

## STATUS AND PROGRESS

The funding, status, and progress of the defense environmental restoration program for FY96 are discussed on the following pages. The relative risk site evaluation framework and the program's measures of merit have now seen a full year of implementation, providing more meaningful data by which to identify requirements, measure and analyze progress, and evaluate performance.



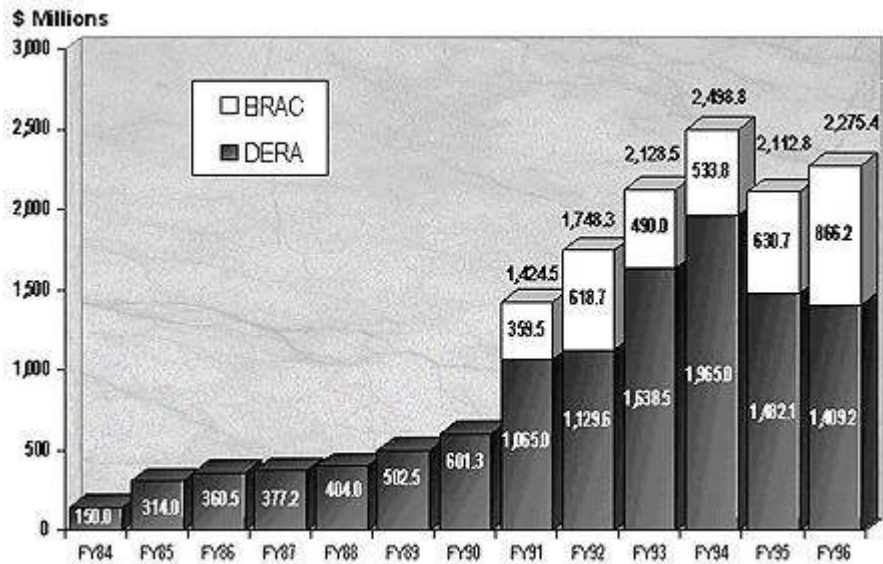
For more information about the initiatives mentioned above, please refer to the *DERP Report to Congress for FY95* on the World Wide Web

[http://www.dtic.mil/envirodod/derpreport95/vol\\_1/toc.html](http://www.dtic.mil/envirodod/derpreport95/vol_1/toc.html)

## PROGRAM FUNDING

DoD has invested almost \$15 billion in its environmental restoration program through FY96. Congress has provided funds for environmental restoration in two accounts: approximately \$11.4 billion in the Environmental Restoration, Defense account, more commonly referred to as DERA, for operational DoD installations and FUDS; and approximately \$3.5 billion in the BRAC account for closing or realigning installations. Beginning in FY97, in accordance with devolvement, DERA funds will be provided in five accounts, one each for the Departments of the Army, Navy, and Air Force; the FUDS program; and a Defense-wide account serving the Defense Logistics Agency (DLA), the Defense Special Weapons Agency (DSWA), and the Office of the Secretary of Defense (OSD). The BRAC account will remain as it is currently structured.

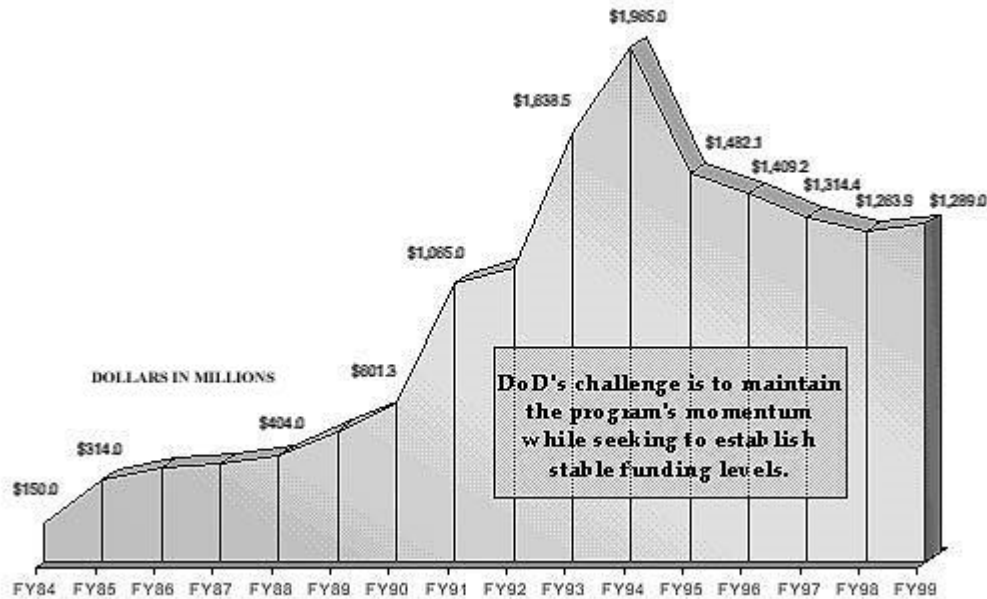
## Funding History



More information on devolvement can be found in the *Report to Congress on the Devolvement of the Defense Environmental Restoration Account* on the World Wide Web at: <http://www.dtic.mil/envirodod/devolve.html>

Funding profiles for the DERA and BRAC environmental programs are presented on the following pages. The graph below shows the step rise in DERA funding from FY90 to FY94, followed by a sharp decline in FY95 and a further reduction of about \$73 million in FY96. The steep slopes of the lines in the graph below, especially leading up to and following FY94, illustrate an important point in terms of funding stability. Most programs are best served by stable funding from year to year. Stable funding does not necessarily mean level funding, but rather either manageable growth or decline. Manageable increases or decreases in funding are especially important for DoD's environmental restoration program because there is a direct correlation between funding and execution in one year and continuing progress in subsequent years. Execution capabilities associated with staffing, contracting, and other resource considerations can be severely impacted both by wide fluctuations in funding and the inability to predict future levels of funding.

## DERA Funding Trend



*Dramatic changes in funding from one year to the next create tremendous upheaval and impede program execution and progress in future years.*

### Definitions

#### *Cleanup:*

Includes Interim Actions, Remedial Design (RD), Remedial Action (RA), Operation and Maintenance, Long-Term Monitoring, and Potentially Responsible Party<sup>1</sup> costs

#### *Investigation:*

Includes Preliminary Assessment (PA), Site Inspection (SI), and Remedial Investigation and Feasibility Study (RI/FS) costs

#### *Management:*

Includes program administration costs such as travel, training, and other support costs, as well as funding for ATSDR<sup>2</sup> and DSMOA<sup>3</sup>

#### *Workyears:*

Includes costs for DoD salaries

<sup>1</sup>Includes DoD's share of costs incurred at sites where DoD is a PRP; these sites are typically commercially operated waste disposal facilities

<sup>2</sup>Includes costs of reimbursing ATSDR for health assessments and health risk studies conducted at DoD National Priorities List sites

<sup>3</sup>Includes costs of reimbursing states and territories for technical services

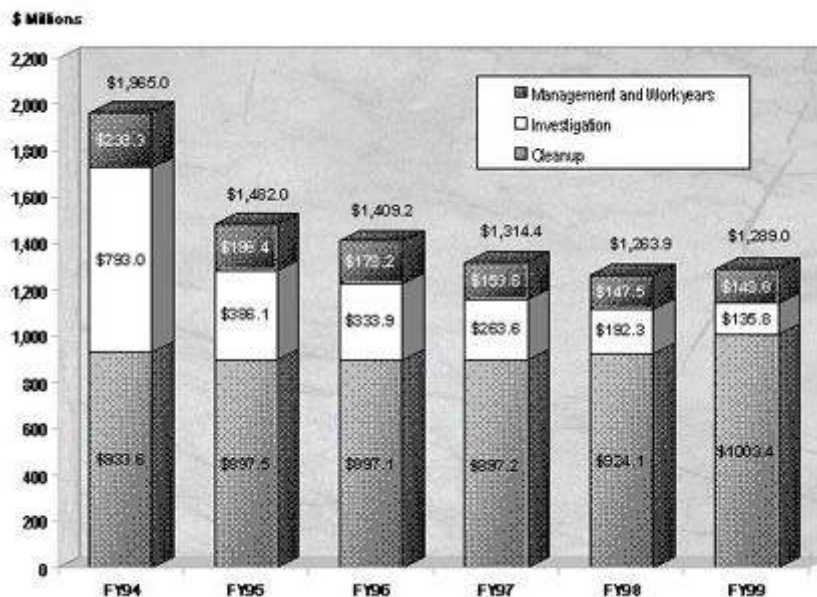
in support of investigation and cleanup efforts at DoD installations within their boundaries

The Federal Facilities Environmental Restoration Dialogue Committee stated in its final report that ". . . a stable funding base over the life of cleanup projects could greatly facilitate . . . priority setting because it would provide regulated and regulating agencies as well as other stakeholders with a greater degree of certainty and the ability to plan and sequence cleanup activities and projects in an effective manner that is consistent with agreed upon priorities." DoD continues to seek a stable funding pattern and to work within the bounds of such funding from year to year. DoD intends to close any gaps between cleanup needs and funding availability through the identification and implementation of efficiencies.

## DERA PROGRAM

The DERA funding distribution profile shown below reflects DERA program obligations in FY94, FY95, and FY96 and planned obligations in FY97, FY98, and FY99, by major category (cleanup, investigation, and management and workyears).

**DERA Funding Profile**



DoD has an established strategy and systematic process in place to identify, measure, and continuously improve performance for the environmental restoration program. DoD's approach is aimed at maintaining the momentum gained over the past several years, and establishing program consistency and stability in the face of funding reductions. DoD's goals and investment strategy are geared towards completing the program in accordance with statutory requirements by focusing on reducing risk and setting priorities for

appropriate investigation and cleanup work in accordance with risk reduction and site completion goals.

## BALANCING FUNDING

DoD continues to believe that establishing numerical goals limiting investigation while requiring a minimum level of spending on cleanup is potentially counterproductive and may create an inappropriate incentive to spend more on the program in the long term than might otherwise be required. Such goals could discourage appropriate and worthwhile investment in investigations that might result in more cost effective remedies being identified or a determination that cleanup is not required at a site. At the end of FY96, 10,660 DoD sites (40 percent of the total inventory) have been determined to require no further action based on investigation work, eliminating the need for expensive cleanup actions at these sites.

### Cleanup vs. Other Program Obligations and Planning Estimates for Fiscal Years 1993 through 1997<sup>1</sup>

Dollars in Millions

Category <sup>2</sup>	FY93	FY94	FY95	FY96	FY97
Studies and Investigations	\$761 (46%)	\$793 (40%)	\$386 (26%)	\$333 (24%)	\$264 (20%)
Administration and Support	\$247 (15%)	\$238 (12%)	\$198 (13%)	\$178 (13%)	\$153 (12%)
<i>(Total of Above)</i>	\$1,008 (61%)	\$1,031 (52%)	\$584 (39%)	\$511 (36%)	\$417 (32%)
Cleanup	\$631 (39%)	\$934 (48%)	\$898 (61%)	\$898 (64%)	\$897 (68%)
<b>Total DERA Funding</b>	<b>\$1,639</b>	<b>\$1,965</b>	<b>\$1,482</b>	<b>\$1,409</b>	<b>\$1,314</b>

#### NOTES:

<sup>1</sup>This table and the accompanying discussion satisfy the reporting requirement specified in Section 323(b) of the FY96 Defense Authorization Act regarding DoD's goal for limiting DERA expenditures for administration, support, studies, and investigations.

<sup>2</sup>Expenditure categories are listed in accordance with language in Section 323(a) of the FY96 Defense Authorization Act. Categories are defined on page 6; administration and support are equivalent to management and workyears.

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Appropriate and cost-effective investigations ensure that the nature and extent of contamination are adequately understood. As a result, DoD, the regulatory agencies, and

affected communities have the information needed to determine the most appropriate cleanup actions. In the absence of this information, remedy selections may exceed what is really needed or may result in construction of costly and/or ineffective remedies that may ultimately have to be augmented with the proper remedy.

Schofield Army Barracks, Hawaii, featured below, is one of many installations where appropriate investigation has achieved savings in cleanup costs.

DoD continues to improve program and site management efforts to reduce the cost and increase the speed of investigations. The program has a bias for action and a natural trend of expending increasingly more dollars on actual cleanup. As shown on page 7, direct obligations on investigations have decreased from 46 percent in FY93 to 24 percent of the total FY96 DERA budget. Obligations for cleanup have increased from 39 to 64 percent of DERA funds over the same period. DoD's initiatives are focusing the program on the most appropriate and effective investments in reducing risk to human health and the environment.

*The benefits of investing funds into focused, technically defensible environmental studies have been shown clearly at Schofield Army Barracks, Hawaii. Groundwater investigations performed at the installation demonstrated the technical infeasibility of implementing a pump-and-treat groundwater remedy to treat trichloroethylene and carbon tetrachloride contamination. The aquifer underlying the installation supplies a majority of the population of Oahu with drinking water, either directly or indirectly through water supply wells installed in that aquifer or in downgradient aquifers.*

*Early in the investigation, the Army recognized the tremendous cost, for both investigative and cleanup activities, associated with application of traditional pump-and-treat remedies to address groundwater contamination at the site. The excessive depth to groundwater (about 600 feet) through basalt bedrock, and the tremendous volume of water flowing through the system (about 125 million gallons per day) made investigation and cleanup cost-prohibitive. Investigations were focused on collecting groundwater data to determine the direction of movement of the plume and identifying water supply wells in the path of the plume. Unique, state-of-the-art groundwater investigation and analysis tools, such as hydrophysical logging, natural isotopic and geochemical tracers, and DoD's new groundwater modeling system (see Volume 1, page 21) helped investigators make maximum use of limited data. This approach minimized the need to install costly monitoring wells and took advantage of existing irrigation and supply wells as monitoring points. The collected data and associated groundwater modeling were used to document the technical infeasibility of pump-and-treat remediation and to support the implementation of a wellhead monitoring and treatment remedy. By focusing on collecting data to support wellhead treatment over a pump-and-treat remedy, the Army avoided investigation costs of more than \$10 million and unnecessary cleanup costs estimated at \$150 to \$300 million.*

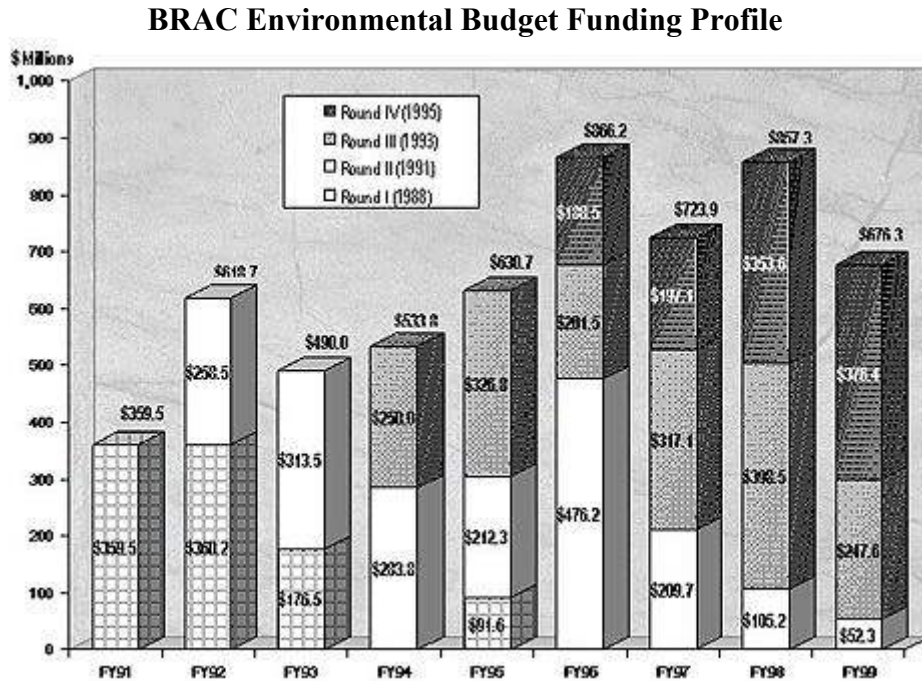
## **BRAC ENVIRONMENTAL PROGRAM**

The funding for the BRAC environmental program is part of the overall BRAC account and encompasses more than environmental restoration efforts. BRAC environmental funding also addresses closure-related environmental compliance and environmental planning.



To ensure maximum flexibility, BRAC funding is provided in a five-year account, and funds are not "fenced" within the account. This means that specific amounts are not appropriated for each type of BRAC environmental activity. However, a funding limit or ceiling is now specified for BRAC environmental restoration in the Defense Appropriations Act.

The BRAC environmental budget funding profile shown below reflects BRAC funding allocations from FY91 through FY96 and BRAC funding budgeted for FY97, FY98, and FY99, by BRAC round.



## DSMOA PROGRAM

States and territories can be reimbursed for technical services in support of investigation and cleanup efforts at DoD installations within their boundaries under the Defense and State Memorandum of Agreement (DSMOA) program. Forty-three states, four territories, and the District of Columbia have signed DSMOAs, and 42 states, two territories and the District of Columbia have approved Cooperative Agreements (CA). Appendix H of this report provides specific state or territory DSMOA and CA information. Approximately 1,000 installations, both active and closing, are covered under these agreements. Since 1990, more than \$142.5 million has been provided to states and territories for services that qualify under the program.

Two steps are required for a state or territory to participate in the program. The initial requirement is for the state or territory to enter into a DSMOA which provides a mechanism for involvement in restoration activities and establishes the terms and conditions required for reimbursement. Reimbursement is then available through an

approved CA, which is valid for two years. A list of services that qualify for reimbursement is provided on the next page.

For active and closing installations, state reimbursable activities may begin at the site identification stage and continue through construction of the remedy and long-term operation or monitoring. For FUDS, state reimbursable activities commence after site eligibility for DERA funding is determined, providing that no litigation by the state is in process against DoD for that particular site. The state also must certify that no supplemental funds from DoD or other federal sources have been previously provided. FUDS that meet these criteria are managed in the same way as active and closing installations.

The level and type of reimbursable services requested by DoD are based on the effort under way at an installation or site and the complexity of the contamination problem. Using a work plan concept, the state reviews the level of effort and type of work that is planned by the DoD Components, and the level of state reimbursable services is determined. The Army, through the U.S. Army Corps of Engineers, is the executive agent for the DSMOA/CA program.

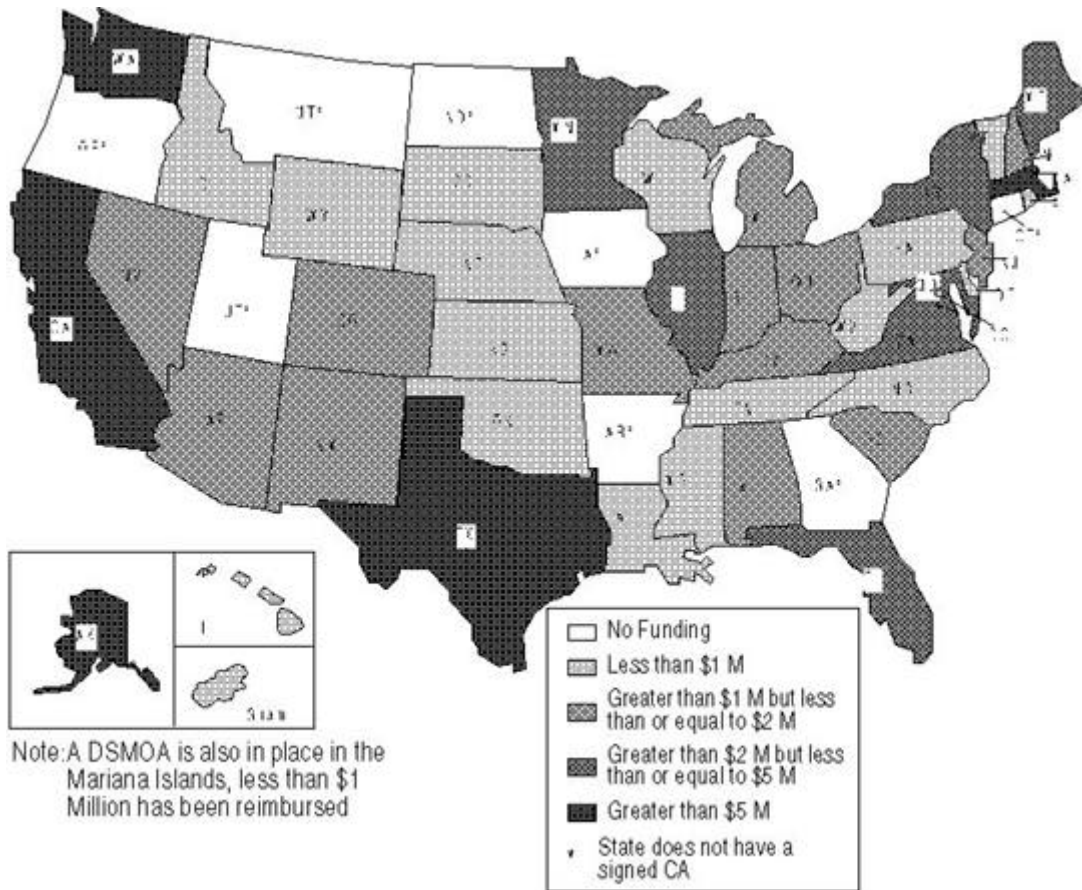
## **DOD OVERALL PROGRAM**

The tables on page 12 present the status and progress of investigation and cleanup efforts as of September 30, 1996 for sites at DoD installations and FUDS.

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### **DSMOA Reimbursements FY90 Through FY96**





### Services that Qualify for Reimbursement Under DSMOA

- Technical review of documents or data
- Identification and explanation of state or territorial applicable or relevant and appropriate requirements (ARARs)
- Site visits
- Technical Review Committee (TRC) or Restoration Advisory Board (RAB) participation
- Cooperative Agreement preparation and administration
- DSMOA preparation, administration, and amendments
- Technical review and comment on all documents and data regarding DoD prioritization of sites
- Determination of scope and applicability of agreements (for example, Federal Facility Agreements) and assurance of satisfactory performance of Interagency Agreements, excluding any litigation costs against the U.S. Government
- Independent quality assurance/quality control samples
- Other services (negotiated on a state-by-state or installation-specific basis)

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DoD's focus on cleanup and reducing risk continues to render real results through the capability, dedication, and ingenuity of the DoD agencies executing the work. DoD has developed measures of merit to measure progress towards established goals. These measures are essential for assessing the strength of the program and the success of new

program strategies. Three categories of measures of merit have been developed to assess progress and performance:

- Milestones accomplished, such as interim actions taken
- Progress at sites, such as investigation, design, cleanup, or response complete
- Relative risk reduction

### *DoD Operational and BRAC Installations*

		Phase	Completed	Underway	Future
		Sites (No. Actions)			
Total No. of Installations with Response Complete at all Sites:	970	Investigation	13,916	8,908	59
Total No. of Installations with Sites in Progress:	762	Interim Action	2,174 (2,659)	765 (872)	
Total No. of Installations:	1,732	Design	1,240	710	4,744
Total No. of Sites:	22,883	Cleanup	1,691	706	5,228
No. of Sites in Progress:	10,952	Operation and Maintenance	136	773	4,607
No. of Sites with Response Complete:	11,931				

### *Formely Used Defense Sites*

		Phase	Completed	Underway	Future
		Sites (No. Actions)			
Total No. of Potential Properties:	9,029	Investigation	1,474	2,575	
Eligible Properties Determined to Require Response Action:	2,651	Interim Action	123 (242)	22 (49)	
Properties with Eligibility Determination/Preliminary Assessment Underway or Pending:	763	Design	882	216	1,116
	3,414	Cleanup	733	329	1,293
Properties Determined Ineligible:	2,136	Operation and Maintenance	3	11	61
Eligible Properties Determined to Require No Action:	3,479				
	5,615				
No. of Properties Determined to Require Response Action:	2,651				
Total No. of Sites:	4,049				
No. of Sites in Progress:	2,967				
No. of Sites with Response Complete:	1,082				

### *Interim Actions*

One of DoD's priorities for accelerating cleanup and reducing risk has been the continued focus on interim actions-removal actions and interim remedial actions. The number of interim actions completed and the number of interim actions under way at any given time are indications of cleanup progress. As of September 30, 1996:

- 2,901 interim actions at 2,297 sites have been completed, and another 921 interim actions were under way at 787 sites

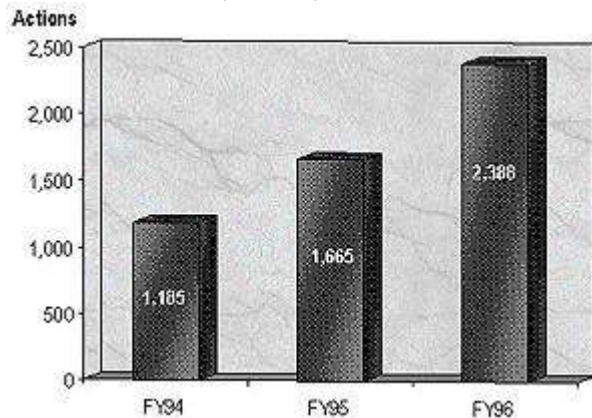
- The cumulative number of interim actions completed by the end of FY96 at both DERA and BRAC sites represents an increase of about 52 percent over the cumulative number of interim actions completed by the end of FY95

*Interim actions can significantly reduce or eliminate risk to human health and the environment. Actions such as installing fences and providing alternate drinking water supplies immediately reduce risks by eliminating potential exposure to contaminants. Actions such as source removal, capping, and pumping and treating groundwater stabilize sites by controlling or eliminating migration of contaminants. Although initiated as interim measures, many actions involving waste removal and treatment satisfy final cleanup requirements. During the investigation phase, opportunities for interim actions are constantly evaluated and implemented, where appropriate, to reduce risk and accelerate the overall restoration process.*

### Progress at Sites

Traditional measures of the restoration program's status and progress are determined by the number of sites in any particular phase of the program. Response complete and cleanup under way are two important indicators.

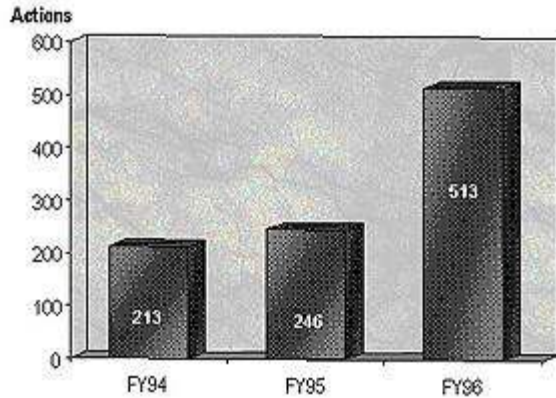
### Interim Actions Completed at DERA Sites Through FY94, FY95, and FY96



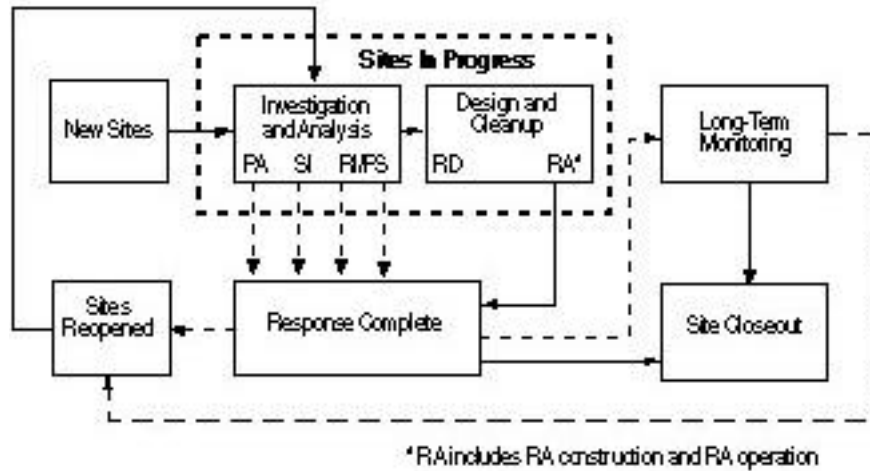
723 interim actions were completed at operational installations and FUDS properties in FY96

### Interim Actions Completed at BRAC Sites Through FY94, FY95, and FY96

267 interim actions were completed at BRAC installations in FY96



### Conceptual Progression of Sites in the Restoration Program

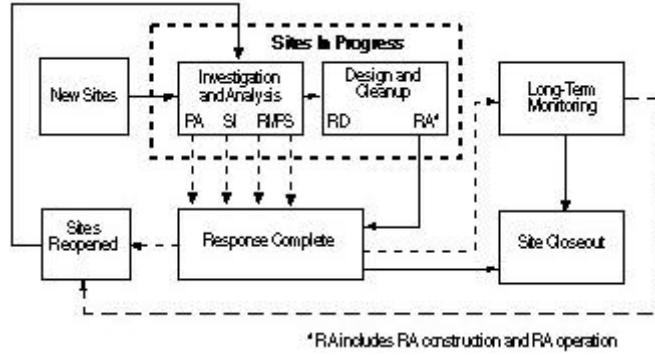


Traditional measures of the restoration program's status and progress were determined by the number of sites in any particular phase of the program. Typically, status is measured at the end of a fiscal year (that is, the status of sites as of September 30), and the count is compared with that of the preceding fiscal year.

The total number of sites may fluctuate as new sites are identified, sites are reopened, and existing sites are determined to require no further action. New sites are added to the program as a result of RCRA Facility Assessments, Environmental Baseline Surveys for BRAC installations, changes in eligibility policies, and otherwise newly discovered CERCLA and UST sites. Sites previously determined to require no further action and closed out as a "response complete" may be reopened if a regulatory agency does not concur with DoD's determination. The net effect can sometimes be a decrease in the number of sites reported as "response complete" and an accompanying increase in the number of active sites remaining in the program.

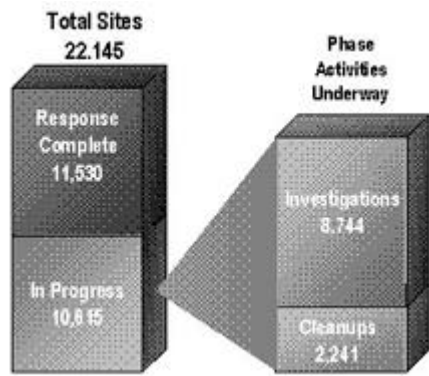
### Conceptual Progression of FUDS Properties





The restoration program at FUDS properties is similar to that at DoD installations. However, information concerning the origin of contamination, land transfer, and current ownership must be evaluated to determine whether a site is eligible for DoD funding. FUDS are real property formerly owned by, leased to, used by, or otherwise under the operational control of DoD. During the preliminary assessment phase, an inventory project is conducted to determine (1) if the property is eligible for DERA funding and (2) if any contamination exists. If the property is eligible and further response action is required, the identified site or sites begin the standard restoration process. Because of the inventory phase associated with the FUDS program, information on the status and progress of FUDS properties is provided separately from other DoD installations in this report.

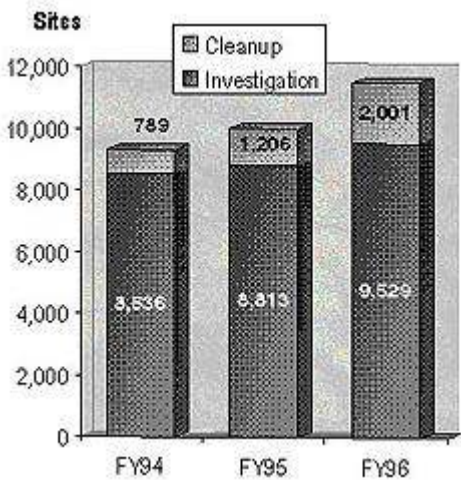
### DERA Overall Site Status as of FY96



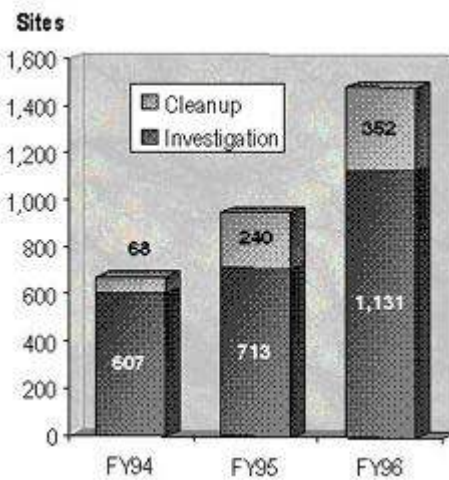
### BRAC Overall Site Status as of FY96



### DERA Sites with Response Complete



### BRAC Sites with Response Complete



*Of the 22,145 sites at operational installations and FUDS properties that are funded by DERA, response is complete at 11,530 (52 percent of the total inventory). Of the*

***4,787 BRAC sites, response is complete at 1,483 (31 percent of the total BRAC site inventory).***

***In FY96, DoD increased its number of response complete sites at operational installations and FUDS by 1,511; 795 were based on cleanup, and 716 were based on investigation. At BRAC installations, the number of response complete sites increased by 530; 112 were based on cleanup, and 418 were based on investigation.***

### ***Relative Risk Reduction***

Faced with the challenge to execute the restoration program in a constrained financial environment, DoD has developed the relative risk site evaluation methodology, which provides a quantifiable basis for justifying requirements and allocating funds. This ensures that DoD is able to direct the necessary resources to sites that pose the greatest risk first. In addition to providing a tool for prioritizing and sequencing site work, the relative risk site evaluation methodology also provides a basis for establishing meaningful, measurable goals and performance measures.

In FY96 DoD continued the important transition to this new approach to prioritizing work and measuring progress. The relative risk site evaluation data for both DERA and BRAC sites, as of the end of FY96, are presented in the table below.

A baseline of relative risk site evaluation data was established in FY95. Throughout FY96, DoD has improved the baseline data by completing the evaluation of 843 sites that were previously not evaluated. FY96 is the first year that performance measures based on relative risk reduction were evaluated. These measures have already aided the program with respect to the planning, programming, and budgeting of funds targeted to achieve the goals associated with relative risk reduction.



The DoD Relative Risk Site Evaluation Primer can be found on the World Wide Web at :  
<http://www.dtic.mil/envirodod/relrisk/relrisk.html>

### FY96 DERA AND BRAC RELATIVE RISK SITE EVALUATION STATUS

DoD COMPONENT		Army	Navy	Air Force	DLA	DSWA	FUDS	DoD Total
Sites with Response Complete		7,765	1,382	2,493	290	1	1,082	13,013
Relative Risk of Sites in	High	1,450	1,330	1,030	64	1	225	4,100
	Medium	605	639	504	20	0	95	1,863
	Low	631	618	754	48	7	63	2,121
	Not Evaluated	1,651	396	560	198	19	1,014	3,838
	Not Required*	83	68	254	14	8	1,570	1,997
<b>Total Number of Sites</b>		<b>12,185</b>	<b>4,433</b>	<b>5,595</b>	<b>634</b>	<b>36</b>	<b>4,049</b>	<b>26,932</b>

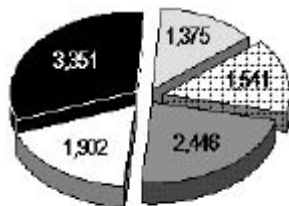
\*Sites that have remedy in place, response complete, or no further action required designations do not require relative risk evaluation, given that DoD has committed that operations and maintenance and monitoring requirements at these sites would be funded.

### Percent of Sites Planned for Cleanup Funding From FY96 through FY03



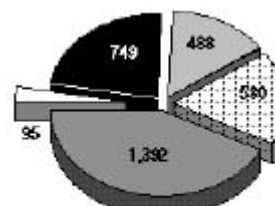
A major part of DoD's management strategy is to use relative risk as a tool to help direct funding to those sites that pose the higher risk. Between FY96 and FY03, 42 percent of sites that are planned for cleanup funding will be sites that have a high designation based on the current relative risk site evaluation. At this time, it is uncertain how many of the not evaluated sites that are projected to receive funding will be evaluated as high sites.

### Relative Risk of DERA Sites in Progress FY96



Total 10,615 Sites

### Relative Risk of BRAC Sites in Progress FY96



Total 3,304 Sites