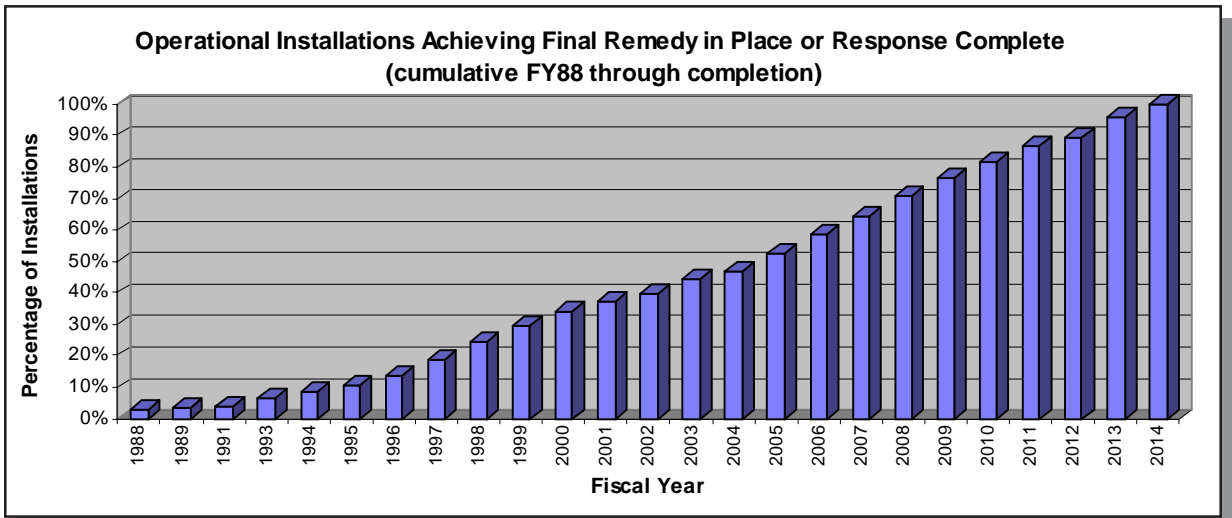
47,498 Acres Environmentally Unsuitable for Transfer



cleanup. Local Redevelopment Authorities have completed reuse plans at 42 Navy BRAC installations. Reuse plans have been initiated at six additional installations. Environmental Baseline Surveys as well as BRAC Cleanup Plans have been completed for all BRAC fast-track installations. Approximately 165,000 acres are excess to the Navy. Excess property is available at 54 installations. At the end of fiscal year 1997 (FY97), 71 percent of the property at the Navy's BRAC fast-track installations had been determined to be environmentally suitable for transfer.

GOALS AND PRIORITIES

DERA was devolved to the services in FY97. The Navy is taking advantage of the benefits that devolvement provides by improving planning and budgeting and increasing accountability. DON's program goals and priorities are based principally on a risk management or risk-plus approach, which considers the Relative Risk Site Evaluation framework along with other risk management factors, such as reuse (for BRAC properties), legal requirements, economic considerations,



and stakeholder concerns. For completion of its Environmental Restoration Program, DON endorses a stable-funding approach that is consistent with achieving the restoration goals outlined in the Defense Planning Guidance. DON refined its cost-to-complete estimate in FY97. At operational and closing installations, the cost to complete the Environmental Restoration Program for the Navy and the Marine Corps is now estimated at approximately \$4.84 billion (this estimate does not include program management costs). This amount, plus the \$0.87 billion spent in FY96 and FY97, is \$1.92 billion less than the \$7.63 billion anticipated cost-to-complete projected at the beginning of FY96. This \$1.92 billion in expected cost avoidance is based on the anticipated application of new information and technologies.

DON's goal is to spend at least 70 percent of its total program budget (or about 80 percent of the amount directly chargeable to project work) on high-relative-risk sites. This goal puts the proper emphasis on relative-risk reduction while allowing appropriate flexibility in addressing stakeholder concerns and other risk management considerations. Two additional considerations are the need to clean up sites that are slated for reuse and the need to plan for and take advantage of projects that provide economies of scale. Economies of scale are achieved by addressing similar, proximate sites in a coordinated way. For example, in planning and designing a Remedial Action to clean up a number of sites within the same operable unit (that is, sites that have similar contaminants and conditions and that may be located near one another), it is usually more economical to address all of the sites at the same time, as part of the same project, instead of addressing only high-risk sites initially and then dealing with related low-risk or medium-risk sites individually. In this case, flexibility allows medium- or even low-relative-risk sites to be included in the project along with the high-relative-risk site(s) that are given top budgetary priority. DON also has an initiative under way to accelerate the cleanup or

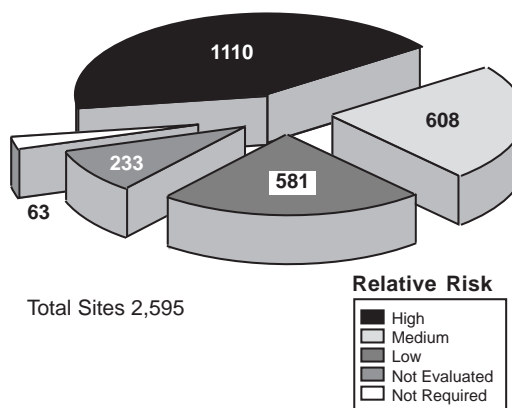
closure of all sites at installations that have only a few, generally less complex sites. This initiative is geared toward closing out the restoration program completely at these installations. By doing this, DON will avoid costs by eliminating the continued overhead associated with maintaining a program at the installations.

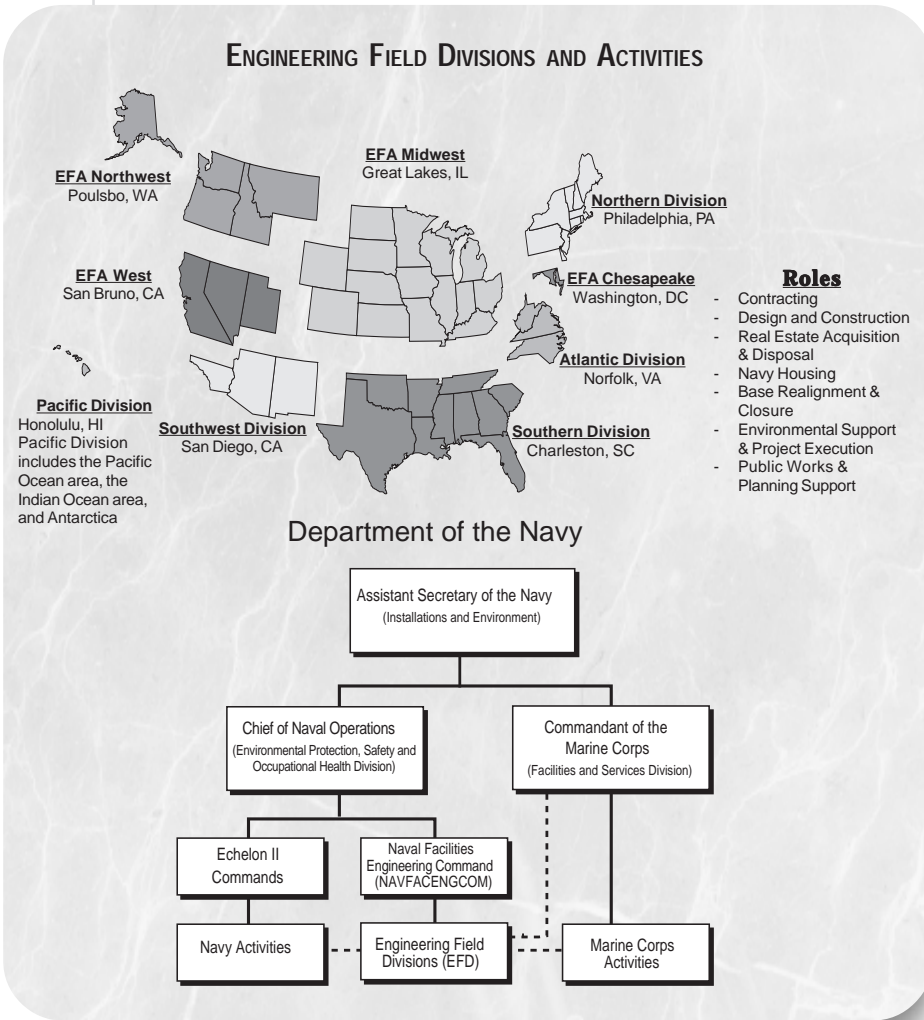
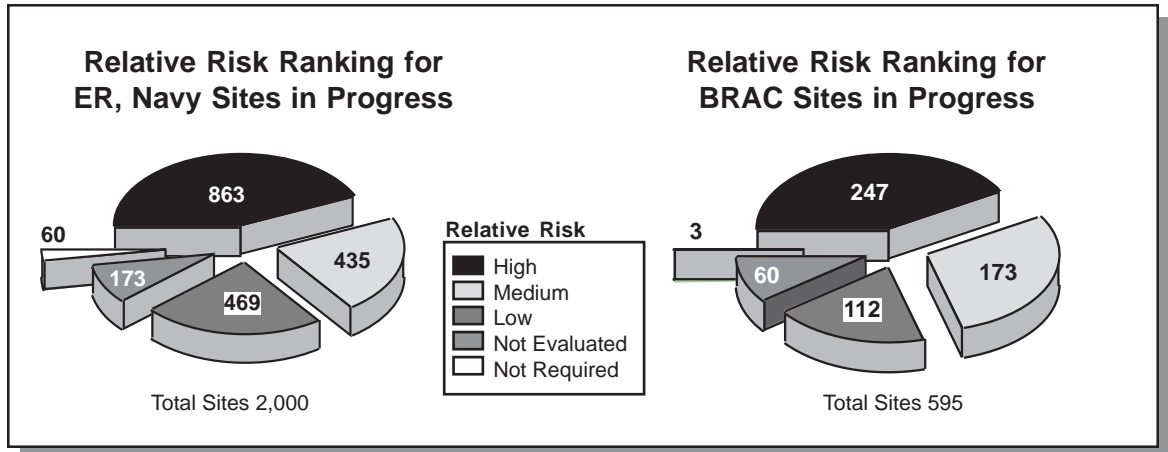
DON continues to emphasize accomplishing cleanups, while maintaining the necessary level of investment in site analysis. DON's goal is to spend at least 60 percent of its total program budget (or about 70 percent of the amount directly chargeable to project work) on actual cleanup. This goal was exceeded in FY97, when 62 percent of the total program funding was spent on cleanup. Continued use of Interim Remedial Actions and Removal Actions is helping DON achieve these aggressive cleanup goals.

RELATIVE RISK EVALUATION

During FY97, DON reduced the number of sites that had not been evaluated for relative risk from 396 to 233. The remaining unevaluated sites are new sites that will be evaluated in FY98

Relative Risk Ranking for ER, Navy and BRAC Sites in Progress





or existing sites that do not require evaluation or cannot be evaluated because of technical considerations in the DoD Relative Risk Site Evaluation model.

ORGANIZATION

DON executes its Environmental Restoration Program through the Naval Facilities Engineering Command and its eight Engineering Field Divisions and Activities (EFD/A) nationwide. Remedial project managers (RPM) are assigned for each installation in each geographic region covered by an EFD/A. The RPMs reside at the EFD/A but work closely with the installations and the regulators to plan, set priorities, establish budgets, and coordinate project execution. Contracting, technical coordination and direction, and execution of the work are

centrally managed by the RPMs and the support staff at the EFD/A. Installations generally take the lead in community relations, outreach, and public involvement and maintain ultimate responsibility for their respective restoration programs.

The regionally centralized approach offered by the EFD/A provides DON with a number of benefits, including consistency, efficiency, and economies of scale. Some of these benefits can be seen in the very successful partnering efforts among EFD/As (representing the installations), U.S. Environmental Protection Agency (EPA) regions, and states. The regional approach allows partnering efforts to be especially well coordinated and efficient and helps maintain program continuity over time. DON is very proud of the leadership role it has taken in developing meaningful and lasting partnerships with regulatory agencies throughout the United States.

Other benefits of the regional approach are consistency in policies and guidance, management and technical approaches, and planning and priority-setting within a given EPA region; enhanced communication and sharing of information and lessons learned among RPMs; and efficiencies and economies of scale in contracting and other resource-support activities.

MANAGEMENT INITIATIVES AND IMPROVEMENTS

The Navy fielded a new data management and information system in FY96 and made a number of improvements during FY97. The system, called NORM, is based on a design that normalizes the various data collected and

reported for the Environmental Restoration Program. NORM has consolidated and improved system requirements and capabilities that previously were contained in multiple stand-alone databases (such as relative risk, cost-to-complete, site information, and budget data). NORM eliminates the duplication of effort that was inherent in the previous systems, providing an integrated data management and collection process that not only serves reporting requirements but also provides an accessible, useful tool for field personnel. NORM was used to develop the FY98 and FY99 DON budgets and has improved the quality and timeliness of data, increasing DON's ability to plan and to allocate resources.

The DON 5-Year Environmental Restoration Plan continues to be an important planning, communication, and management tool. Published annually, the 5-year plan helps DON communicate its successes to installation personnel, regulatory agencies, and the public.



The DON 5-year plan can be accessed through the World Wide Web at <http://5yrplan.nfesc.navy.mil/>

INFORMATION AND TECHNOLOGY TRANSFER

The area of information and technology transfer continues to be one of DON's strengths. The Navy Environmental Leadership Program (NELP), located at Naval Station Mayport, Florida, and Naval Air Station (NAS) North Island, California, is instrumental in developing and demonstrating cost-effective, innovative cleanup technologies that can be

transferred to, and adopted at, other DoD installations. To promote such technological advances, the Naval Facilities Engineering Service Center (NFESC) at Port Hueneme, California, issued a Broad Agency Announcement (BAA) in the *Commerce Business Daily* during FY97, encouraging developers to submit abstracts on their innovative environmental cleanup technologies to the Navy for potential demonstration through NELP. Technologies submitted for review are now being evaluated. The BAA will remain open through FY98.



More information on the NELP initiative can be found on the World Wide Web at <http://www.nasni.navy.mil/~nelp/nelp.htm>

NFESC provides DON with specialized engineering, scientific, and technical products and services and is oriented toward the transfer of technology through consultation and technical assistance, patent license agreements, cooperative research and development agreements, and direct rapid response to requests for support.

In FY96, NFESC led technology application peer reviews, known as the Cleanup Review Tiger Team, at each EFD/A. The review effort included discussions with 150 RPMs who are responsible for approximately 460 sites. The reviews focused on high-cost projects, where use of innovative technologies and approaches is most likely to produce quality improvements. The teams made site-specific findings and recommendations, as well as a number of general recommendations for improving the quality and performance of the DON Environmental Restoration Program. Follow-up Tiger Team reviews were conducted in FY97 for additional high-cost sites. The findings and recommendations of the Tiger Team effort have improved program execution,

reduced remediation costs at numerous sites, and accelerated environmental cleanup efforts.



More information about NFESC can be found on the World Wide Web at <http://www.nfesc.navy.mil/>

In FY96, DON chartered an internal advisory group, the Alternative Restoration Technology Team (ARTT), to promote the use of innovative technologies in order to save time and money. The ARTT, which is chaired by NFESC and composed of various representatives and organizations throughout the DON chain-of-command, is responsible for the following activities:

- ◆ Identifying barriers to implementing innovative technologies
- ◆ Recommending process changes to eliminate or minimize the impact of barriers to implementing technologies
- ◆ Proposing policies and procedures for developing and implementing new technologies
- ◆ Developing and recommending initiatives and strategies that support use of innovative technologies
- ◆ Identifying potential sites and innovative technologies for demonstration projects
- ◆ Establishing and coordinating communication between RPMs from various EFD/As.

These efforts continued in FY97. The ARTT has enhanced the cleanup program by providing DON with a centralized, focused, and efficient approach to information and technology transfer.

OUTREACH

DON has long recognized that stakeholder participation is vital to the success of the Environmental Restoration Program. Restoration advisory boards (RAB) are in operation at more than 100 active and closing Navy and Marine Corps installations. The success and value of the RABs and the continuing formal partnerships with state and federal regulatory agencies cannot be overestimated. In FY97, DON provided more than \$2 million in administrative support to RABs for training, technical information, and other logistical support.

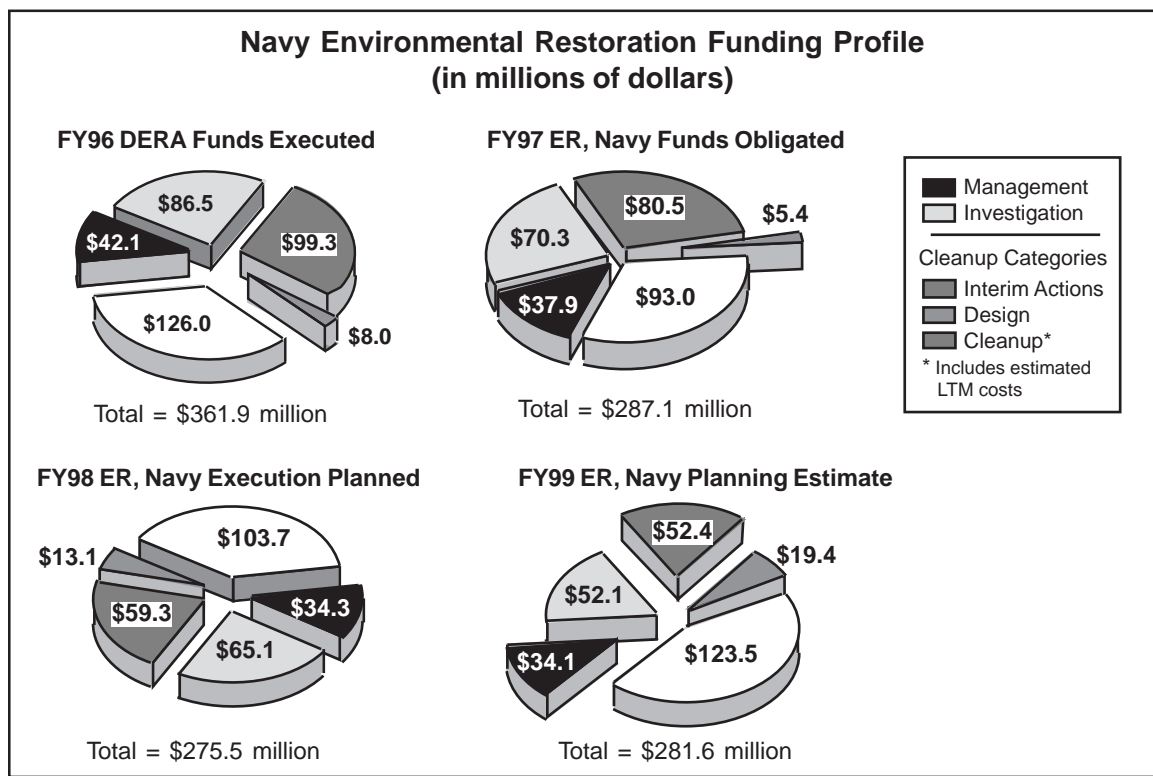
During FY97, the Navy also conducted the first DoD pilot effort for the Technical Assistance for Public Participation (TAPP) program. The pilot effort was conducted at NAS North Island. To meet the community's need for

increased technical knowledge, the NAS North Island team, with specific input from community RAB members, awarded four purchase orders, for a total of \$22,423, to provide the requested TAPP services. The NAS North Island TAPP pilot is being used as a model by DoD for the further development of the program and as a training tool.

FUNDING

In FY97, the Navy obligated \$287.1 million in Environmental Restoration funds to active installations. Funding levels will decline slightly, to \$275.5 million, in FY98. With adjustments for inflation, the FY99 funding level is projected to be \$281.6 million.

In FY97, approximately 62 percent of Navy Environmental Restoration funds was spent on



design work, interim or final cleanup actions, and operation and maintenance. By FY99, the proportion of program funds expended on cleanup activities is expected to increase to 69 percent.

Through FY97, the DON cleanup program had identified 3,450 potentially contaminated sites at operational Navy and Marine Corps installations. Through cleanup actions, or by verifying that no cleanup action is required, DON brought 1,450 of these sites to Response Complete status. Analysis or cleanup actions are in progress at the 2,000 remaining sites. Forty-three percent, or 863, of these sites are categorized as high relative risk.

In FY97, the Navy completed 131 Interim Actions at operational installations, bringing the total number of Interim Actions completed at active installations to 670 at 529 sites. During FY97, the number of active-installation sites that were brought to Response Complete status through cleanup activities increased by 23 over FY96. The number of no-further-action or

Response Complete site determinations that were based on appropriate investigation and analysis at operational installations increased by 229 sites over FY96.

In FY97, the Navy obligated \$160.7 million in Environmental Restoration funds to BRAC installations. The planned funding levels for FY98 and FY99 are \$217.9 million and \$179.6 million, respectively. Of the 998 sites at Navy BRAC installations, 403 are Response Complete. Investigation or cleanup actions are in progress at the 595 remaining sites. In FY97, the Navy completed 189 Interim Actions at BRAC installations, bringing the total number of Interim Actions completed at BRAC installations to 354 at 258 sites. During FY97, the number of BRAC installation sites brought to Response Complete status through cleanup activities increased by 102 over FY96. The number of no-further-action or Response Complete site determinations that were based on appropriate investigation and analysis increased by 117 sites over FY96.

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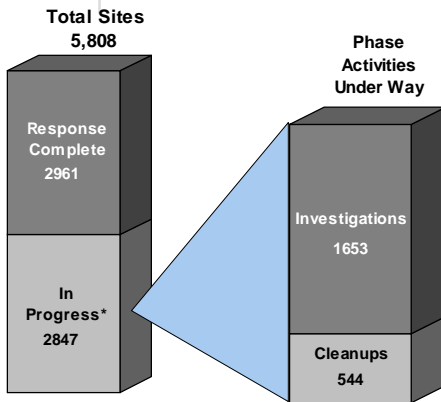
AIR FORCE

CLEANUP STATUS AND PROGRESS

"THE AIR FORCE IS BUILDING ON A STRONG RECORD OF ENVIRONMENTAL ACHIEVEMENT AND VIGILANCE IN PRESERVING OUR NATURAL RESOURCES AND PROVIDING FOR THE SAFETY AND HEALTH OF OUR AIR FORCE FAMILY AND THE AMERICAN PEOPLE WE SERVE. OUR CORE VALUES OF 'INTEGRITY FIRST, SERVICE BEFORE SELF, AND EXCELLENCE IN ALL WE DO,' ARE THE FOUNDATION OF THE AIR FORCE'S ENVIRONMENT, SAFETY, AND OCCUPATIONAL HEALTH PROGRAM."

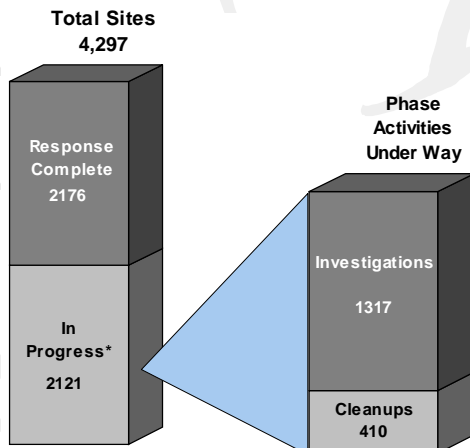
—F. WHITTEN PETERS, ACTING SECRETARY OF THE AIR FORCE

ER, Air Force and BRAC Status as of Sept. 30, 1997

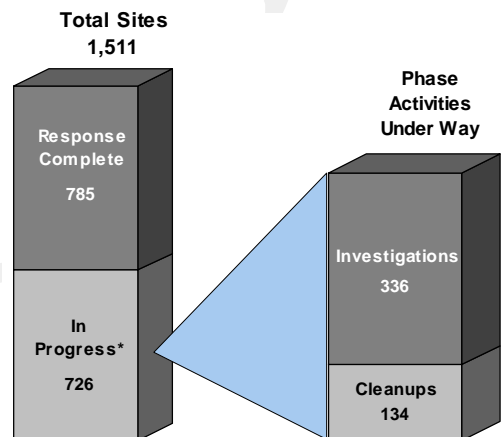


In fiscal year 1997 (FY97), the Air Force continued to move toward completion of its restoration program, reducing risk to human health and the environment. Strong stakeholder involvement, stable funding, and the application of relative risk “plus” factors were used successfully to sequence site and installation cleanup activities. In addition, the FY97 devolvement of funds from the central Defense Environmental Restoration Account (DERA) to individual Component accounts (including the Environmental Restoration, Air Force Account (ER, Air Force)) gave the Air Force a greater measure of control over its cleanup spending.

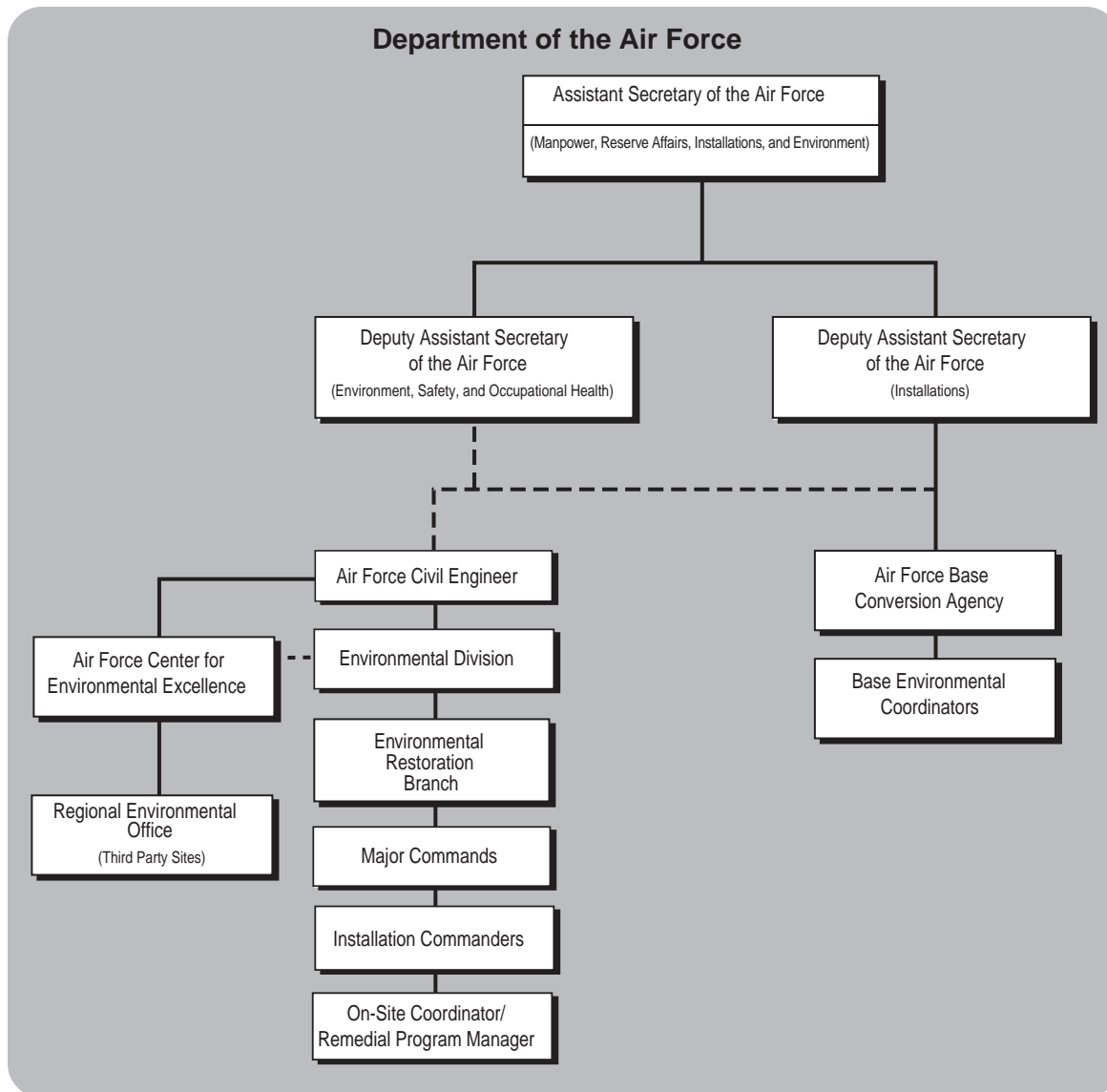
ER, Air Force Site Status as of September 30, 1997



BRAC Site Status as of September 30, 1997



*NOTE: IN-PROGRESS INCLUDES SITES THAT WILL BE UNDER WAY IN THE FUTURE. THEREFORE, TOTALS OF SITES WITH PHASE ACTIVITIES UNDER WAY ARE GENERALLY LESS THAN THE TOTAL NUMBER OF SITES IN PROGRESS.



MANAGEMENT INITIATIVES

In FY97, the Air Force completed restoration program reviews with each of the U.S. Environmental Protection Agency (EPA) regional offices. The reviews were well received, and areas that needed improvement were discussed. EPA regional program reviews will be conducted again in FY98. The reviews will be reformatted to provide more two-way

communication and to incorporate additional requested information.

In FY97, the Air Force also fielded the Air Force Restoration Information Management System (AFRIMS) as an adjunct to the Defense Site Environmental Restoration Tracking System (DSERTS). AFRIMS is designed to enhance the visibility of Air Force restoration program information at all levels (installation, Major Command (MAJCOM), and Air Staff) while reducing the data collection burden. It has permitted automation of many information

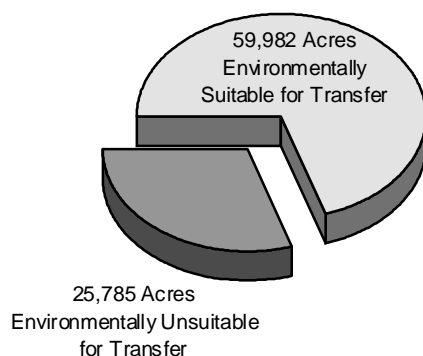
management error-check procedures and is helping the Air Force optimize schedule-to-complete and cost-to-complete estimates. In FY98, automated metrics will be added to graphically display site and installation completion information, identifying potential areas for improvement and cost savings.

MAJCOM restoration program management reviews are scheduled for FY98. The reviews will be based on information reported in AFRIMS by installations and MAJCOMs. Reviews will focus on closing sites to meet closeout goals established within the Defense Planning Guidance.

PROGRAM EXECUTION

In FY97, the operational Air Force added 223 new sites to its restoration inventory, bringing the Air Force's operational-installation site total to 4,297. Of these sites, 2,176 require no further action except long-term monitoring, and 2,121 are either in progress or have future restoration actions planned. The breakdown of sites in progress is as follows: Investigations are under way at 1,317 sites; Remedial Action Construction (RA-C) is under way at 138 sites; and future actions are planned at 813 sites. To

Environmental Condition of BRAC Property



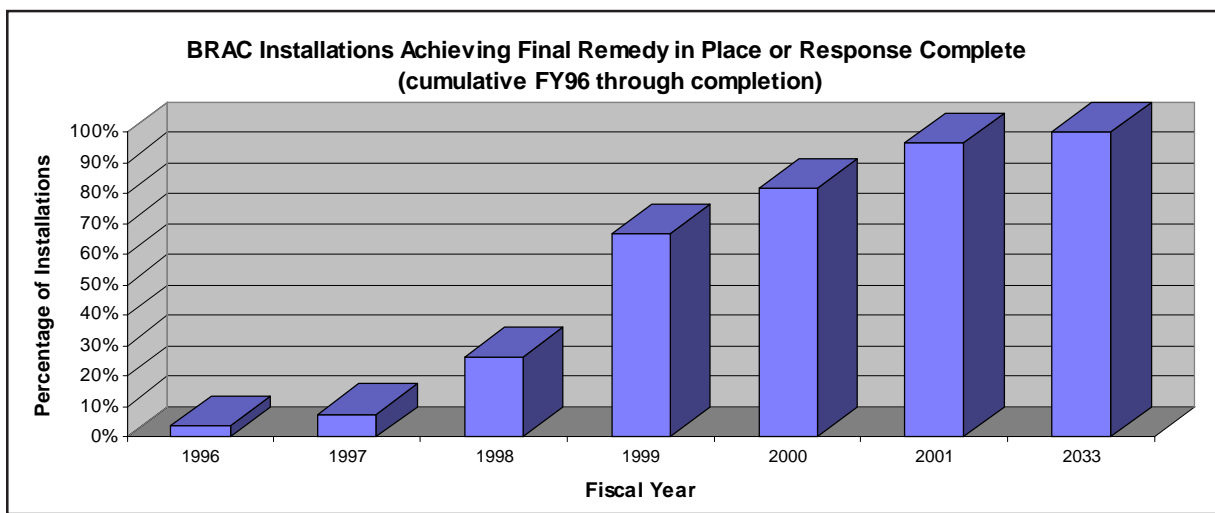
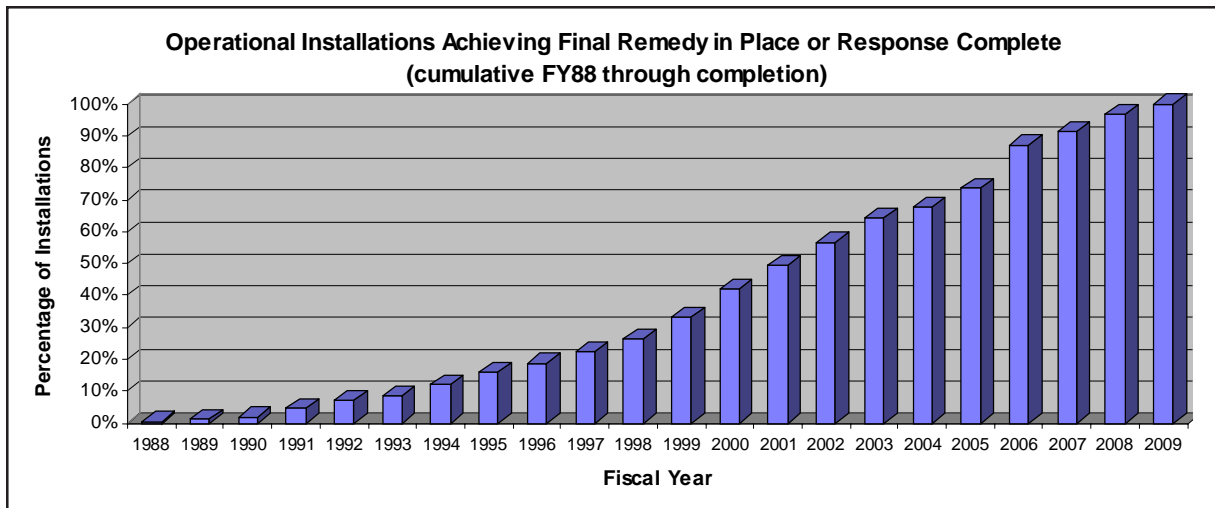
date, the Air Force has completed final remedy construction at 386 sites and has completed 647 Interim Actions at 561 sites.

Twenty-nine Air Force installations were identified in the 1988, 1991, 1993, and 1995 rounds of the Base Realignment and Closure (BRAC) program. Environmental Baseline Surveys, as well as BRAC Cleanup Plans, were completed for all Air Force BRAC installations. As of FY97, cleanup actions were completed at 126 BRAC sites. As a result, 70 percent of the Air Force property identified in the four BRAC rounds is environmentally suitable for transfer.

PROGRAM DIRECTION

The Air Force will continue to apply all available resources to accomplishing the goals outlined in the *Air Force Environmental Program Management Guidance*:

- ◆ Reduce risk to human health and the environment. Take appropriate, timely action to reduce or eliminate potential risks to human health and the environment posed by environmental contamination.
- ◆ Comply with federal, state, and local regulatory requirements and orders pertaining to cleanup of the environment and eliminate the need for any enforcement actions.
- ◆ Develop partnerships. Enhance and sustain the Air Force environmental commitment through productive partnering and active community-involvement programs.
- ◆ Involve stakeholders. Where there is sufficient and sustained community interest, establish restoration advisory



boards (RAB) including representatives of federal, state, and local regulatory agencies and the local community.

- ◆ Evaluate cost and performance. Use new, innovative, or best available technologies that expedite the cleanup process and lower costs while achieving cleanup results that are as good as, or better than, those achieved through use of standard technologies.
- ◆ Enter into cleanup agreements when legally required or when deemed to be

in the Air Force's and stakeholders' best interest for facilitating cleanup. Continue to comply with all existing agreements. Agreements shall reflect realistic schedules that meet the funding criteria of the Air Force Environmental Restoration Account.

- ◆ Prevent future contamination by preventing pollution and minimizing waste.
- ◆ Consider future land use in developing cleanup strategies.

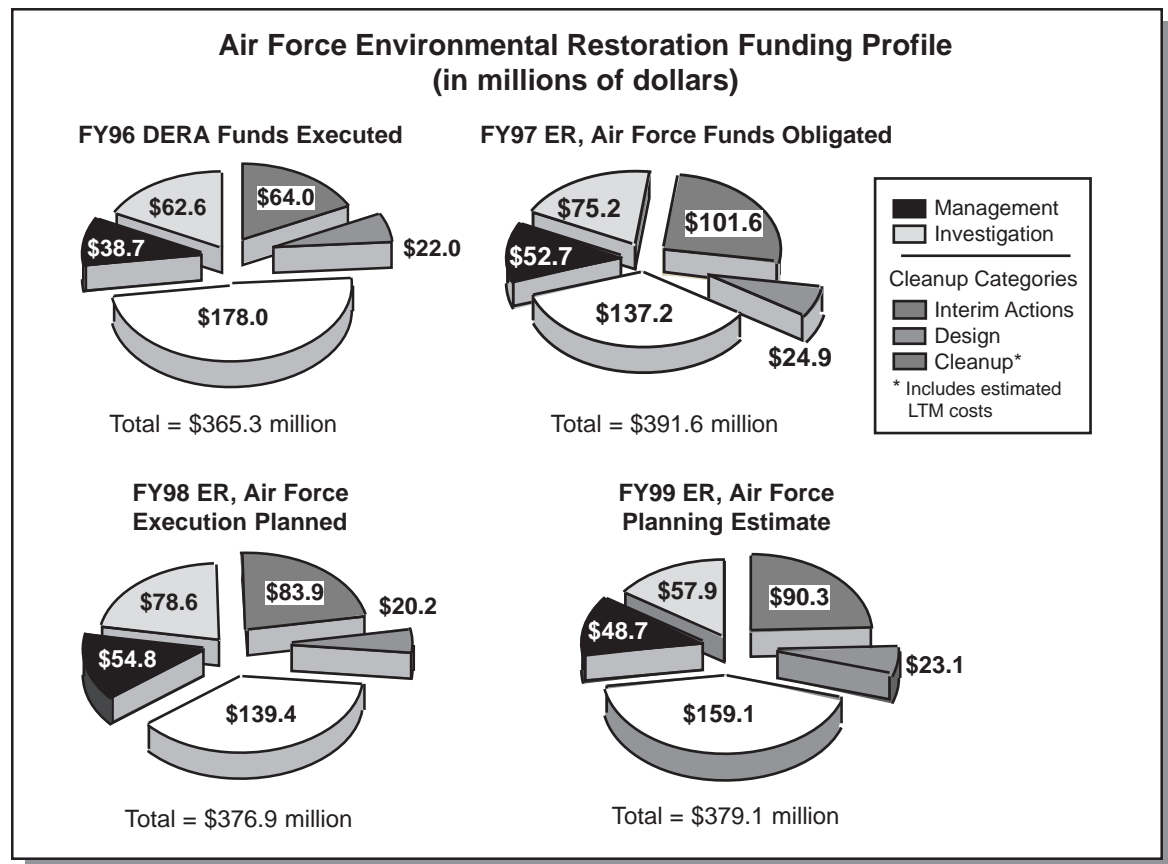
- ◆ Ensure that all actions that are necessary for protection of human health and the environment are taken before sale or transfer of property from the United States to any other person or entity, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act and Department of Defense (DoD) policy.

requirements, stakeholder concerns, program execution, and economic impacts, are also considered. The Air Force is dedicated to involving the public in its cleanup program in a way that allows timely and meaningful stakeholder input on cleanup priorities. Involving the public is crucial to establishing trust and credibility throughout the cleanup process. The Air Force periodically surveys communities where there has been little or no sustained community interest to determine whether sufficient interest has developed to justify forming a RAB.

PROGRAM ACCOMPLISHMENTS

The Air Force uses Relative Risk Site Evaluations as a primary factor in sequencing work. Relative risk “plus” factors, including legal

The Air Force also has formed active partnerships with regulatory agencies, communities, and industry to reduce the cost of cleanup through effective application of technology. For example, to improve



cooperation between the Air Force and EPA Region 4, the Air Force held regular partnering sessions focusing on site remediation and closure, resolution and avoidance of conflicts, legal requirements, and sharing of responsibility for solutions. The goal of this partnership is to foster harmony and commitment within the cleanup process. The structured partnering that is practiced in Region 4 is one of a range of options available to Air Force Installation Restoration Program managers.

The Air Force is committed to maintaining an open, transparent, visible, and accountable cleanup program whose ultimate goal is cleanup completion. By honoring these commitments and moving toward this goal, the Air Force will validate public trust.

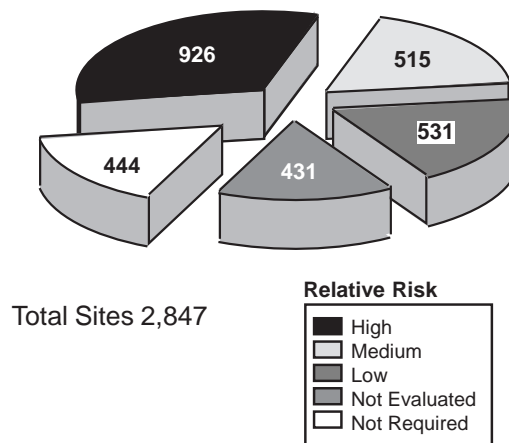
In FY97, the Air Force obligated \$391.6 million in Environmental Restoration funds, approximately 29 percent of the overall FY97 DoD restoration program budget. According to current planning estimates, the Air Force Environmental Restoration funds will decrease to \$376.9 million in FY98 and then increase to \$379.1 million in FY99. In FY97, approximately 67 percent of the ER, Air Force funds was spent on design work, interim or final cleanup actions, and operation and maintenance. That percentage will remain steady, at 65 percent, in

FY98 and will increase to 72 percent in FY99, according to current planning estimates.

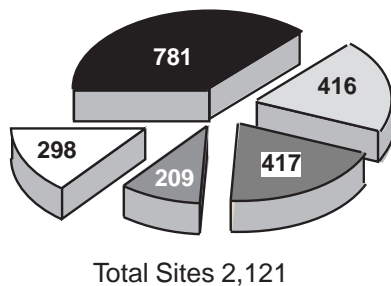
Of the 2,121 sites in progress at operational Air Force installations, 781, or about 36.8 percent, are categorized as high relative risk. Of the 726 sites in progress at closing Air Force installations, 145, or about 20 percent, are categorized as high relative risk.

Response is complete at 2,176 of the 4,297 sites at Air Force operational installations. At the 2,121 remaining sites, investigation, design, or cleanup actions are in progress. In FY97, the Air Force completed 24 Interim Actions, bringing the total number of Interim Actions

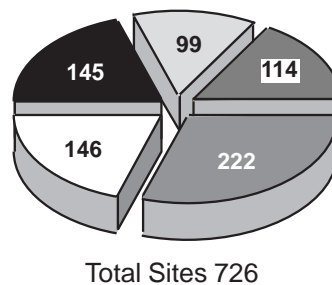
Relative Risk Ranking for ER, Air Force and BRAC Sites in Progress



Relative Risk Ranking for ER, Air Force Sites in Progress



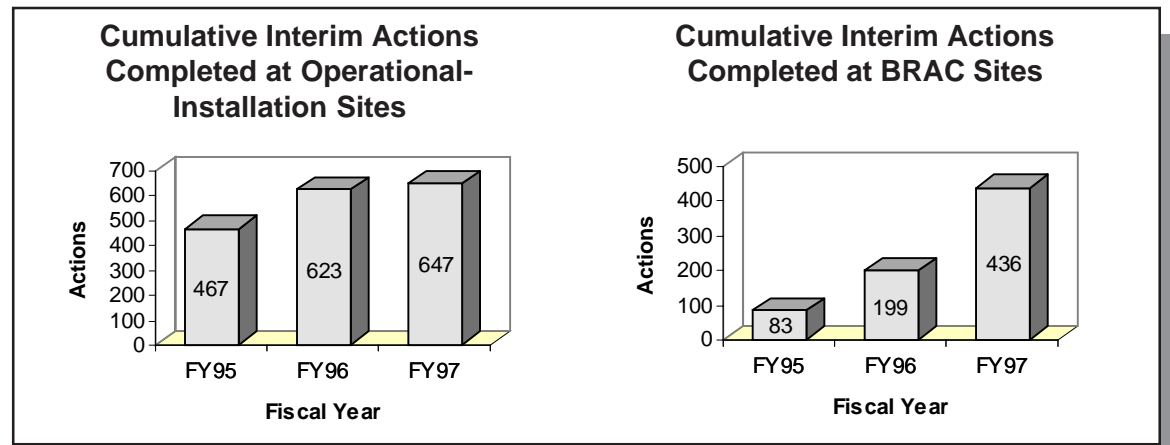
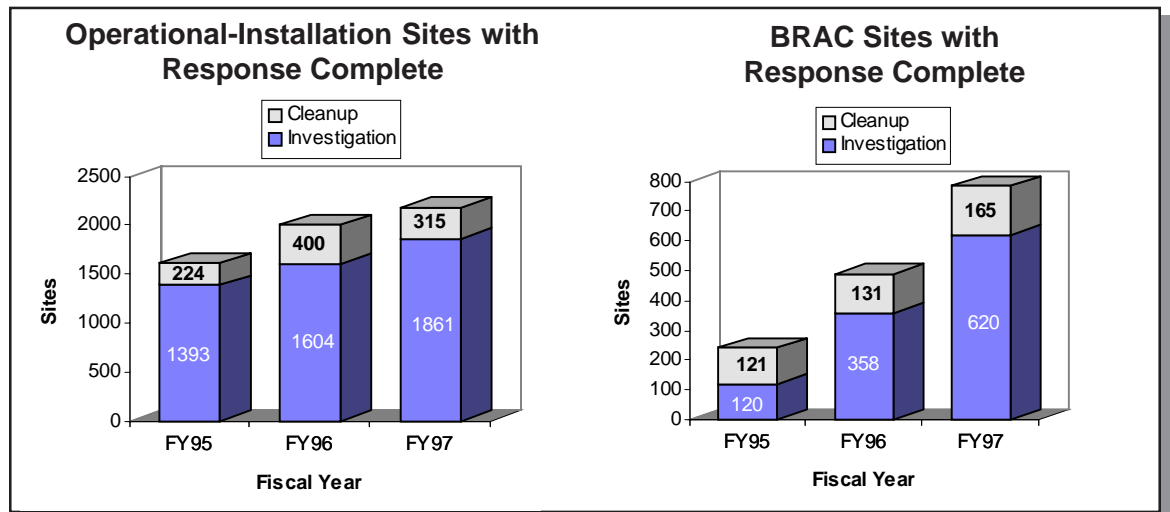
Relative Risk Ranking for BRAC Sites in Progress



completed at operational installations to 647 at 561 sites. During FY97, the number of operational-installation sites that were determined, through appropriate investigations and analysis, to require no further action or to be Response Complete increased by 257 sites over FY96.

Of the 1,511 sites at Air Force BRAC installations, 785 are Response Complete. Investigation, design, or cleanup actions are in progress at the 726 remaining sites. In FY97,

the Air Force completed 237 Interim Actions at BRAC installations, bringing the total number of Interim Actions completed at BRAC installations to 436 at 373 sites. During FY97, the number of BRAC installation sites that reached Response Complete through cleanup efforts increased by 34 sites from FY96. The number of BRAC installation sites that were determined, through appropriate investigations and analysis, to require no further action or to be Response Complete increased by 262 sites over FY96.



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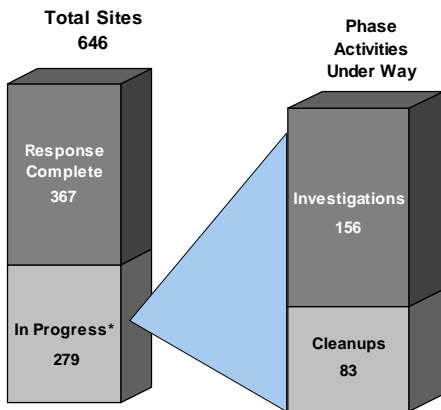
DLA

CLEANUP STATUS AND PROGRESS

"MY POLICY IS TO ACT IN AN OPEN AND FAIR MANNER WHEN CONSIDERING AN ACTION THAT MAY IMPACT HUMAN HEALTH AND THE ENVIRONMENT. WE MAKE SURE WE EXECUTE OUR ENVIRONMENTAL AND PUBLIC HEALTH RESPONSIBILITIES IN A MANNER WHICH IS FAIR, OPEN, UNBIASED, AND FULLY CONSISTENT WITH THE PRESIDENT'S DIRECTION."

—HENRY T. GLISSON, LIEUTENANT GENERAL, USA, DIRECTOR, DEFENSE LOGISTICS AGENCY

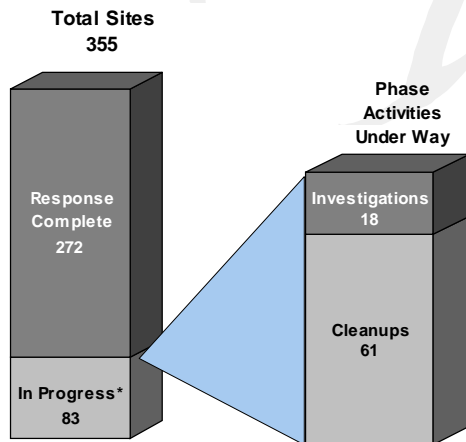
ER, DLA and BRAC Site Status



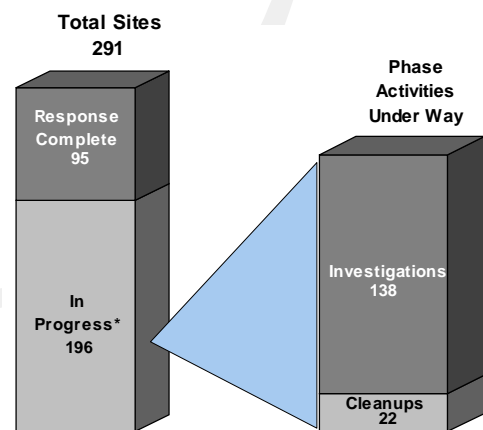
The Defense Logistics Agency (DLA) is a combat support agency headquartered at Fort Belvoir, Virginia. It is responsible for providing the Department of Defense (DoD) and other federal agencies with a variety of logistics, acquisition, and technical services in peace and war. These services include inventory management, procurement, warehousing, and distribution of spare parts, food, clothing, medical supplies, construction materials, and fuel; administration of all acquisition contracts for military service weapon systems; and reutilization and disposal of material that is obsolete, worn out, or no longer needed.

DLA provides the military departments and the nation with several environmental services, including hazardous waste disposal, technical information on hazardous waste, fuel services, management of the ozone-depleting substances reserve, and storage and maintenance of stockpiles of strategic and critical materials for national defense.

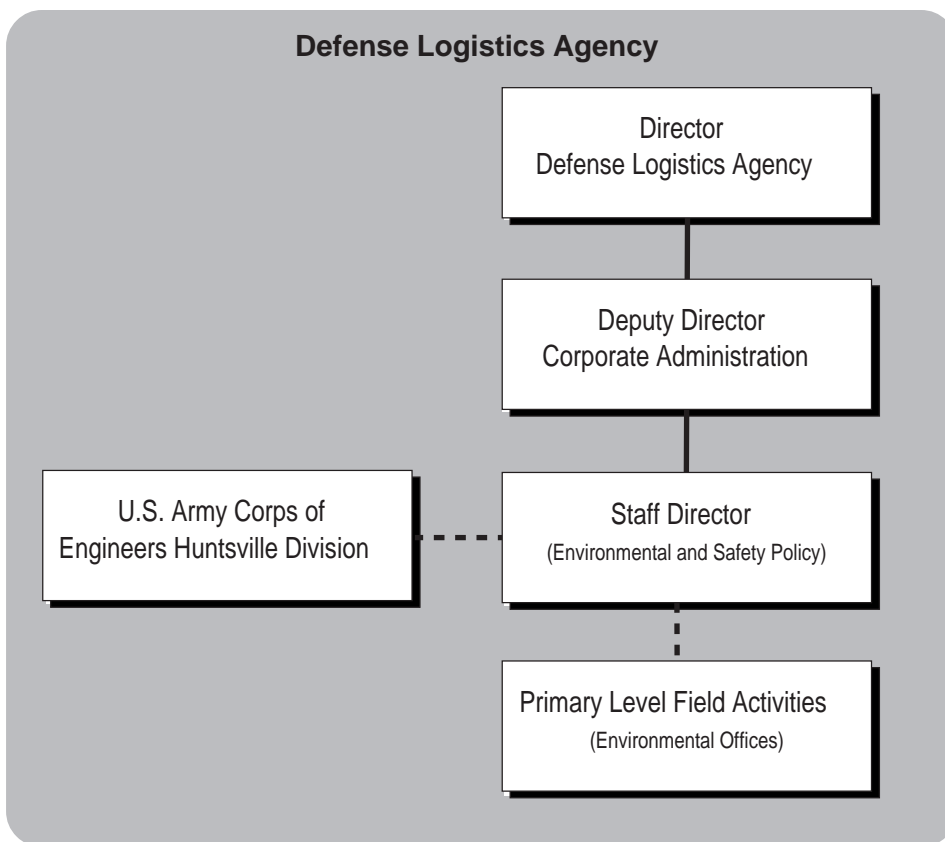
ER, DLA Site Status as of September 30, 1997



BRAC Site Status as of September 30, 1997



*NOTE: IN-PROGRESS INCLUDES SITES THAT WILL BE UNDER WAY IN THE FUTURE. THEREFORE, TOTALS OF SITES WITH PHASE ACTIVITIES UNDER WAY ARE GENERALLY LESS THAN THE TOTAL NUMBER OF SITES IN PROGRESS.

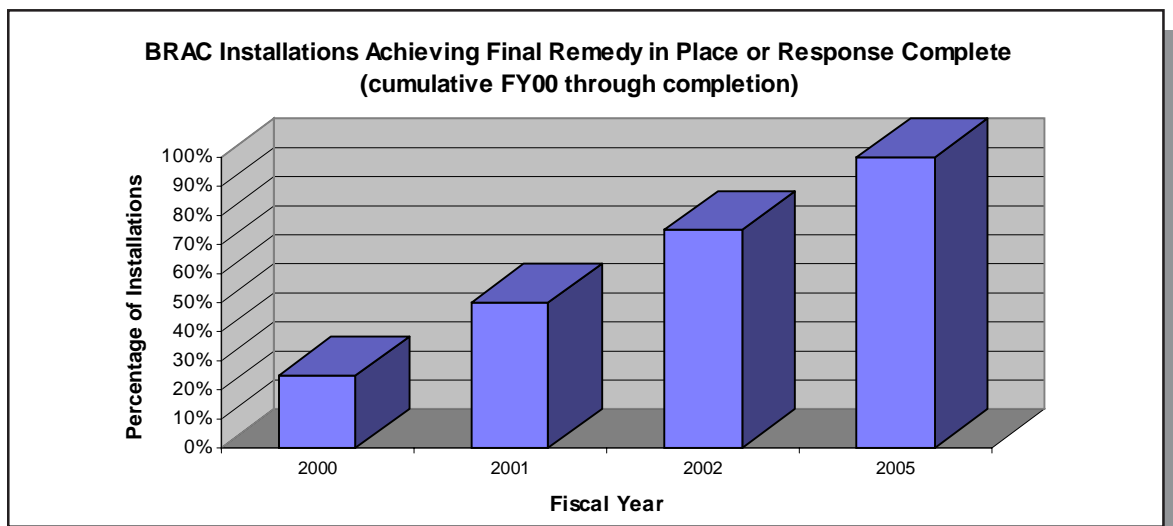
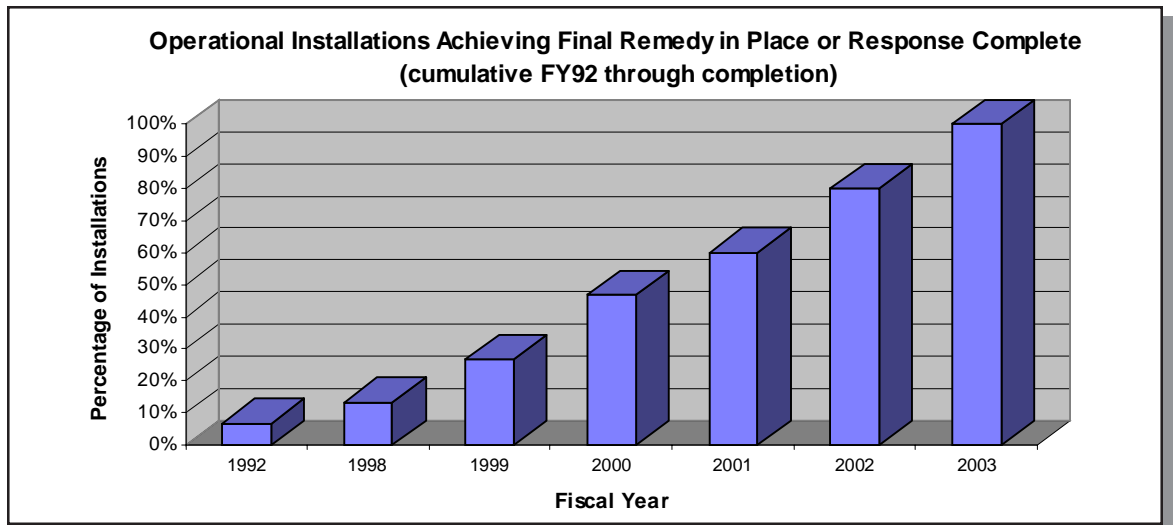


Associated with some of these services is the responsibility for environmental compliance and cleanup. For example, DLA is involved in cleanups at 68 active third-party sites where contamination has resulted from improper disposal or transfer of DoD hazardous wastes. Under DLA's Defense National Stockpile program, unique environmental issues arise in relation to storage, disposal, and sale of materials such as asbestos, lead, mercury, and thorium nitrate. At the end of fiscal year 1997 (FY97), DLA had a total of 646 sites in its environmental restoration program. The primary contaminants of concern at these sites are fuels, solvents, polychlorinated biphenyls (PCBs), and heavy metals.

DLA cleanup efforts at active installations are funded by the Defense-wide Environmental Restoration Account (ER, Defense-wide).

PROGRAM EXECUTION

DLA has a staff of about 450 environmental specialists. These specialists are located throughout the world and are responsible for ensuring that DLA's mission activities are conducted in full compliance with applicable environmental requirements. The DLA logistics mission gives the agency special opportunities to provide services and support that are critical to the environmental programs of its military service customers. The goal of DLA's cleanup program is to reduce risk to human health and the environment by expediting the remediation of past hazardous material management sites. DLA is making good progress in its cleanup program and is meeting all DoD cleanup goals on time, and in some cases, ahead of schedule.



The U.S. Army Corps of Engineers (USACE) handles the bulk of DLA's cleanup program. Most of the contracts administered by USACE for this work are cost reimbursement-type contracts. Performance-based contracting is used at all DLA sites, and the results have been very good, promoting innovation and increasing cost-effectiveness.

PROGRAM ACCOMPLISHMENTS

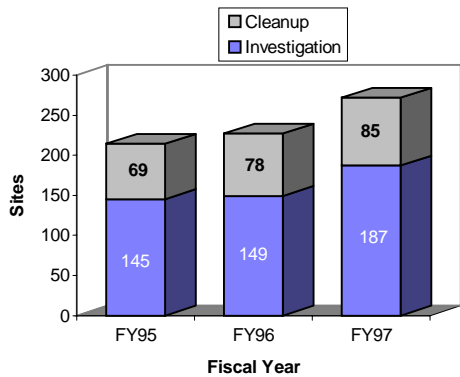
During FY97, DLA submitted four of its five National Priorities List facilities as candidates for construction complete status, in conjunction with the President's "900 Sites Construction Complete by the Year 2000" initiative. These four facilities are the Defense Supply Center in Richmond, Virginia; the former Defense Depot

in Ogden, Utah; and the Sharpe and Tracy facilities at Defense Depot San Joaquin in California. According to DLA's information, all of these facilities should be awarded construction complete status by the end of calendar year 2000. The U.S. Environmental Protection Agency has accepted the Ogden and Sharpe facilities into the program and is looking at the other locations for possible inclusion in the future.

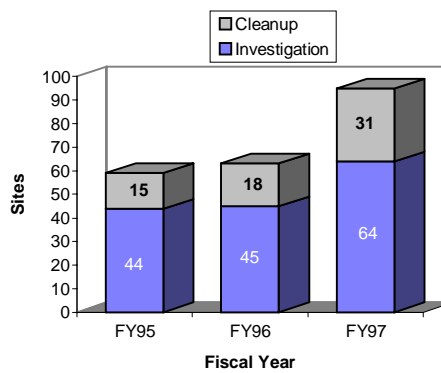
The Defense National Stockpile Center (DNSC), one of DLA's Service Centers, has sold all of the remaining piles of fluorspar and

bauxite in open-storage at Dunn Field at the Defense Distribution Depot in Memphis, Tennessee (DDMT). These ores were stored in large quantities (currently down to about 97,000 tons) and were originally maintained for strategic reserve purposes. There had been some concern in the local community about the hazards that may be associated with these stockpiled materials. DNSC and the installation have made removal of these stockpiles a high priority, and their expedited removal schedule has been praised by federal, state and local regulators, as well as by community members serving on the installation's restoration advisory

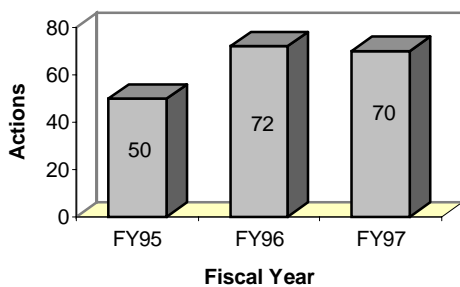
Operational-Installation Sites with Response Complete



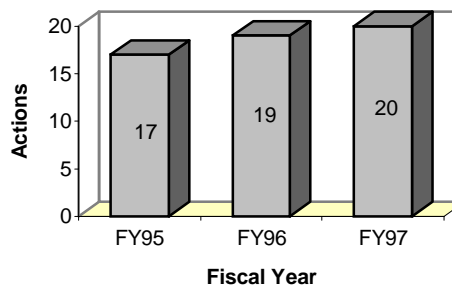
BRAC Sites with Response Complete



Cumulative Interim Actions Completed at Operational-Installation Sites*

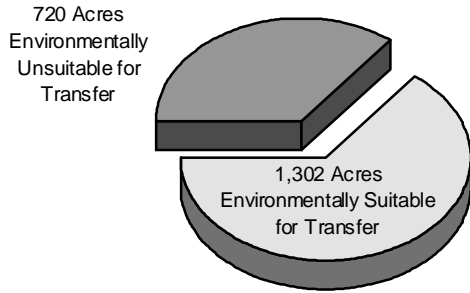


Cumulative Interim Actions Completed at BRAC Sites



* The number of Interim Actions declined from FY96 to FY97 because several Interim Actions were reclassified as final remedial actions.

Environmental Condition of BRAC Property

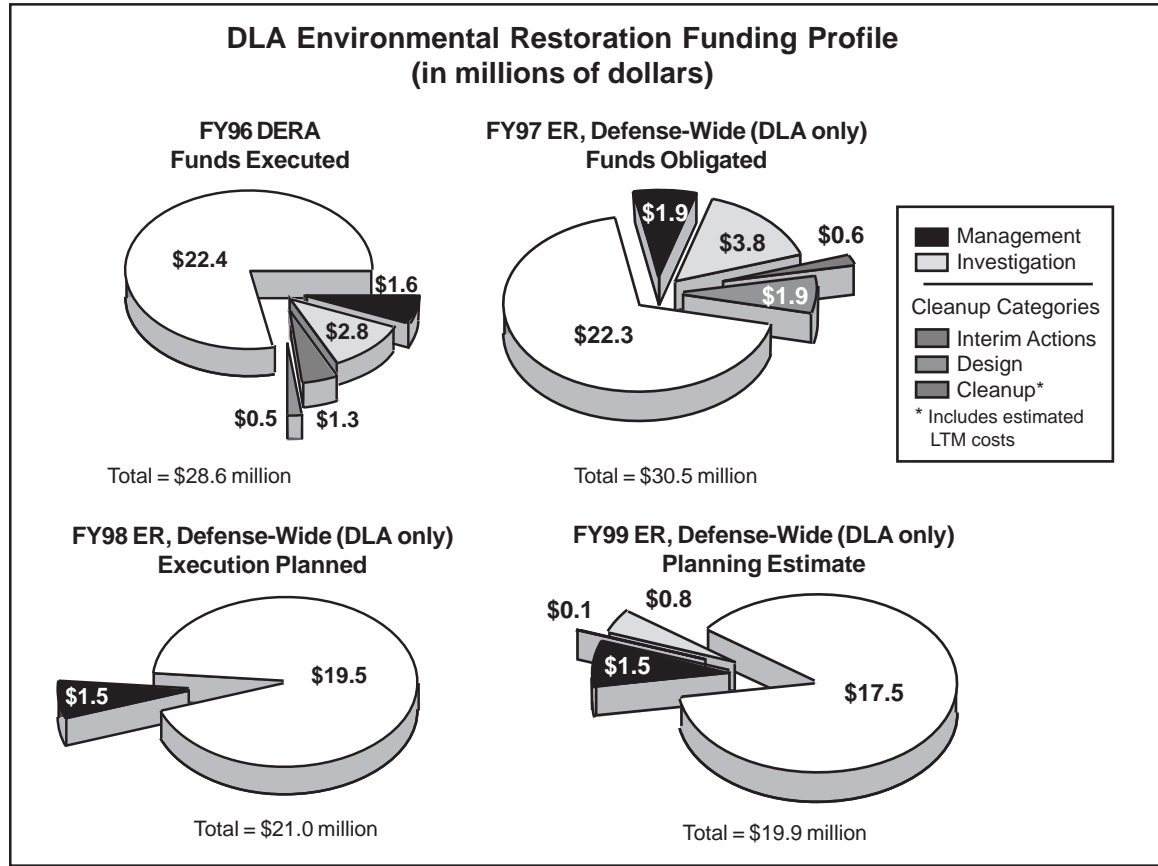


board (RAB). The installation has emphasized measures to control dust as the ores are removed in truckloads. By the end of FY97, all DNSC ores had been sold, and much of the

material had been removed from the former depot. The remaining ores are scheduled for removal by 1999.

DNSC also completed cleanup of a future recreation site at Curtis Bay in Anne Arundel County, Maryland. The county has been notified by the Nuclear Regulatory Commission that the Ordnance Road Property south of Baltimore, next to the new county jail, is now safe to use. DNSC worked with local and state officials for 2 years to clean up radioactive residue from thorium nitrate that had been stored in buildings on the site until 1981. This cleanup was accomplished before the property was sold to the county. The county now has plans to build a \$4.5-million, 47-acre recreational complex on the site.

DLA Environmental Restoration Funding Profile (in millions of dollars)

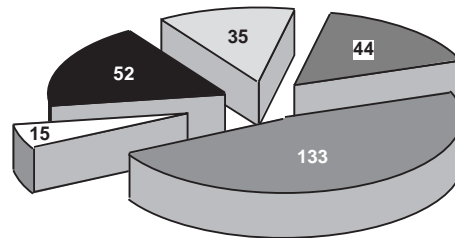


DLA also has made progress in its efforts to use groundwater cleanup technologies and processes other than pump-and-treat. Specific cases in which such innovative technologies have been used are as follows:

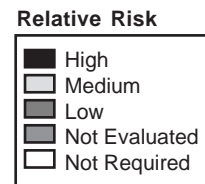
- ◆ A 6-month Treatability Study is under way at the Defense Supply Center Richmond (DSCR) to evaluate a groundwater dual-phase extraction system. (This is actually an enhancement to pump-and-treat technology).
- ◆ Groundwater modeling was used at DSCR to show that a gasoline plume would attenuate before reaching the site boundary.
- ◆ Groundwater modeling also is being used at the Defense Depot Susquehanna, New Cumberland Facility, to convince regulators that several groundwater plumes will naturally attenuate.
- ◆ Natural attenuation has been accepted for the remediation of a portion of the contaminant plume at Defense Depot San Joaquin, Tracy Facility.

lease for the former Clothing Factory at the Defense Personnel Support Center (DPSC) in Philadelphia were signed on June 22, 1997, between the Army, DLA, and Brite Star Manufacturing Co. Brite Star, which manufactures Christmas decorations, moved its factory and will move the outlet store from the current location to the former DPSC clothing factory building. The new facility provides Brite Star with approximately 1.2 million square feet of space. The company, which employs 300 people, plans to expand by 300 jobs within the next 3 to 5 years. Before cleanup, the clothing factory building had contained low levels of

Relative Risk Ranking for ER, Defense-Wide and BRAC Sites in Progress

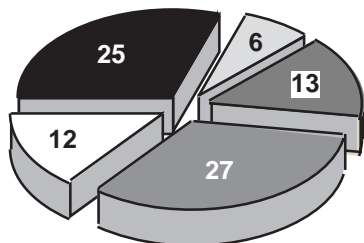


Total Sites 279



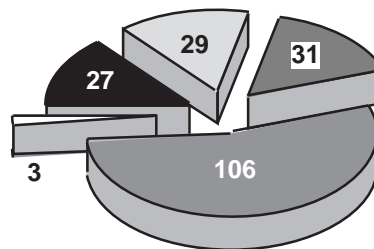
In DLA's Base Realignment and Closure (BRAC) program, a Memorandum of Agreement and a

Relative Risk Ranking for ER, Defense-Wide Sites in Progress

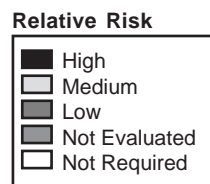


Total Sites 83

Relative Risk Ranking for BRAC Sites in Progress



Total Sites 196



DDT. This contamination was cleaned up before the building was offered for lease.

Increasingly, DLA's cleanup activities are focusing on management by reduction of risk. DLA supports efforts to prioritize identification and remediation of sites according to risk to human health or the environment. A risk-based system is an important tool for installation commanders as they deal with regulatory

agencies and the public concerning cleanup. DLA has performed Relative Risk Site Evaluations at 131 of its 279 sites in progress. Fifteen other sites do not require Relative Risk Site Evaluations because they have long-term Remedial Action Operations under way. The remaining 133 unevaluated sites are awaiting site characterization so that their Relative Risk Site Evaluations can be completed.

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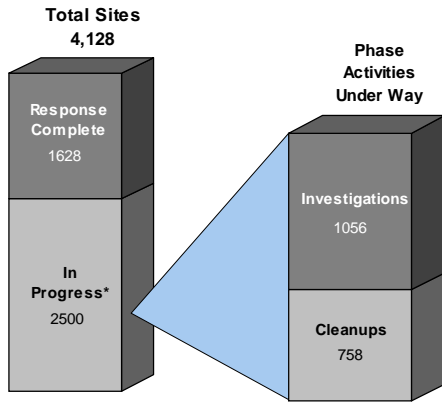
FUDS

CLEANUP STATUS AND PROGRESS

“THE FUDS PROGRAM FACES AN INCREDIBLE CHALLENGE OF TAKING OLD, ABANDONED MILITARY PROPERTIES THAT SERVED THE NATION PROUDLY IN TIMES OF WAR AND RESTORING THEM TO PROFITABLE USE AND REVITALIZATION. CLEANING UP THESE PROPERTIES IS A CHALLENGE THAT THE U.S. ARMY CORPS OF ENGINEERS MEETS HEAD-ON, DRAWING UPON ITS EXPERTISE AS THE WORLD’S PREMIER ENGINEERING ORGANIZATION AND ITS LEADERSHIP WITHIN THE DEPARTMENT OF DEFENSE AND THE ARMY IN THE ENVIRONMENTAL ARENA.”

—RAYMOND J. FATZ, DEPUTY ASSISTANT SECRETARY OF THE ARMY

FUDS Status as of September 30, 1997



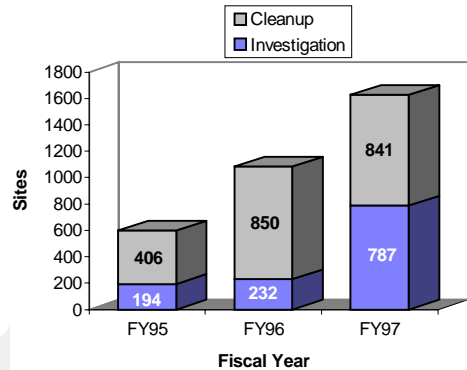
* NOTE: IN-PROGRESS INCLUDES SITES THAT WILL BE UNDER WAY IN THE FUTURE. THEREFORE, TOTALS OF SITES WITH PHASE ACTIVITIES UNDER WAY ARE GENERALLY LESS THAN THE TOTAL NUMBER OF SITES IN PROGRESS.

The Department of Defense (DoD) is responsible for cleaning up properties that were formerly owned, leased, possessed, or operated by DoD. Such properties are known as Formerly Used Defense Sites (FUDS). The Army is the executive agent for the program, and the U.S. Army Corps of Engineers (USACE) is the executing agent that manages and executes the program. Because DoD no longer owns

the FUDS properties, a USACE district effectively serves as the installation commander charged with executing environmental cleanup projects and associated responsibilities.

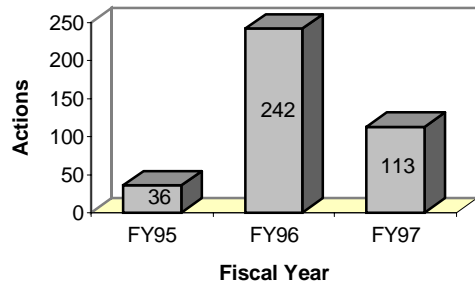
The scope and magnitude of the FUDS program are significant, with 9,078 properties identified for potential inclusion in the program. Environmental cleanup procedures at FUDS are similar to those at active DoD installations. However, information about the origin and

FUDS with Response Complete



extent of contamination, land transfer issues, past and present property ownership, and program policies must be evaluated before DoD considers a property eligible for the FUDS program.

Cumulative Interim Actions Completed at FUDS



In fiscal year 1997 (FY97), 38 properties were added to the FUDS inventory, and Preliminary Assessments (PA) were completed at 96 properties. Overall, 94 percent, or 8,530, of the 9,078 properties have been evaluated through the PA process, and 2,541 properties have been identified as requiring environmental response actions. On the 2,541 eligible properties, 4,128 potential cleanup projects have been identified, and 1,628 of these projects have been completed. The total cost to complete the remaining 2,500 projects is estimated at \$8.2 billion (FY98-Completion; does not include the required cost of management and support).

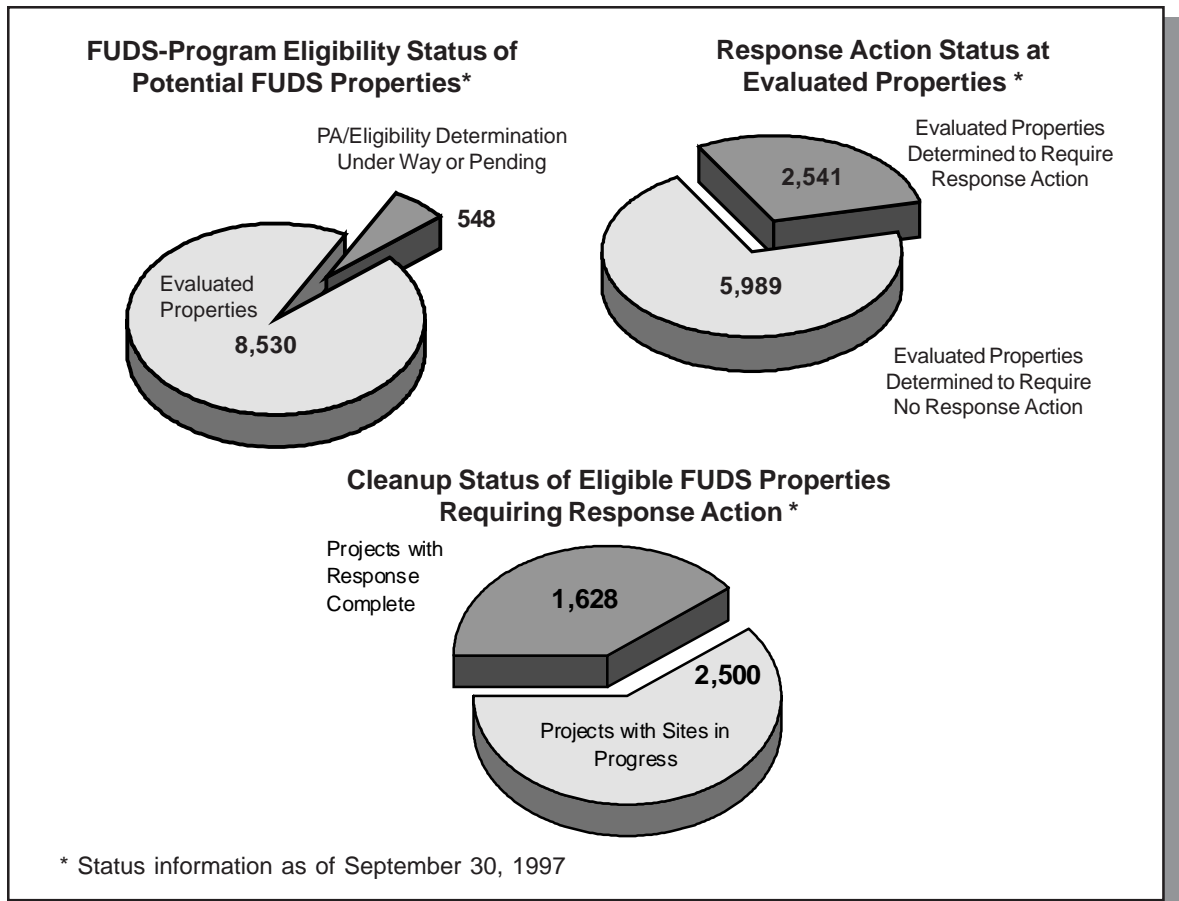
FUDS project categories include hazardous, toxic, and radioactive wastes (HTRW); ordnance and explosives wastes (OEW); containerized HTRW (CON/HTRW), such as removal of underground storage tanks; building demolition and debris removal (BD/DR); and potentially responsible party (PRP) actions.

During FY97, the FUDS program took steps to expand its community outreach program by initiating restoration advisory board (RAB) training for more than 100 project and program managers and public affairs officers and by producing a 14-minute video about the FUDS program. In addition, because of the unique nature of the FUDS program, USACE regularly responds to congressional inquiries about both the program and specific projects. Objects of congressional interest in FY97 include the former Amarillo Air Force Base, Texas; former Ellyson Field, Florida; former Massabesic National Guard Target Range, New Hampshire; former Marion Engineering Depot, Ohio; former Lake Ontario Ordnance, New York; former San Bernardino Engineering Depot, California; and projects in Nanakuli, Oahu, Hawaii. A milestone in FY97 was the delisting of the former Olmsted Air Force Base in Harrisburg, Pennsylvania, from the U.S. Environmental Protection Agency's (EPA) National Priorities List. The Olmsted property,

which was once used for engine and aircraft testing, was found to be contaminated with a number of chemicals. Tests at the property also revealed groundwater contamination. USACE Baltimore District supported EPA's recommendation for a water treatment system and oversaw the removal of storage tanks, transformers, underground pipeline, and associated contaminated soil. The former base, now known as Middletown Airfield, is operated by the Harrisburg International Airport. Plans for the property call for development of additional airport facilities.

PROGRAM EXECUTION

USACE helps the Army and DoD meet the challenge of protecting and cleaning up the environment through an organization that includes a headquarters, divisions, districts, laboratories, and centers of expertise. More than 93 percent of the USACE environmental staff is on the front lines in USACE districts, executing projects. The divisions supervise design districts that perform studies and create designs, and geographic military districts that manage projects and supervise construction. Cleanup activities at FUDS properties are supported by an HTRW center of expertise and an ordnance and explosives (OE) center of expertise (both of which are responsible for technical oversight) and by research and development laboratories. The USACE environmental program encompasses all four pillars of the Army's environmental program (Compliance, Restoration, Preservation, and Conservation) and has as its goals the prudent stewardship of taxpayer funds and the responsible protection of human health and the environment. The USACE environmental program budget has grown from approximately \$400 million in FY90 to more than \$1.32 billion in FY97. The FUDS share of the program's FY97 budget was \$255.9 million.



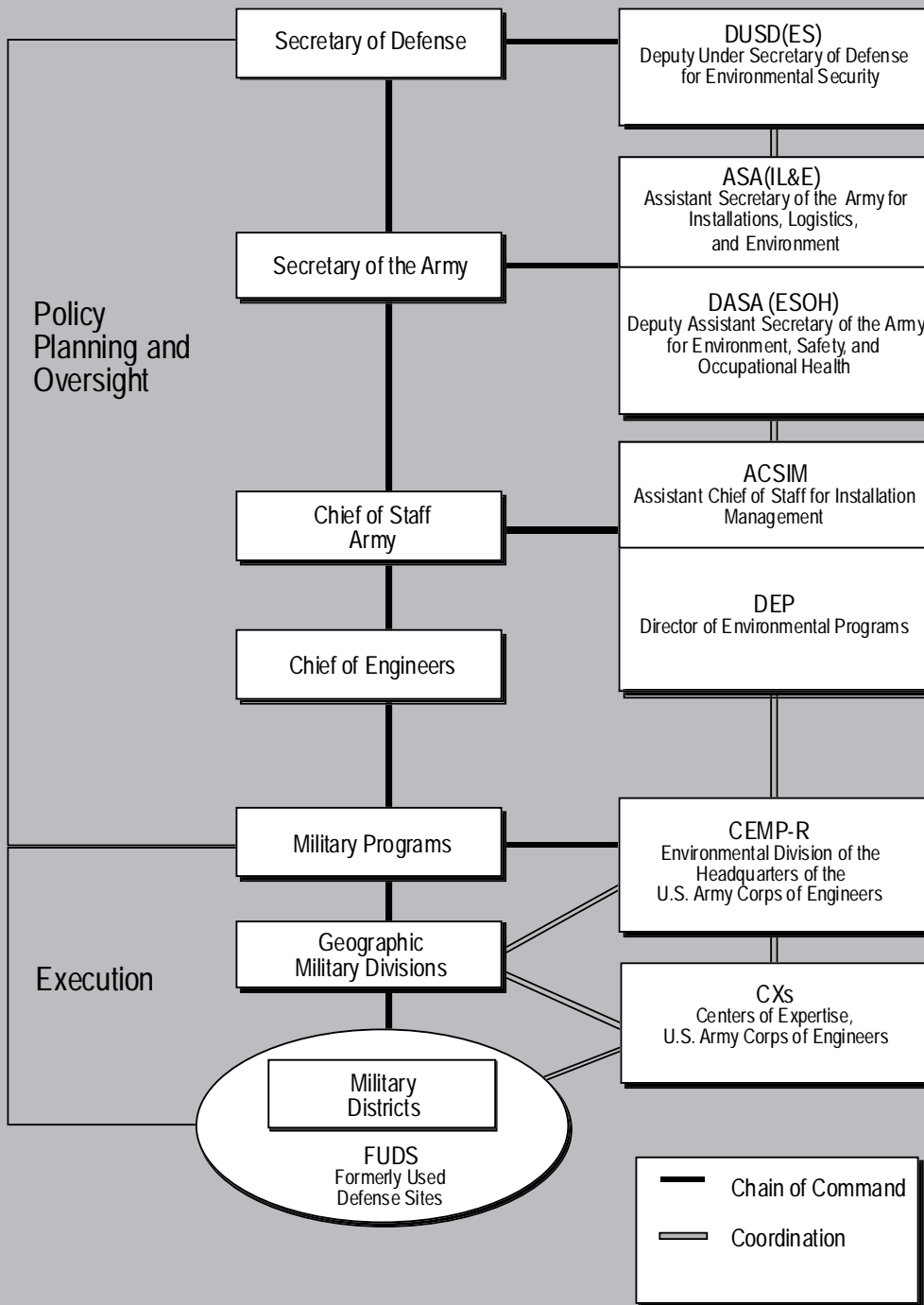
GOALS AND PRIORITIES

The goal of the FUDS program is to reduce, in a timely and cost-effective manner, risk to human health, human safety, and the environment resulting from past DoD activities at these properties. Meeting environmental goals for FUDS properties depends on strong communication, partnerships, and community involvement among DoD and project stakeholders. Priorities for the FUDS program are based on an evaluation of relative risk and other factors, such as legal agreements, stakeholder concerns, and economic considerations.

STRUCTURE OF SERVICE

DoD has responsibility for overall FUDS program policy and budget guidance, developing and defending the budget, and reviewing program performance. The Secretary of the Department of the Army is the executive agent and, through the Assistant Secretary of the Army (Installations, Logistics, and Environment) (ASA(IL&E)), supplements DoD policies and oversees the program. The Director of Environmental Programs within the Office of the Assistant Chief of Staff for Installation Management establishes general program goals and, in concert with ASA(IL&E), approves the annual work plan and program priorities. USACE headquarters is responsible for FUDS

Organizational Structure of the FUDS Program



program management and execution. The FUDS mission within USACE is executed by the field organization, which consists of 7 geographic military divisions, 18 military districts with necessary support from civil works districts, 1 HTRW center of expertise, and 1 OE center of expertise.

PROGRAM ACCOMPLISHMENTS

USACE continues to emphasize executing projects, cleaning up sites and ensuring that the public is an active participant in the cleanup process. Project execution figures for FY97 demonstrate that the FUDS program is making significant progress; 2,868 analyses/investigations, 858 Remedial Designs, 113 Interim Remedial Actions, 767 Remedial Action Constructions, 5 long-term monitoring efforts, 8 PRP projects, and 29 BD/DR projects were completed as of September 30, 1997.

Two success stories help illustrate the FUDS program's accomplishments in FY97.

AVCO Lycoming Superfund Site and Marathon Battery Corporation. Under the FUDS program, a PRP determination is made when parties in addition to DoD may have contributed to contamination at a site. The Avco Lycoming Superfund Site in Williamsport, Pennsylvania, and the Marathon Battery Corporation in New York are National Priorities List properties that have involved other PRPs in cleanup. After a number of studies and negotiations, USACE worked in partnership with these other PRPs, the Department of Justice, and several other

governmental agencies to determine liability. Settlement agreements reached in FY97 allowed the two properties to be restored to environmentally sound condition. Thereafter, the Defense Environmental Restoration Program (DERP)-FUDS response actions at these two properties were completed and closeout reports were prepared.

The Former Camp Maxey. Visitors to a popular lake and camping area in northeast Texas are finding the area much safer since USACE completed an ordnance removal project there. In a 2-month period, USACE removed more than 2,000 unexploded ordnance items from the former Camp Maxey, now a federal recreational facility, surrounding Pat Mayse Lake.

The removal project began after a lengthy drought revealed large amounts of unexploded ordnance at the lake's edge. The project removed ordnance from two critical areas, one area around the lake that had been used as a rocket launcher and rifle grenade area and a second area now used by all-terrain-vehicles. Because of the ordnance, both areas were deemed to pose a serious safety threat to the public.

Public safety was the top priority during the cleanup process. Public access was restricted within work areas, and all work ceased if anyone entered the work zone. During the project, USACE removed and disposed of 2,095 pieces of unexploded ordnance and 1,179 nonexplosive ordnance items. USACE also removed 4,676 pounds of scrap. The project was completed for less than the \$400,000 originally budgeted. The savings were used to clear more land in the all-terrain-vehicle area.

MANAGEMENT INITIATIVES AND IMPROVEMENTS

USACE continues to conduct initiatives to improve efficiency and effectiveness in the use of its personnel and financial resources, administrative processing of resource documents, functional consolidation of resource responsibilities, and contracting.

In FY97, USACE redrafted the *FUDS Program Manual* to make it consistent with new DoD DERP/BRAC Environmental Restoration Program Management Guidance. It also implemented a FUDS version of the cost-to-complete/RACER II model for HTRW, CON/HTRW, and BD/DR projects and developed an OEW cost-to-complete model in RACER.

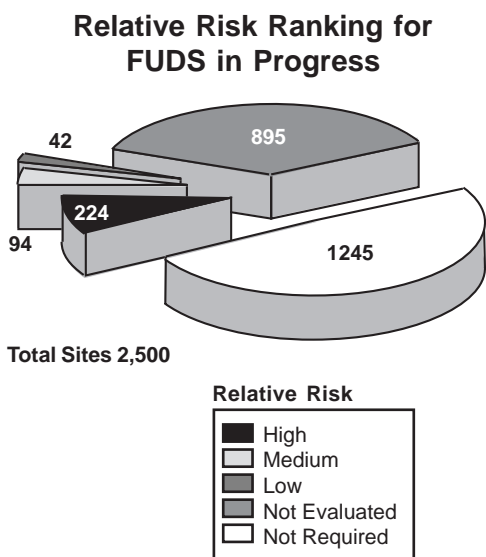
USACE has initiated a new cost management program to ensure that FUDS projects are executed at the lowest reasonable cost. Under

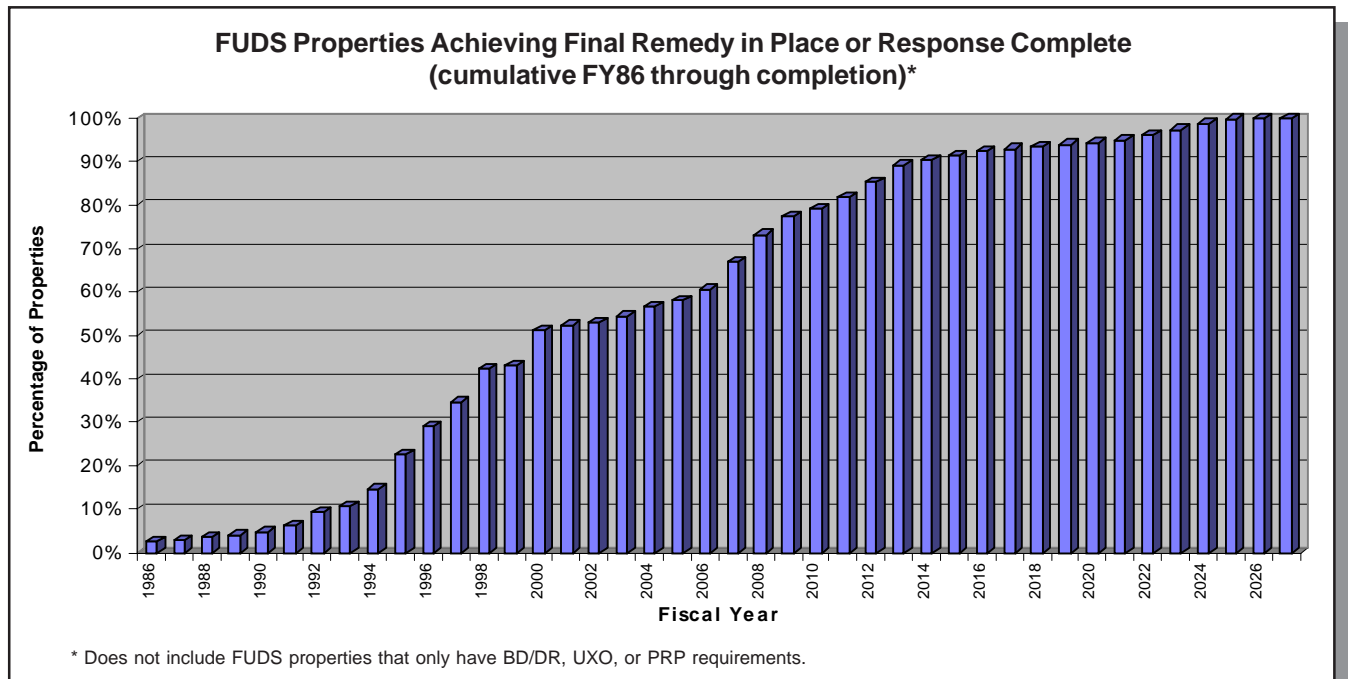
this program, USACE determines the precise details of the work involved in various cleanup techniques and the work's typical cost.

The recent USACE reorganization has contributed to resource and organization efficiencies, which are expected to extend the usefulness of future environmental funding. USACE management and support costs for the FUDS program fell to approximately 9 percent of total program costs, meaning that 91 percent of the environmental dollars received goes directly toward project cleanup at USACE districts.

RELATIVE RISK IMPLEMENTATION

New projects are continually added to the FUDS program. USACE strives to evaluate as many projects as possible for relative risk to human health and the environment. As of the end of FY97, 26 percent of the 890 eligible HTRW projects do not require relative risk evaluation because they have achieved Response Complete or Remedy in Place status. Another 31 percent of eligible HTRW projects have relative risk ratings and the remaining 43 percent, which are ready for Site Inspection, require future funding for data collection and relative risk evaluation. For CON/HTRW projects, removal of abandoned underground storage tanks has proved to be the most appropriate and cost-effective response. Thus, when funding becomes available, USACE will pursue response actions at these sites instead of conducting expensive field sampling for relative risk evaluation. USACE has completed response actions for 51 percent of the 1,212 eligible CON/HTRW projects. Another 6 percent of the eligible CON/HTRW projects have been evaluated for relative risk, and the





remaining 43 percent require future funding for necessary Removal Actions.

USACE also is required to evaluate OEW projects for relative risk to human safety. The OEW risk assessment is composed of two key parts: hazard severity assessment and hazard probability assessment. Both are based on the best available information from record searches, reports of explosive ordnance disposal teams, field observations, interviews, and actual measurements. Of the 1,451 eligible OEW projects in the FUDS program, 533 have reached either Response Complete or Remedy in Place status and therefore no longer require relative risk assessment. Relative risk assessment codes have been established for the remaining 918 OEW projects to indicate their potential impact on human safety.

Ratings of relative risk to human health, human safety, or the environment for HTRW, CON/HTRW, and OEW projects have been used, along with other risk management factors, to aid in sequencing work during FUDS planning, programming, budgeting, and project execution.

INFORMATION AND TECHNOLOGY TRANSFER

USACE is using innovative technologies to reduce the cost of environmental restoration for more than 200 projects, including those at FUDS.

Two innovative tools being used by the USACE OE Center of Expertise in Huntsville, Alabama, are the Site Stats/Grid Stats program (Site Stats) and the Ordnance and Explosives Cost-Effectiveness Risk Tool (OECert). Both tools are paying dividends for the FUDS program.

The Site Stats computer program statistically models the engineering evaluation/cost analysis site characterization process. Use of this program, which is loaded on a laptop computer and used at the site, has reduced sampling costs for site characterization.

Because Site Stats is based on complex statistical techniques, such as the sequential probability ratio test, USACE needs fewer data to obtain the same level of outcome certainty provided by most standard statistical methods. The software used in Site Stats also provides a statistical stopping point in the response action and can be used to verify that response action requirements have been met.

OECert is a mathematical model that calculates individual and public risk of exposure to unexploded ordnance. Individual risk is the probability of a person being exposed to ordnance during a given activity. Public risk is the sum of all the individual risks. As a common methodology for all sites, OECert provides decision makers with objective data, that is, a numerical value for risk reduction at a given site. Such data can help decision makers rank sites for cleanup and determine the amount of cleanup needed to reach an acceptable risk level.

OECert applications include the following:

- ◆ Developing baseline risk estimates
- ◆ Determining different risks for each response alternative
- ◆ Developing rough order-of-magnitude costs for each response alternative
- ◆ Fitting response alternatives to costs
- ◆ Ranking response alternatives at a site
- ◆ Ranking all sites according to risk.

One FUDS project where use of an innovative technology has produced dramatic results is located just north of the Kennedy Space Center in Fernandina Beach, Florida. This former Air Force Reserve Center had been used as a landfill and for gunnery ranges and is now a softball and soccer field. Earlier tests at the property had revealed several areas where the potential for contamination existed. Because the areas

were few and minimal contamination was expected, USACE brought in a Geoprobe, a small vehicle resembling a golf cart with a probe on its back.

The Geoprobe was driven around the site and tested the areas for suspected contamination. The probe pushed into the ground down to the water table and pulled up a continuous column of soil. The columns then were viewed to reveal the extent of any contamination and to check for buried materials. The Geoprobe revealed only a thin layer of contamination and proved that there was little landfill material. Because the probe pulled up only a small column of material, there was no damage to the athletic fields and no digging. Thanks to the Geoprobe, the project took only 6 months instead of 18 months and the total cost was \$45,000 instead of \$300,000.

OUTREACH

In addition to direct, day-to-day congressional interest in the FUDS program, expressed through both formal and informal inquiries, public involvement is vital to the program's success. USACE worked hard in FY97 to expand its community relations efforts, ensuring that the public is made aware of the FUDS program and of the opportunities to participate in the cleanup process.

Although every effort is being made to establish RABs at projects where there is sustained community interest, USACE recognizes that not all properties or projects lend themselves to RAB establishment. Nonetheless, some kind of community involvement and public outreach is necessary. FUDS project managers and public affairs specialists are using a wide variety of community involvement techniques to reach out.

The FUDS program has 17 active RABs and 4 active technical review committees (TRC). One

RAB has been deactivated. Six RABs were established in FY97, although several of these already existed as TRCs before they were converted to RABs.

A good example of RAB efforts is provided by the work of the former Weldon Spring Ordnance Works RAB. This RAB's 27 community members are striving to keep the community informed about cleanup efforts at Weldon Spring Ordnance Works, a former explosives production facility near St. Charles, Missouri. This facility manufactured trinitrotoluene (TNT) and dinitrotoluene (DNT) for use during World War II. To clean up the site, USACE and the Army are planning to excavate contaminated soil for on-site incineration. Other soil will be stabilized and disposed of in a landfill. The area surrounding the property has experienced both dramatic increases in population and an ever-increasing number of visitors because part of the area is used for fishing, hunting, and nature studies at the Busch and Weldon Spring Conservation Areas.

Members of the Weldon Spring RAB take the information they receive from USACE to other members of the community. At the same time, USACE provides information and technical training to the RAB members.

In addition to less formal RAB communications to the community, there have been public

meetings, open houses, information meetings, focus groups, poster stations, and even a professionally made videotape. Fact sheets, project newsletters, and a web site also provide information to the public.

“By keeping the community involved and informed on the day-to-day activities, we have gained its trust and respect,” said Steven Iverson, USACE project manager and USACE RAB co-chair. Iverson noted that public concern about delays and cost overruns has been nonexistent because of the “proactive approach to community relations.”

In addition to the RAB and traditional community outreach efforts, a formal partnering agreement was signed among all interested parties to the Weldon Spring cleanup. The agreement established a common vision and spelled out the various steps that must be included in order to achieve the five major goals of trust and mutual respect, open communication, safety, cost-effectiveness, and timeliness.

To help districts reach out to the public through establishment of RABs, USACE headquarters and the HTRW Center of Expertise developed a 12-hour RAB training program. The training was conducted in June at five regional locations: Seattle, Fort Worth, Atlanta, Omaha, and Baltimore. Attending the training were more

“INFORMATION FLOWS FREELY FROM USACE TO THE RAB. WHENEVER A TECHNICAL QUESTION COMES UP THAT WE CAN'T ANSWER, USACE HAS BEEN VERY WILLING TO PROVIDE THAT INFORMATION FOR US. THEY HAVE EVEN GONE SO FAR AS ALLOWING US THE OPPORTUNITY TO GO AND GET AN OUTSIDE CONTRACTOR TO PROVIDE SOME ADDITIONAL TECHNICAL TRAINING IN AREAS THAT WE DON'T FEEL COMFORTABLE WITH. WHETHER THE INFORMATION IS ON INCINERATION OR STABILIZATION, THEY HAVE MADE THOSE SERVICES AVAILABLE TO US AT THEIR EXPENSE. SO I'M VERY IMPRESSED WITH THAT.”

—RONALD ROBINSON, RAB COMMUNITY CO-CHAIR, WELDON SPRING ORDNANCE WORKS,
WELDON SPRING, MISSOURI

than 100 FUDS program, project, and technical managers, as well as public affairs specialists. Participants were given the latest RAB guidance, information on how to successfully establish RABs, tips on how to involve the public affairs office, and instruction on risk communication techniques. Attendees discussed success stories and lessons learned and also participated in two role-playing exercises designed as mock RAB meetings.

In addition to the training, USACE developed a video, *Understanding the Formerly Used Defense Sites Program*, that explains the FUDS program and discusses methods of involving the community. The video, which is being used to educate potential RAB members, the general public, regulators, and congressional staff members, has been distributed to district and division offices as another tool they can use in reaching out to the public.

DERP FUNDING

FY97 was the first year since the devolvement of Defense Environmental Restoration Account (DERA) funds. These funds, which were once allocated to a central DoD account, are now distributed into five separate accounts, including one for FUDS. Before the devolvement, the FUDS program was historically underfunded compared with the environmental restoration efforts at active installations, because requirements were not easily identified. Now that FUDS requirements are better known, the FUDS program should be better able to compete for resources. Congress has recognized the importance of the FUDS program and sanctioned a budget increase for the FUDS program in FY97. Program managers have predicted a requirement of at least \$300 million per annum in order to complete the FUDS cleanup in 30 years.

