



# 8

## Restoration

The Department of Defense (DoD) began environmental restoration in 1975, under the Installation Restoration Program (IRP). In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund. CERCLA requires responsible parties to clean up hazardous substances released to the environment. The 1986 Superfund Amendments and Reauthorization Act (SARA) refined and expanded CERCLA. SARA formally established the Defense Environmental Restoration Program (DERP), funded by Defense Environmental Restoration (ER) accounts. Congress subsequently authorized four rounds of Base Realignment and Closure (BRAC) in 1988, 1991, 1993, and 1995—called Legacy BRAC—and a fifth in 2005, called BRAC 2005. Cleanup at BRAC installations is funded through the BRAC accounts, and is managed in accordance with the DERP.

## Restoration at a Glance

Fiscal Year 2009 Funding: **\$2.0 billion**

### Program Accomplishments

- Decreased Cost-to-Complete (CTC) estimates for munitions response sites (MRSs) at active installations by **36 percent** from Fiscal Year (FY) 2005
- Transferred **3,988 acres** under BRAC Early Transfer Authority (ETA)
- Achieved remedy in place (RIP) or response complete (RC) at **71 percent** of IRP sites on Formerly Used Defense Sites (FUDS) properties
- Established **Joint Measures Harmonization Workgroup** with U.S. Environmental Protection Agency (EPA)

## Applicable Requirements

DoD conducts cleanup in accordance with the following federal requirements:

- 42 United States Code (U.S.C.) §§ 9601–9675, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- Superfund Amendments and Reauthorization Act (SARA) §211
- 10 U.S.C. §§ 2700–2710
- Executive Order (E.O.) 12580—Superfund Implementation
- The Defense Base Closure and Realignment Act

In addition, DoD developed policies and guidance to meet the above requirements, including:

- DoD Instruction 4715.7 “Environmental Restoration Program”
- The 2001 Management Guidance for the Defense Environmental Restoration Program (DERP)
- DoD Memorandum “Interim Policy for Defense Environmental Restoration Program Eligibility”
- DoD Memorandum “Policy Concerning Cost-Recovery/Cost-Sharing Activities Under the Defense Environmental Restoration Program (DERP)”

Throughout Fiscal Year (FY) 2009, DoD continued to update the DERP Manual, which will supersede the 2001 Management Guidance for the DERP.

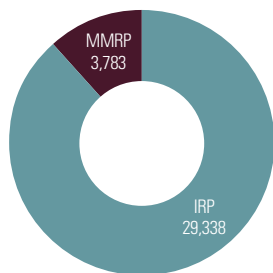
## Management Practices

### DERP Process

The DERP includes three program areas:

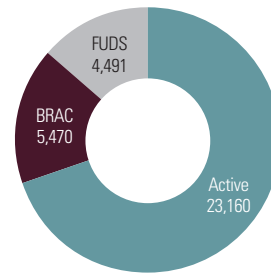
- **Installation Restoration Program (IRP)**—The IRP governs cleanup (i.e., identification, investigation, removal actions, remedial actions, or a combination of removal and remedial actions) to address the releases of hazardous substances, pollutants, or contaminants; petroleum, oil, and lubricants; DoD-unique materials; hazardous wastes or hazardous waste constituents; explosive compounds released as a result of ammunition or explosives production or manufacturing at ammunition plants; and unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC) that are incidental to an IRP site.
- **Military Munitions Response Program (MMRP)**—The MMRP, established in 2001, addresses safety, environmental health, and hazards from UXO, DMM, and MC at munitions response sites (MRSs). The MMRP applies only to locations other than operational ranges on active and BRAC installations, and Formerly Used Defense Sites (FUDS) properties.

Figure 8-1 Total Number of Restoration Sites by Program



Total Sites: 33,121

Figure 8-2 Total Number of Restoration Sites by Installation or Property Type



Total Sites: 33,121

- **Building Demolition/Debris Removal (BD/DR)**—BD/DR provides for the demolition and removal of unsafe buildings and structures at facilities or sites that meet specified criteria. Most BD/DR activities take place on FUDS properties. Due to the small size of the program (403 sites), BD/DR sites are included in IRP site counts unless otherwise indicated.

Through these program areas, DoD conducts cleanup on three types of properties: active installations, BRAC installations, and FUDS properties (Figures 8-1 and 8-2). DoD also addresses contamination that has migrated from defense installations or properties to neighboring communities.

### Risk Management and Prioritization

The Department prioritizes funding to clean up sites that pose the greatest threat to human health and the environment first; cleanup proceeds with a “worst-first” approach. Factors such as economic, programmatic, and stakeholder concerns may also affect cleanup prioritization.

DoD uses two tools to determine a site’s risk relative to other sites: the Relative Risk Site Evaluation (RRSE) for IRP sites, and the Munitions Response Site Prioritization Protocol (MRSPP) for MRSs.

### Relative Risk Site Evaluation

DoD uses the RRSE to prioritize IRP sites into three categories: high, medium, or low relative risk. The rating is based on the nature and extent of the site’s contamination, the likelihood that contaminants will migrate, and potential impacts on populations and ecosystems.

At BRAC installations, DoD considers the RRSE framework when determining site prioritization; however, reuse needs and priorities, as well as property transfer and redevelopment plans, are also important factors.

### Munitions Response Site Prioritization Protocol

The MRSPP consists of three separate modules to evaluate hazards associated with:

1. Explosives
2. Chemical warfare materiel
3. MC and incidental environmental contaminants

Based on relative risk in these hazard areas, DoD gives each MRS a numeric score or an alternative rating. This information affects how DoD sequences MRSs for cleanup.

DoD Components were required to report MRSPP scores beginning in FY2008. Through FY2009, DoD had assigned numeric scores to 706 MRSs and alternative ratings to

3,077 MRSs. Of those, one is sequenced for cleanup ahead of higher priority MRSs. DoD investigated this site under the IRP, and began cleanup under the IRP. As DoD identified additional munitions contamination was identified, the site moved to the MMRP. It is sequenced for cleanup ahead of higher priority MRSs to continue the cleanup started under the IRP.

To help educate military personnel on implementing the MRSPP, DoD released an online MRSPP training program in FY2009. The online training course is available through Joint Knowledge Online at <http://jko.cmil.org> (course number: J3OP-US452).

### Evaluation Criteria

**Program Goals**—When carrying out environmental restoration, DoD primarily strives for two program goals: remedy in place (RIP), which shows that cleanup systems are constructed and operational, and response complete (RC), which shows that the site has achieved the agreed upon cleanup standards (though it may still be monitored

**Figure 8-3** DoD Restoration Performance Goals

Active Installations	
IRP	
	Reduce risk or achieve RIP/RC at all high relative risk sites by the end of FY2007
	Reduce risk or achieve RIP/RC at all medium relative risk sites by the end of FY2011
	Reduce risk or achieve RIP/RC at all low relative risk sites by the end of FY2014
	Achieve RIP/RC at all sites by the end of FY2014
MMRP	
	Complete preliminary assessments (PAs) at all MRSs by the end of FY2007
	Complete site inspections (SIs) at all MRSs by the end of FY2010
	Achieve RIP/RC at all MRSs by the end of FY2020
BRAC Installations	
IRP	
	Achieve RIP/RC at all Legacy BRAC IRP sites by the end of FY2015
	Achieve RIP/RC at all BRAC 2005 IRP sites by the end of FY2014
MMRP	
	Achieve RIP/RC at all Legacy BRAC MRSs by the end of FY2009
	Achieve RIP/RC at all BRAC 2005 MRSs by the end of FY2017
FUDS Properties	
IRP	
	Reduce risk or achieve RIP/RC at all high relative risk sites by the end of FY2007
	Reduce risk or achieve RIP/RC at all medium relative risk sites by the end of FY2011
	Reduce risk or achieve RIP/RC at all low relative risk sites by the end of FY2020
	Achieve RIP/RC at all sites by the end of FY2020
MMRP	
	Complete PAs at all MRSs by the end of FY2007
	Complete SIs at all MRSs by the end of FY2010

due to restricted property use). The Department develops specific IRP and MMRP goals, with target time lines for achieving risk reduction and RIP/RC (Figure 8-3).

**Cost-to-Complete (CTC) Estimates**—CTC estimates are the anticipated funds needed to complete cleanup at IRP sites and MRSs. DoD uses CTC estimates to ensure that installations and FUDS properties use cost-effective cleanup strategies. CTC estimates indicate cleanup progress by decreasing as restoration sites move through the phases of cleanup and achieve program goals.

**Restoration Phases and Milestones**—RIP/RC corresponds to phases in the CERCLA cleanup process (Figure 8-4). DoD Components monitor cleanup progress and risk reduction at sites by aligning cleanup status with five phases or milestones in the CERCLA process: (1) investigation completed, underway, or planned, (2) cleanup completed, underway, or planned, (3) RIP, (4) RC, and (5) long-term management (LTM) completed, underway, or planned.

To address inconsistencies between DoD and U.S. Environmental Protection Agency (EPA) data when reporting progress, DoD and EPA established a Joint Measures Harmonization Workgroup in FY2009. The Workgroup’s objective is to review both agencies’ goals and performance metrics and develop a transparent, consistent approach to reporting the progress of DoD’s cleanup program.

### Chapter Contents

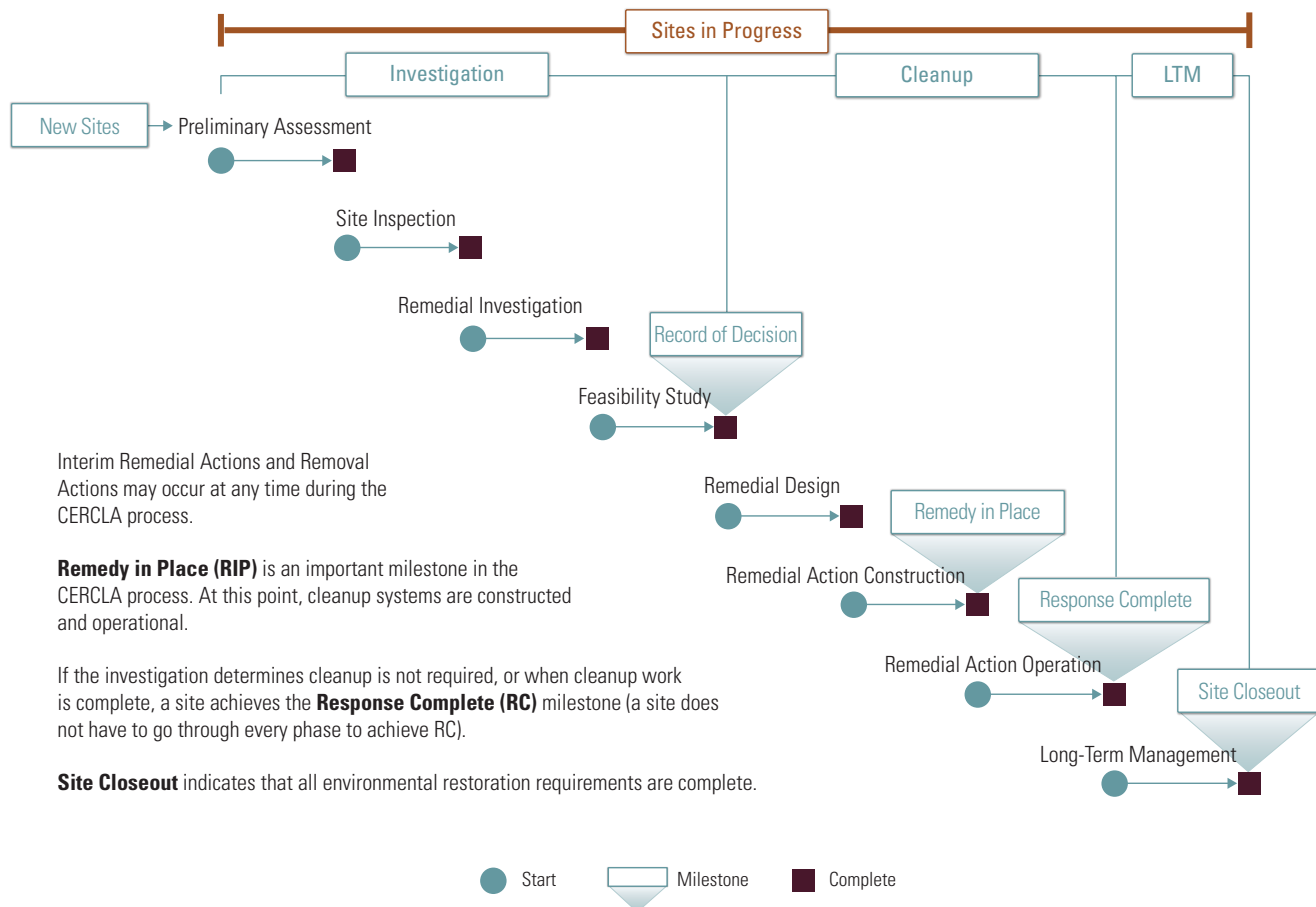
This chapter summarizes DERP performance trends for the Department’s:

- Active Installations
- BRAC Installations
- FUDS Properties

This chapter also summarizes the program status of two initiatives that support DERP goals:

- Cost Recovery
- Restoration Partnerships

Figure 8-4 DoD CERCLA Environmental Restoration Phases and Milestones



## Active Installations

DoD demonstrated the following performance:

- Achieved RIP/RC at **86 percent** of all IRP sites through FY2009
- Completed preliminary assessments (PAs) at **97 percent** of all MRSs through FY2009
- Decreased CTC estimates for IRP sites and MRSs by **22 and 36 percent**, respectively, from FY2005

## Overview

DoD funds cleanup of IRP sites and MRSs at active installations through five ER accounts: Army, Navy, Air Force, FUDS, and Defense-wide.

DoD measures progress toward specific goals for IRP sites and MRSs at active installations (Figures 8-6 and 8-8). DoD Components use the goals to help guide investment decisions and set restoration targets for each fiscal year. In FY2009, DoD added 1,505 IRP sites and 157 MRSs to its inventory of sites on active installations, primarily due to expanded DERP eligibility. These sites are not subject to existing relative risk reduction, PA, or site inspection (SI) goals.

## Performance Summary

Through FY2009, DoD has identified 21,333 IRP sites and 1,827 MRSs on active installations (Figures 8-5 and 8-7).

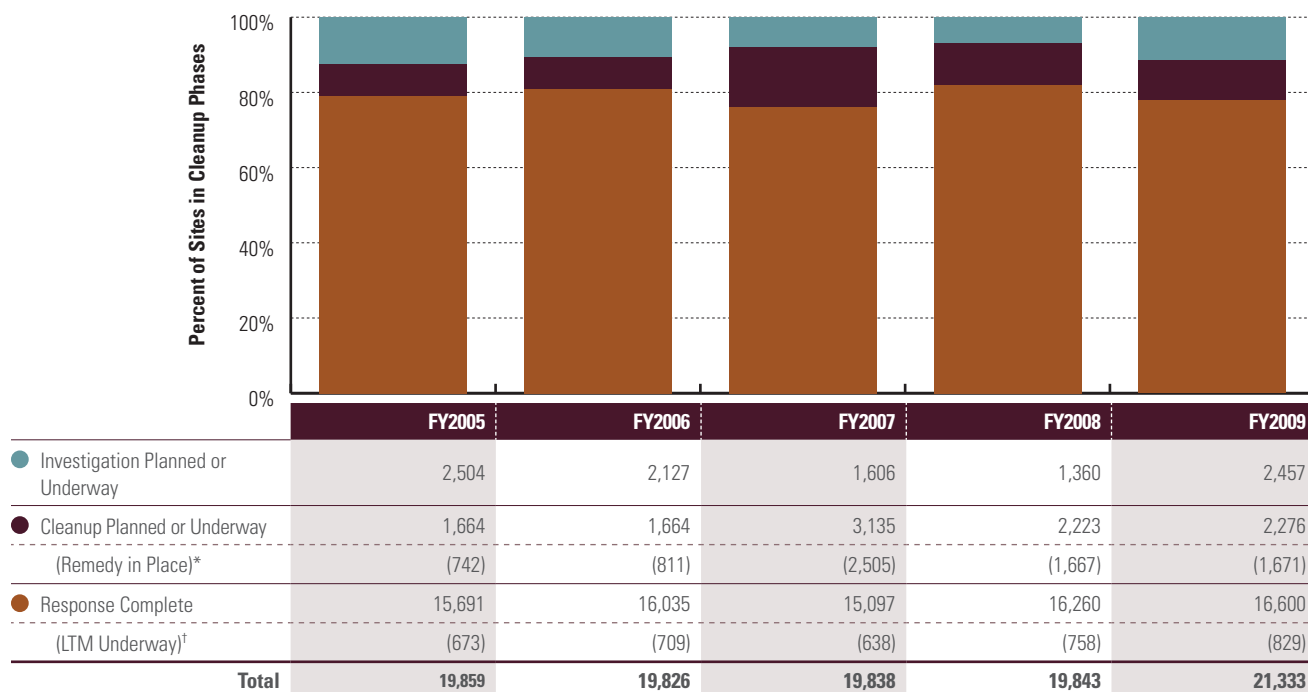
## Installation Restoration Program Performance

Between FY2005 and FY2009, DoD increased the percentage of IRP sites achieving RIP/RC from 83 to 86 percent (Figure 8-6). By FY2009, DoD had achieved RIP/RC at 94 percent of high relative risk IRP sites, up from 76 percent in FY2005. While DoD did not achieve RIP/RC at all high relative risk sites by FY2007 as planned, it is working aggressively to reduce risk at the remaining sites. These sites generally pose significant challenges due to their complexity.

From FY2008 to FY2009, DoD increased the number of sites achieving RIP/RC by 344 sites. However, due to the 1,505 new sites in the inventory, the percentage of sites achieving RIP/RC declined from 90 to 86 percent (Figure 8-6).

DoD has been moving sites successfully through the investigation and cleanup phases and achieving RC (Figure 8-5). Between FY2005 and FY2008, DoD had decreased sites in the investigation phase from 13 to 7 percent, and increased sites achieving RC from 79 to 82 percent.

**Figure 8-5** DoD IRP Site Status at Active Installations by Cleanup Phase



\* Remedy in Place is a subset of Cleanup Planned or Underway.

† LTM is a subset of Response Complete.

**Figure 8-6** DoD Progress Toward IRP Performance Goals at Active Installations\*

IRP Goal	FY05	FY06	FY07	FY08	FY09
Reduce risk or achieve RIP/RC at all high relative risk sites by the end of FY2007	76%	83%	92%	93%	94%
Reduce risk or achieve RIP/RC at all medium relative risk sites by the end of FY2011	48%	52%	58%	65%	70%
Reduce risk or achieve RIP/RC at all low relative risk sites by the end of FY2014	57%	59%	65%	69%	74%
Achieve RIP/RC at all sites by the end of FY2014	83%	85%	89%	90%	86%

\* New sites added to the inventory in FY2009 are not subject to relative risk reduction goals.

Between FY2008 and FY2009, DoD achieved RC at an additional 340 sites (Figure 8-5). However, the addition of 1,505 new sites to the inventory caused sites in the investigation phase to increase from 7 to 12 percent and sites achieving RC to decrease from 82 to 78 percent, relative to the total number IRP sites.

### Military Munitions Response Program Performance

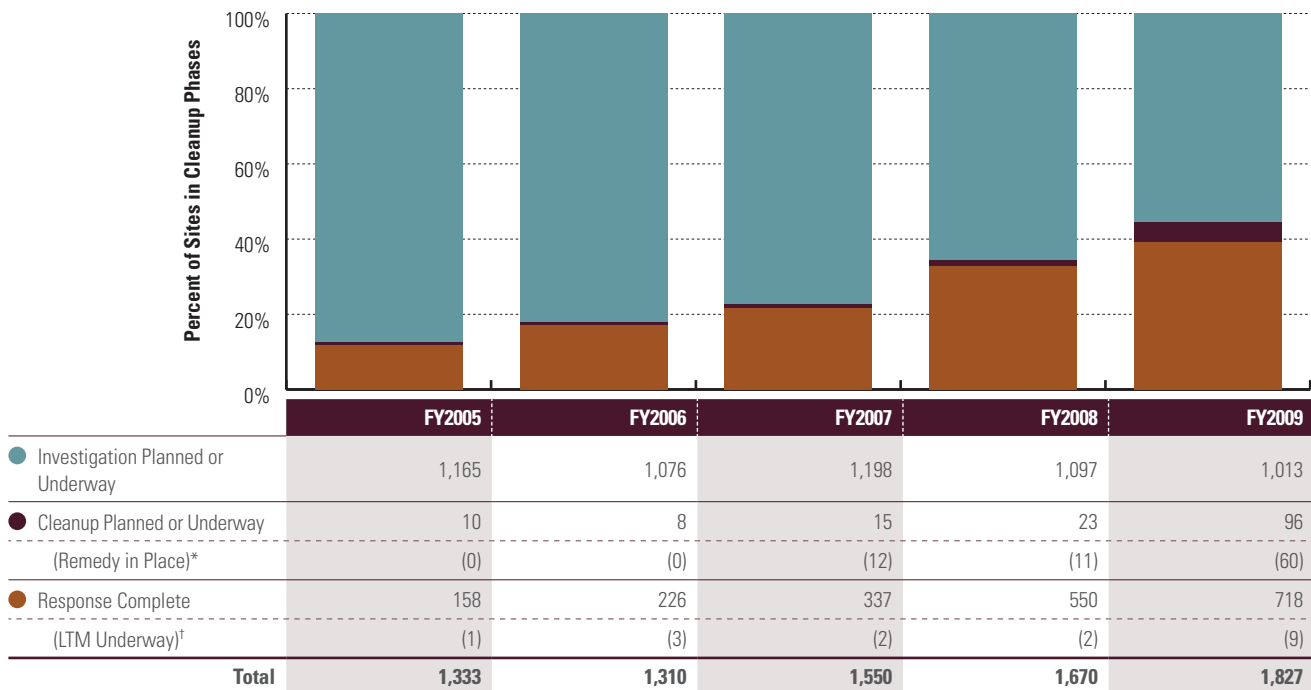
DoD has completed PAs at 97 percent of all MRSs and SIs at 72 percent of all MRSs (Figure 8-8). The Department strives to complete PAs and SIs, even as it continues to identify new MRSs.

With 11 years until its target, the Department has achieved RIP/RC at 43 percent of all MRSs (Figure 8-8). DoD has increased sites achieving RIP/RC from 12 percent in FY2005 and 34 percent in FY2008.

Between FY2005 and FY2009, DoD has progressed MRSs through the cleanup phases: since FY2005, DoD has decreased sites in the investigation phase from 87 to 55 percent, with a corresponding increase in sites achieving RC from 12 to 39 percent (Figure 8-7).

Since FY2008, DoD has decreased sites in the investigation phase from 66 to 55 percent, and increased sites achieving RC from 33 to 39 percent (Figure 8-7).

**Figure 8-7** DoD MRS Status at Active Installations by Cleanup Phase



\* Remedy in Place is a subset of Cleanup Planned or Underway.

† LTM is a subset of Response Complete.

**Figure 8-8** DoD Progress Toward MMRP Performance Goals at Active Installations\*

MMRP Goal	FY05	FY06	FY07	FY08	FY09
Complete PAs at all MRSs by the end of FY2007	69%	70%	96%	95%	97%
Complete SIs at all MRSs by the end of FY2010	14%	24%	29%	51%	72%
Achieve RIP/RC at all MRSs by the end of FY2020	12%	17%	23%	34%	43%

\* New sites added to the inventory in FY2009 are not subject to the PA or SI goals.

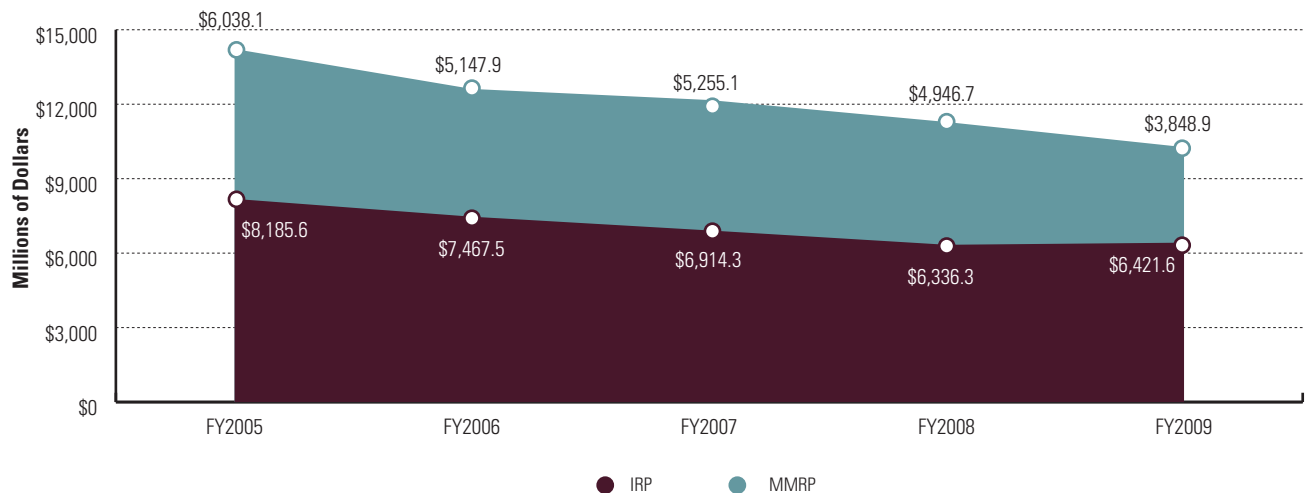
### Cost-to-Complete

In FY2009, DoD estimated the CTC to be \$6.4 billion for IRP cleanup, and \$3.8 billion for MMRP cleanup (Figure 8-9). DoD has decreased CTC estimates for IRP cleanup by 22 percent since FY2005. Similarly, DoD has lowered CTC estimates for MMRP cleanup by 36 percent since FY2005.

The downward trend in both IRP and MMRP CTC estimates exhibits DoD's success in moving sites through the cleanup phases to achieve RC.

Appendix B, Section 8 contains Active Installations performance data by DoD Component.

**Figure 8-9** DoD IRP and MMRP CTC Estimates at Active Installations



\* Funding represents site-level data and does not include management and support costs not directly attributable to specific sites.

## Base Realignment and Closure Installations

In FY2009, DoD demonstrated the following performance:

- Transferred **3,988 acres** through Early Transfer Authority (ETA)
- Increased BRAC 2005 IRP sites achieving RIP/RC from **47 to 54 percent**
- Decreased CTC estimates for MMRP cleanup by **21 percent** since FY2005

### Overview

BRAC installations are properties that have been identified for realignment or closure under one of the five Congressionally-approved BRAC rounds. Through BRAC, DoD reorganizes installations to more effectively support its forces, increase operational readiness, and innovate new ways of doing business.

DoD funds cleanup at closing installations through two BRAC accounts: one for Legacy BRAC, and one for BRAC 2005. DoD Components fund cleanup at realigning installations through their ER accounts.

DoD measures progress toward specific goals for IRP sites and MRSs at BRAC installations (Figures 8-11 and 8-13). DoD Components use the goals to help guide investment decisions and set restoration targets for each fiscal year.

### Property Transfer Under BRAC

The Department transfers property under BRAC to other parties using two main tools:

- **Public Benefit Conveyances (PBCs)** allow DoD to transfer property at a substantially discounted rate. PBCs primarily transfer property to local redevelopment authorities or to state and local governments for public service use, such as education and public health facilities, parks and recreation areas, non-federal correctional facilities, ports, and historic monuments.

- **Economic Development Conveyances (EDCs)** support the creation of jobs lost during base closure, and primarily transfer property to local redevelopment authorities.

ETA enables the EPA Administrator or state governors to approve the transfer of property before cleanup is complete. DoD complies with regulatory safeguards while acting under ETA to ensure that human health and the environment are not harmed.

DoD Components have several other options for transferring property. For example, DoD Components may transfer property to an entity that will take responsibility for all cleanup, or DoD Components may transfer property in exchange for military construction at that or another location.

### Performance Summary

Through FY2009, DoD has identified 5,126 IRP sites and 344 MRSs on BRAC installations (Figures 8-12 and 8-14).

In FY2009, DoD transferred 3,988 acres through ETA (Figure 8-10).

### Installation Restoration Program Performance

Between FY2005 and FY2009, DoD has consistently maintained between 86 and 88 percent of Legacy BRAC IRP sites at RIP/RC, with slight increases in the past two years (Figure 8-11).

Through FY2009, DoD has achieved RIP/RC at 54 percent of all BRAC 2005 sites, down from 66 percent in FY2006 (Figure 8-11). The proportion of BRAC 2005 sites achieving RIP/RC has fallen as DoD has continued to realign or close sites on active installations and

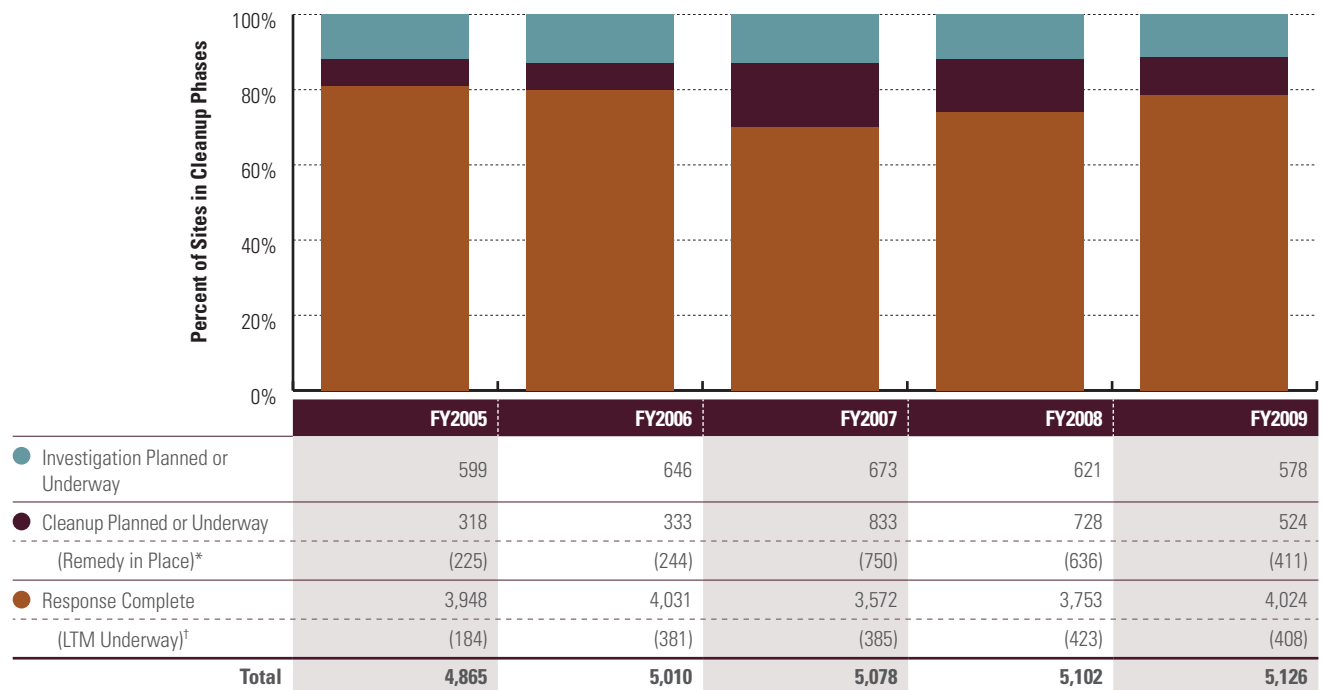
**Figure 8-11** DoD Progress Toward IRP Performance Goals at BRAC Installations

IRP Goal	FY05	FY06	FY07	FY08	FY09
Achieve RIP/RC at all Legacy BRAC IRP sites by the end of FY2015	86%	86%	86%	87%	88%
Achieve RIP/RC at all BRAC 2005 IRP sites by the end of FY2014	N/A	66%	62%	47%	54%

**Figure 8-10** BRAC Early Transfer Authority Acreage in FY2009

DoD Component	Installation Name	Date Transferred	Conveyance	Number of Acres Transferred
Air Force	McClellan Air Force Base	October-08	PBC-Parks	314
Air Force	Plattsburg Air Force Base	July-09	EDC	337
Army	Fort Ord, CA	May-09	EDC	3,337
<b>Total</b>				<b>3,988</b>



**Figure 8-12** DoD IRP Site Status at Legacy BRAC and BRAC 2005 Installations by Cleanup Phase

\* Remedy in Place is a subset of Cleanup Planned or Underway.

† LTM is a subset of Response Complete.

transfer them to the BRAC 2005 inventory. In the last year, however, DoD has increased BRAC 2005 IRP sites achieving RIP/RC from 47 to 54 percent.

Since FY2007, when DoD added 500 sites to the cleanup phase, DoD has increased Legacy BRAC and BRAC 2005 IRP sites achieving RC from 70 to 79 percent (Figure 8-12). This corresponds to a decrease from 16 to 10 percent of sites in the previous phase, cleanup, over the same period.

Since FY2008, DoD has increased the number of sites achieving RC from 74 to 79 percent (Figure 8-12). DoD simultaneously decreased sites in the investigation phase from 12 to 11 percent, and decreased sites in the cleanup phase from 14 to 10 percent.

### Military Munitions Response Program Performance

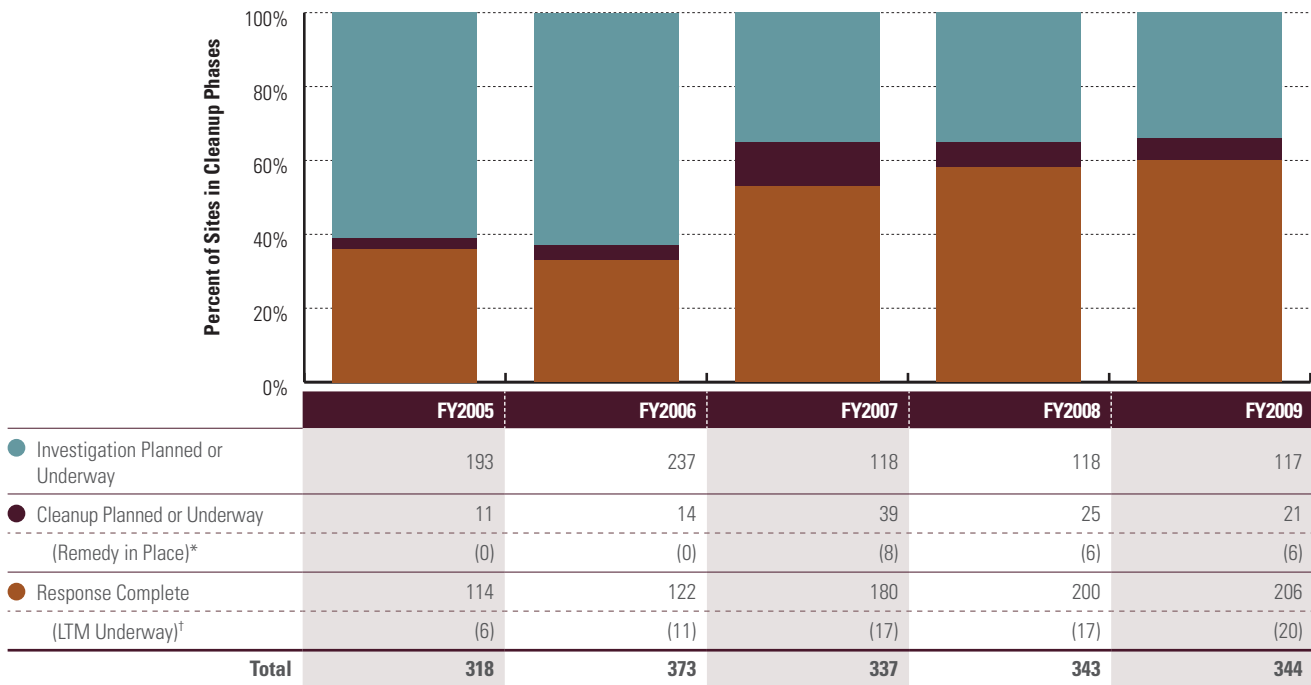
By FY2009, DoD had achieved RIP/RC at 68 percent of Legacy BRAC MRSs, up from 36 percent in FY2005 (Figure 8-13). While DoD did not achieve RIP/RC at all MRSs by the end of FY2009 as planned, it is working aggressively to reduce risk at the remaining sites. These sites generally pose significant challenges due to their complexity.

The Department has achieved RIP/RC at 33 percent of all BRAC 2005 MRSs, with 8 years until its target of 100 percent (Figure 8-13). Between FY2006 and FY2009, DoD increased the number of MRSs at RIP/RC from 0 to 33 percent.

**Figure 8-13** DoD Progress Toward MMRP Performance Goals at BRAC Installations

MMRP Goal	FY05	FY06	FY07	FY08	FY09
Achieve RIP/RC at all Legacy BRAC MRSs by the end of FY2009	36%	38%	63%	67%	68%
Achieve RIP/RC at all BRAC 2005 MRSs by the end of FY2017	N/A	0%	20%	27%	33%

Figure 8-14 DoD MRS Status at Legacy BRAC and BRAC 2005 Installations by Cleanup Phase



\* Remedy in Place is a subset of Cleanup Planned or Underway.  
 † LTM is a subset of Response Complete.

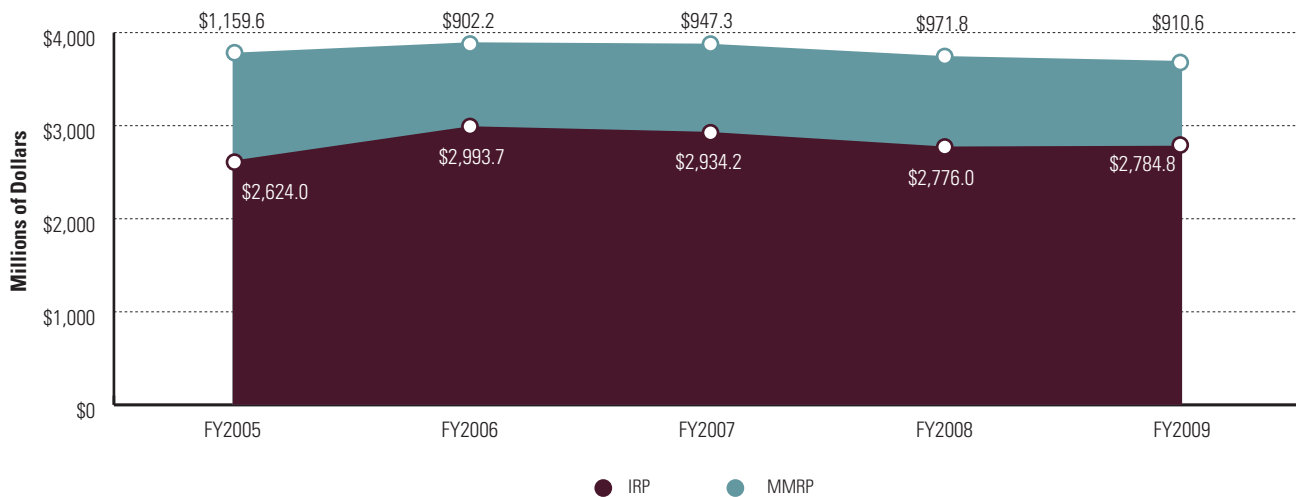
From FY2008 to FY2009, DoD maintained a consistent number of MRSs in the investigation and cleanup phases (Figure 8-14). DoD achieved RC at six MRSs in FY2009, increasing the percentage of MRSs achieving RIP/RC from 60 to 62 percent since FY2008.

### Cost-to-Complete

In FY2009, DoD estimated the CTC to be \$2.8 billion for IRP cleanup and \$0.9 billion for MMRP cleanup (Figure 8-15). DoD has increased CTC estimates for IRP cleanup by six percent since FY2005. DoD has lowered CTC estimates for MMRP cleanup by 21 percent since FY2005.

Appendix B, Section 8 contains BRAC Installations performance data by DoD Component.

Figure 8-15 DoD IRP and MMRP CTC Estimates at Legacy BRAC and BRAC 2005 Installations



\* Funding represents site-level data and does not include management and support costs not directly attributable to specific sites.

## Formerly Used Defense Sites

DoD demonstrated the following performance:

- Achieved RIP/RC at **71 percent** of IRP sites through FY2009
- Completed SIs at **67 percent** of all MRSs through FY2009
- Increased CTC estimates for IRP cleanup **7 percent** and decreased CTC estimates for MMRP cleanup **9 percent** since FY2008

### Overview

FUDS properties are real properties that were under DoD's jurisdiction until they were transferred to private individuals, corporations, state and local governments, federal agencies, or tribal governments before SARA was signed on October 17, 1986. Properties transferred after SARA are subject to BRAC.

The Secretary of Defense has designated the Army as Executive Agent to manage environmental cleanup on FUDS properties. The U.S. Army Corps of Engineers (USACE) performs program management and execution. USACE Districts conduct cleanup in consultation with stakeholders, local communities, and regulators.

The FUDS cleanup process begins with historical background research. For properties where DoD held jurisdiction at the time of contamination, researchers determine the origins of existing environmental and health hazards. If another party is at least partially responsible for the contamination, USACE may negotiate a settlement for the other party to partially conduct or fund the cleanup.

FUDS cleanup is unique because DoD no longer manages the property and cannot control the actions of non-DoD landowners. USACE must instead coordinate and negotiate with current landowners to clean up contamination.

DoD measures progress toward specific goals for IRP sites and MRSs on FUDS properties (Figures 8-16 and 8-18). DoD Components use the goals to help guide investment decisions and set restoration targets for each fiscal year. In FY2009, DoD added 37 IRP sites and 68 MRSs to its FUDS inventory.

DoD has not yet established a RIP/RC goal for FUDS MRSs because USACE is still in the process of completing SIs. Once USACE better characterizes the sites, DoD will evaluate the data and establish a RIP/RC goal for FUDS.

## Performance Summary

Through FY2009, DoD has identified 2,879 IRP sites and 1,612 MRSs on FUDS properties (Figures 8-17 and 8-19). DoD reports fewer MRSs on FUDS properties in FY2009 than in previous years. DoD identified some sites that they believed required cleanup, but later determined that these sites did not require any response actions. In FY2009, DoD stopped including data on these sites in this report.

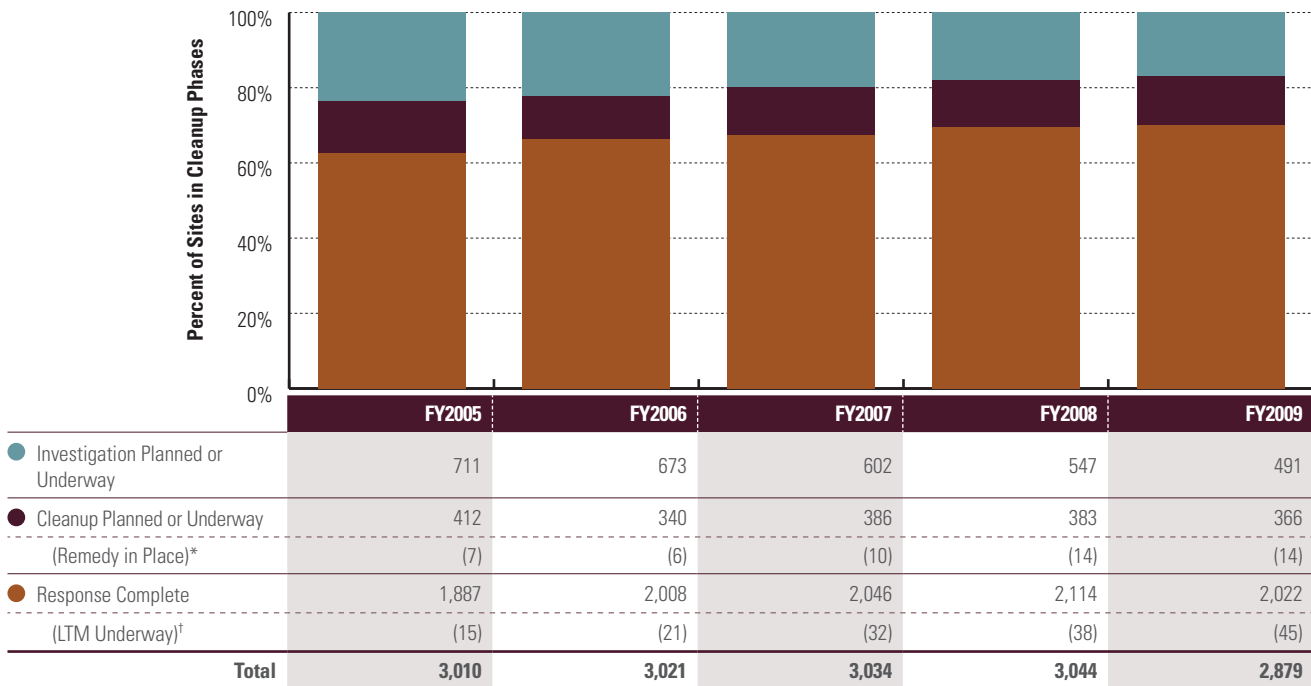
### Installation Restoration Program Performance

By FY2009, DoD had achieved RIP/RC at 55 percent of high relative risk IRP sites (Figure 8-16). While DoD did not achieve RIP/RC at all high relative risk sites by FY2007 as planned, it is working aggressively to reduce risk at the remaining sites. These sites generally pose significant challenges due to their complexity.

**Figure 8-16** DoD Progress Toward IRP Performance Goals at FUDS Properties

IRP Goal	FY05	FY06	FY07	FY08	FY09
Reduce risk or achieve RIP/RC at all high relative risk sites by the end of FY2007	46%	48%	50%	54%	55%
Reduce risk or achieve RIP/RC at all medium relative risk sites by the end of FY2011	39%	43%	46%	50%	52%
Reduce risk or achieve RIP/RC at all low relative risk sites by the end of FY2020	35%	44%	43%	52%	56%
Achieve RIP/RC at all sites by the end of FY2020	63%	67%	68%	70%	71%

Figure 8-17 DoD IRP Site Status at FUDS Properties by Cleanup Phase



\* Remedy in Place is a subset of Cleanup Planned or Underway.  
 † LTM is a subset of Response Complete.

Between FY2005 and FY2009, DoD has effectively moved IRP sites on FUDS properties through the investigation and cleanup phases to achieve RC (Figure 8-17). Between FY2005 and FY2009, DoD decreased sites in the investigation phase from 24 to 17 percent; maintained a steady proportion of sites in the cleanup phase; and increased sites achieving RC from 63 to 70 percent.

Since FY2008, DoD decreased sites in the investigation phase from 18 to 17 percent, with a corresponding increase of sites achieving RC, from 69 to 70 percent (Figure 8-17).

### Military Munitions Response Program Performance

Through FY2009, DoD has completed PAs at 96 percent of all MRSs on FUDS properties (Figure 8-18). While the Department did report 99 percent completion in FY2006, since then DoD has continued to add new sites to the FUDS inventory. The 68 new MRSs added in FY2009 account for the drop from 99 percent of PAs complete in FY2008.

DoD has completed SIs at 67 percent of MRSs, with 1 year until its target for 100 percent completion (Figure 8-18). This represents a significant increase, up from 33 percent in FY2006 and 58 percent in FY2008.

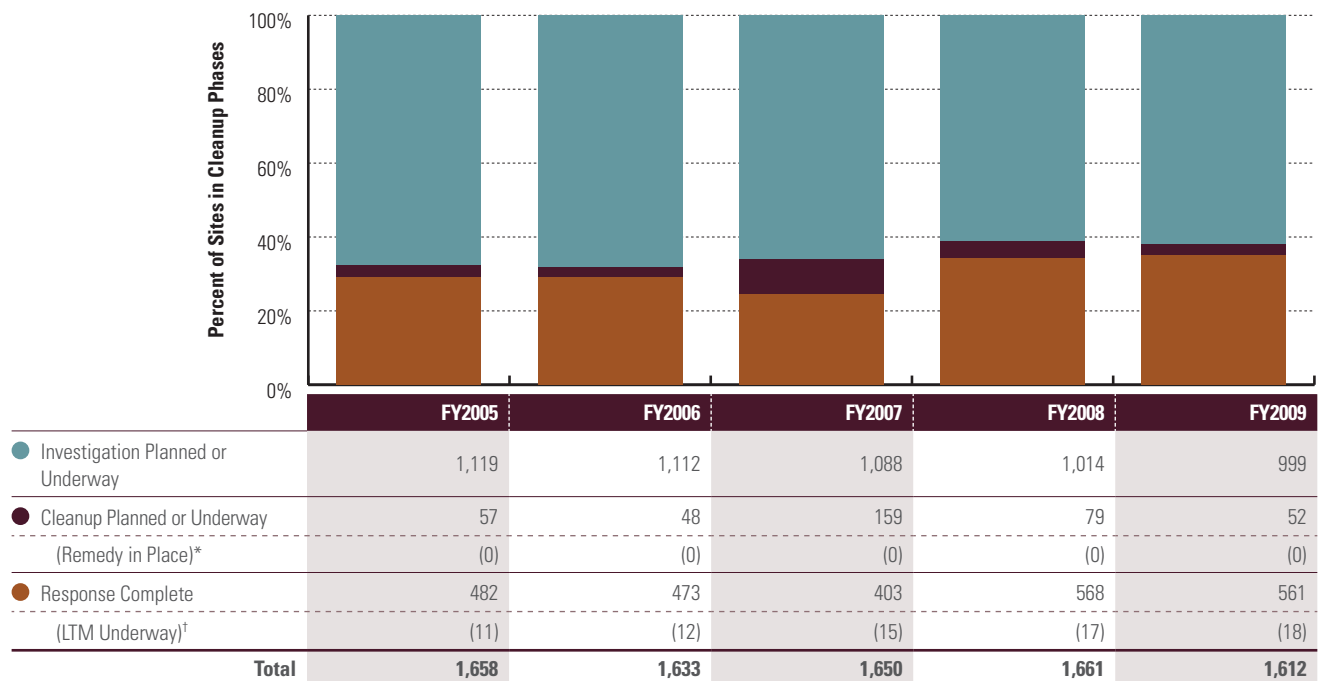
Between FY2005 and FY2009, DoD decreased sites in investigation from 67 to 62 percent (Figure 8-19). As expected, the Department also increased sites at RC from 29 to 35 percent over the same time period.

Since FY2008, DoD has increased sites at RC from 34 to 35 percent (Figure 8-19).

Figure 8-18 DoD Progress Toward MMRP Performance Goals at FUDS Properties

MMRP Goal	FY05	FY06	FY07	FY08	FY09
Complete PAs at all MRSs by the end of FY2007	98%	99%	99%	99%	96%
Complete SIs at all MRSs by the end of FY2010	34%	34%	45%	58%	67%

Figure 8-19 DoD MRS Status at FUDS Properties by Cleanup Phase



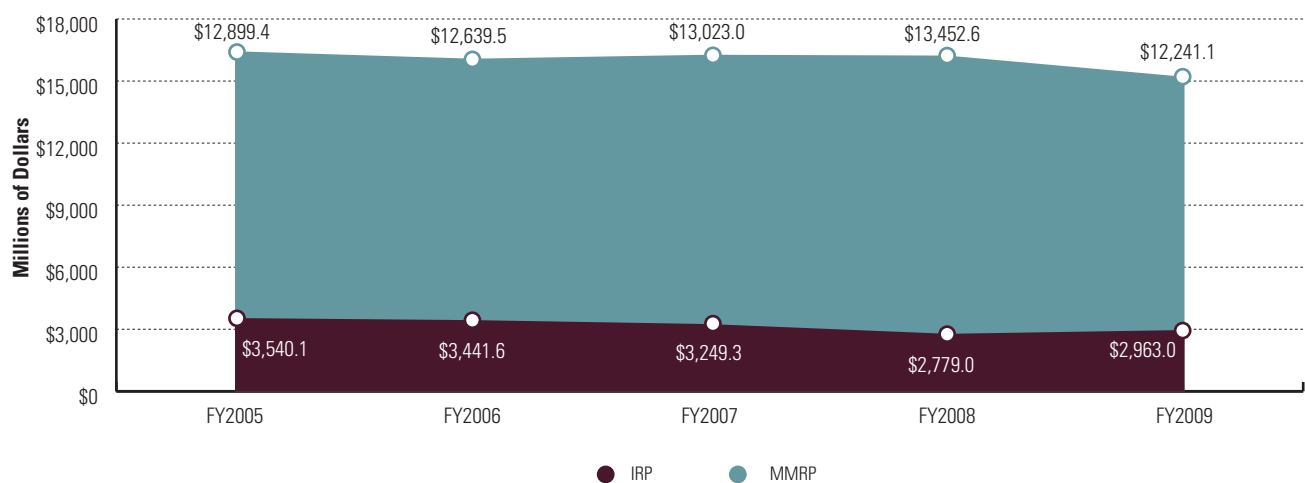
\* Remedy in Place is a subset of Cleanup Planned or Underway.  
 † LTM is a subset of Response Complete.

### Cost-to-Complete

In FY2009, DoD estimated the CTC for IRP cleanup to be \$3.0 billion (Figure 8-20). DoD has decreased CTC estimates for FUDS IRP sites by 16 percent since FY2005.

DoD estimated the CTC for MMRP cleanup to be \$12.2 billion (Figure 8-20). DoD has lowered CTC estimates for MMRP cleanup five percent since FY2005. Fluxuations in CTC over the past five years are the result of better characterization during the investigation phase.

Figure 8-20 DoD IRP and MMRP CTC Estimates at FUDS Properties\*



\* Funding represents site-level data and does not include management and support costs not directly attributable to specific sites.

## Cost Recovery

In FY2009, DoD demonstrated the following performance:

- Recovered cleanup costs for 13 installations, totaling **\$27.8 million**

### Overview

DoD uses cost recovery to recover or share cleanup costs when contamination at an installation has resulted, either partially or wholly, from the past activities of another party.

Cost recovery contributes to the economic efficiency of the restoration process by allowing DoD Components to expand funding and resources available for cleanup.

DoD Components are required to:

- Establish policies to identify other parties potentially responsible for contamination, both public and private
- When cost-effective, pursue the other potentially responsible party to either take responsibility for environmental restoration, or to contribute to the cost of response actions
- Pursue recovery of costs of \$50,000 or more whenever a response action on DoD property is required and cooperation could not be negotiated in advance

While DoD pursues cost recovery from liable parties, environmental restoration continues to be a top priority. The Department addresses contamination, regardless of its ability to recover costs.

## Program Status

When available, installations report the amount recovered in the reporting year and the amount recovered cumulatively through FY2009, as compared to the actual cleanup costs. DoD recovered \$27.8 million in FY2009 (Figure 8-21).

Appendix B, Section 8 contains Cost Recovery data by installation.

**Figure 8-21** Cost Recovery Efforts by DoD Component

DoD Component	Amount Recovered/ Shared in FY2009	Cumulative Amount Recovered/ Shared through FY2009	Cost to Pursue Action in FY2009	Cost to Pursue Action through FY2009
Army	\$19,283,454	\$537,622,630	N/A	N/A
Navy and Marine Corps	\$6,064,027	\$11,419,350	\$188,473	\$1,756,149
Air Force	\$2,450,000	\$5,250,000	N/A	N/A
DLA	--	--	\$2,264,117	\$8,768,716
<b>DoD Total</b>	<b>\$27,797,481</b>	<b>\$554,291,980</b>	<b>\$2,452,590</b>	<b>\$10,524,865</b>

## Restoration Partnerships

### Overview

DoD participates in various partnerships and agreements to further DERP goals and ensure cleanup proceeds as efficiently as possible.

This section presents two partnerships that are especially high-profile and represent considerable investment by the Department: Restoration Advisory Boards (RABs) and the Defense/State Memorandum of Agreement (DSMOA) Program.

### Applicable Requirements

DoD's participation in RABs and DSMOA at active and BRAC installations, and FUDS properties, is subject to the requirements that govern the DERP, as well as the following requirements:

- 10 U.S.C. §2705
- The RAB Rule
- 32 Code of Federal Regulations Part 33
- DoD Grant and Agreement Regulation 3210.6-R
- Office of Management and Budget Circulars A-87, A-102, and A-133

In addition, DoD developed policies and guidance to meet the above requirements, including:

- The RAB Rule Handbook
- DSMOA/Cooperative Agreements (CA) Program Guide
- DoD Memorandum, "Clarification of Eligibility for Reimbursement of State Activities for the Department of Defense and State Memorandum of Agreement (DSMOA) Program"

### Restoration Advisory Boards

*In FY2009, DoD demonstrated the following performance:*

- Supported **191 RABs** on 218 installations
- Expended **\$2.95 million** to support RABs

### Overview

RABs are community-oriented forums that encourage and facilitate communication between citizens and installation decision-makers regarding cleanup at active and BRAC installations, and FUDS properties. Participants may include representatives from the community, installation, or state; local or tribal governments; local activist organizations; and federal, state, or local regulatory agencies.

RAB procedures require installation commanders to evaluate whether to establish a RAB every two years. Commanders assess community interest and determine whether support will be continuous. The installation may also evaluate community interest at any time if:

- Requested by a regulatory agency or government body
- An event occurs that may increase community interest
- An installation closes or transfers property to the community
- Citizens petition for a RAB

Once an installation decides to establish a RAB, it reaches out to the community for participation and membership. It involves citizens in creating a community involvement program and outlining the RAB's operating procedures.

RABs have three funding options:

- **Administrative support**—DoD provides resources to RABs for meeting logistics, training, facilitators, translators, and other similar needs.
- **Technical Assistance for Public Participation (TAPP)**—DoD may provide TAPP grants for technology assessments, relative risk site evaluations, health risk evaluations, and technical training and other technical support. TAPP grants provide up to \$100,000 of total cleanup costs. TAPP grants are limited to \$25,000 per year or 1 percent of CTC cleanup, whichever is the lesser value.
- **Technical Assistance Grants (TAGs)**—EPA provides TAGs to RABs addressing National Priorities List (NPL) installations, or whose communities are threatened by the release of contaminants.

### Evaluation Criteria

One way in which DoD assesses RAB performance is by counting the number of RABs dissolved or adjourned.

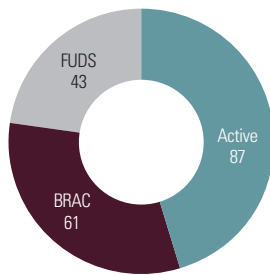
A second way in which DoD evaluates RAB performance is by tracking RAB activities to determine if RABs are using their time and resources efficiently. RABs record their activities in two different locations: the administrative record, which is the official record for cleanup activities and contains documents used to select cleanup actions; and the information repository, which is a public record where members can add comments, newspaper articles, or any other items pertinent to restoration activities.

### Performance Summary

DoD has supported a consistent number of RABs since it established the program in FY1994. DoD currently maintains 191 RABs on 218 installations and FUDS properties (Figure 8-22), including 29 Joint RABs (Figure 8-25). In FY2009, DoD established two RABs and did not adjourn or dissolve any RABs (Figure 8-24).

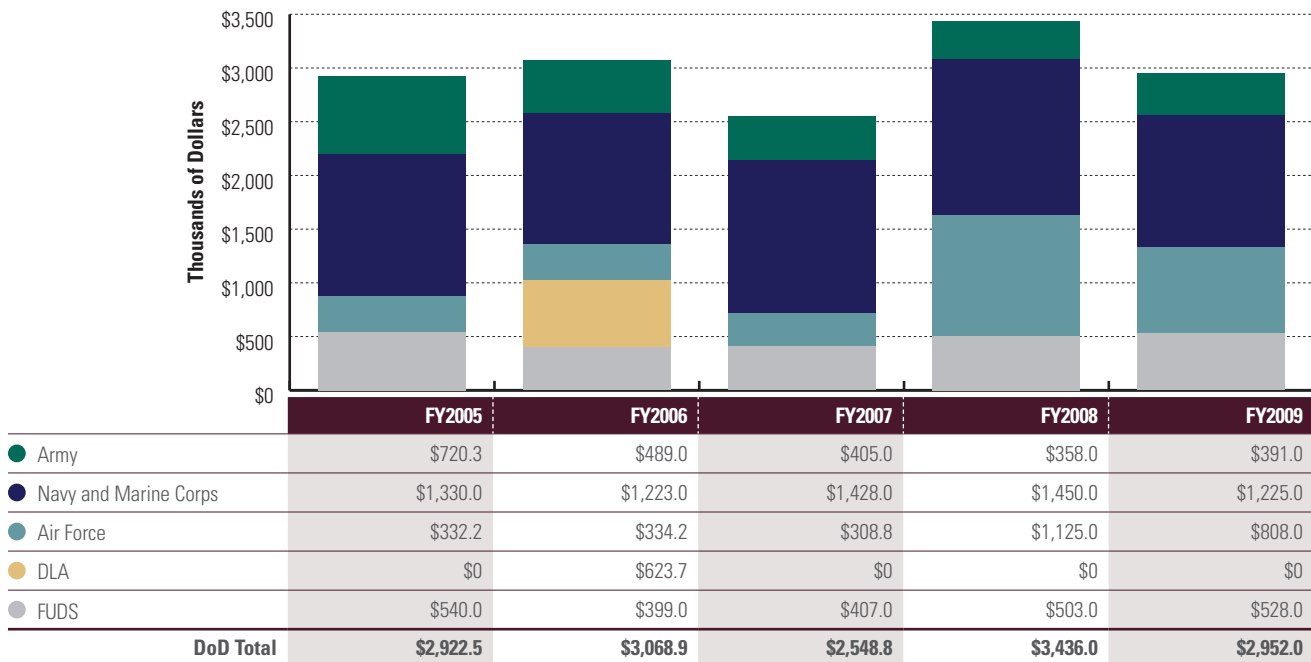
In FY2009, DoD Components expended \$2.95 million to support RABs; DoD has increased expenditures 1 percent since FY2005, but decreased expenditures 14 percent since FY2008 (Figure 8-23). Expenditures vary from year to year, based on community interest and participation.

**Figure 8-22** Total Number of RABs



**Total RABs: 191**

**Figure 8-23** RAB Expenditures by DoD Component



**Figure 8-24** RABs Established in FY2009

Established		
Installation Name	FFID	DoD Component
Military Ocean Terminal Concord	CA921350696A00	Army
Kirtland AFB PBR N1 N3	NM69799624100	FUDS

In FY2009, two DoD installations and three FUDS properties received TAPP grants for their respective RABs, totaling \$93,974 (Figure 8-26).

Appendix B, Section 8 contains data on the number of RABs by DoD Component.

Local residents and local government officials represent most RAB participants (Figure 8-27).



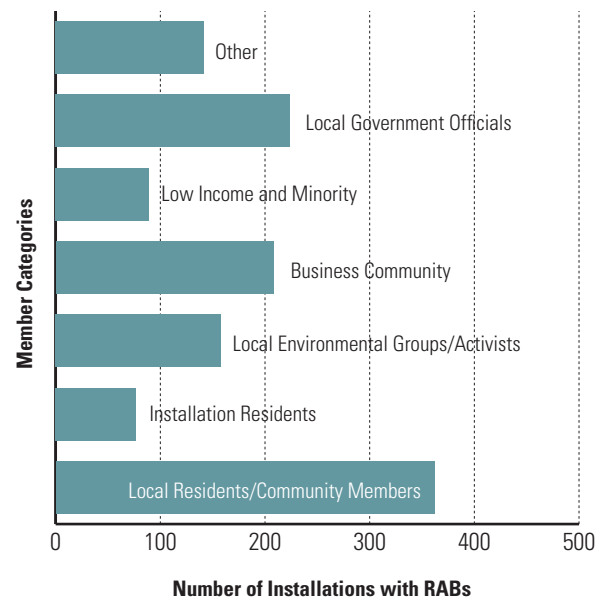
Figure 8-25 Joint RABs by DoD Component

Installation Name	Joint Installation DoD Component	Active and/or BRAC
<b>Army</b>		
MAARNG (Camp Edwards)	Air Force	Active
<b>Navy</b>		
Concord NWS	Army	Active and BRAC
Guam NAS AGANA		Active and BRAC
Key West NAS		Active and BRAC
Long Beach NS San Pedro		Active and BRAC
NASJRB Willow Grove	Air Force	Active and BRAC
PWC San Francisco California		BRAC
<b>Air Force</b>		
Air Force Plant 4, Carswell AFB (NAS Fort Worth JRB), and Former Carswell AFB (BRAC)	Navy	Active and BRAC
Air Force Plant 44, Tucson International Airport		Active
Barter Island LRRS, Bullen Point SRRS		Active
Bellows Air Force Station, Marine Corps Base Hawaii—Kaneohe Bay	Marine Corps	Active
Eglin AFB, Hurlburt AFB		Active
Eielson AFB, Chena River	FUDS	Active
Fairchild AFB, Spokane International Airport, Four Lakes Communications Air Guard Station		Active
Hickam POL, Wake Island		Active
Homestead AFB (Homestead ARB and Former Homestead AFB (BRAC))		Active and BRAC
King Salmon Airport, Naknek Recreation Camp I, and Naknek Recreation Camp II		Active
March AFB (March ARB and Former March AFB (BRAC))		Active and BRAC
Massachusetts Military Reservation (Otis ANGB and Camp Edwards)	Army	Active
Maxwell AFB, Gunter AFB		Active
McGuire AFB, NAES Lakehurst	Navy	Active
North River Radio Relay Station	Navy	Active
Patrick AFB, Cape Canaveral AFS		Active
Point Barrow NARL, Point Lonely	Navy, FUDS	Active
Westover ARB		Active
Willow Grove ARS, NAS Willow Grove JRB	Navy	Active and BRAC
<b>FUDS</b>		
Eielson Farm Road AAA Site	Air Force	Active
Kogru DEW (POW B)	Navy, Air Force	Active
Unalakleet AFSTA	Air Force	Active

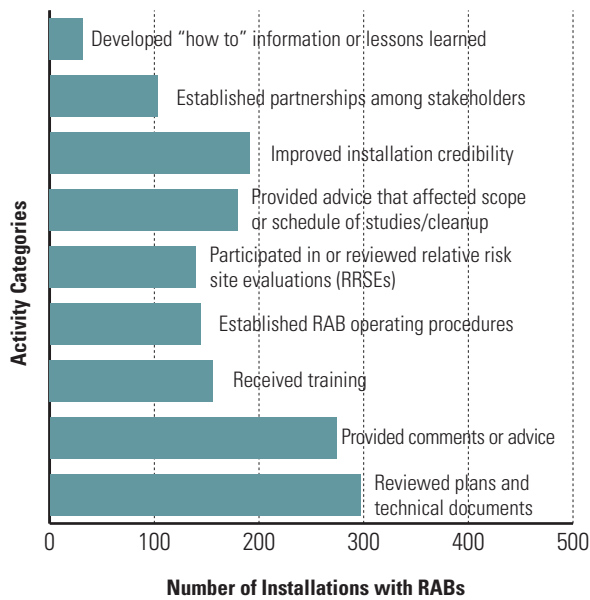
Figure 8-26 RABs Awarded TAPP Funding in FY2009

<b>Army</b>		
Installation Name	FFID	TAPP Amount
Badger Army Ammunition Plant	WI521382005600	\$12,000
<b>Navy</b>		
Installation Name	FFID	TAPP Amount
Calverton NWIRP	NY217002379400	\$24,974
<b>Formerly Used Defense Sites</b>		
Installation Name	FFID	TAPP Amount
Kinchloe Air Force Base	MI59799F226000	\$23,000
Marion Engineer Depot	OH59799F367500	\$9,900
Plum Brook ORD Works	OH59799F364100	\$24,100
<b>Total</b>		<b>\$93,974</b>

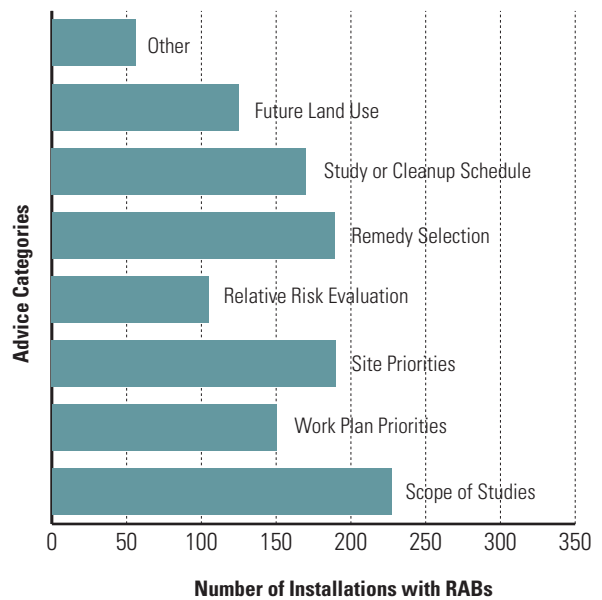
Figure 8-27 RAB Community Membership (Participation by Category)



**Figure 8-28** Primary RAB Activities (Participation by Category)



**Figure 8-29** Advice provided by RABs (Participation by Category)



RABs report reviewing plans and technical documents more than any other activity, a trend similar to FY2008 (Figure 8-28).

Most RABs report that they advised DoD on the scope of environmental or public health studies (Figure 8-29). RABs also commonly contributed input to prioritizing sites and selecting cleanup activities.

## Defense/State Memorandum of Agreement Program

*In FY2009, DoD demonstrated the following performance:*

- Upheld cooperative agreements (CAs) for the FY2008-FY2010 funding period with **52 partners**
- Developed and ratified a **new charter** for the DSMOA Steering Committee

### Overview

A DSMOA is a partnership between the Office of the Secretary of Defense (OSD) and states (or territories), designed to expedite environmental cleanup. DSMOAs provide a framework for the Department to openly coordinate with state regulators to achieve cleanup goals. Under the DSMOA Program, states may apply for funding from DoD (or other sources) for any eligible restoration services they perform.

OSD is responsible for signing DSMOAs and has designated:

- The Army as lead agent for performing DSMOA administrative actions
- USACE to provide logistical support and training
- The DSMOA Steering Committee—which is chaired by Army and has representatives from OSD, DoD Components, and states—to be a forum for communicating concerns, addressing issues, and providing policy recommendations

DoD may reimburse states under DSMOA when states demonstrate that the proposed cleanup is:

- DoD's responsibility under DERP
- Sought by DoD, not an action imposed by the state
- Associated with a specified installation
- On the Joint Execution Plan, which is a planning document for the coordination of resources

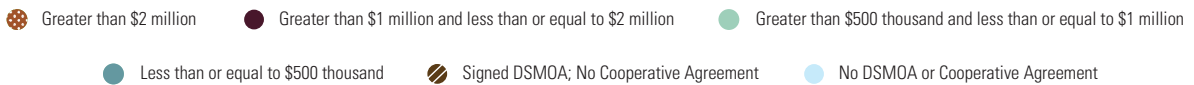
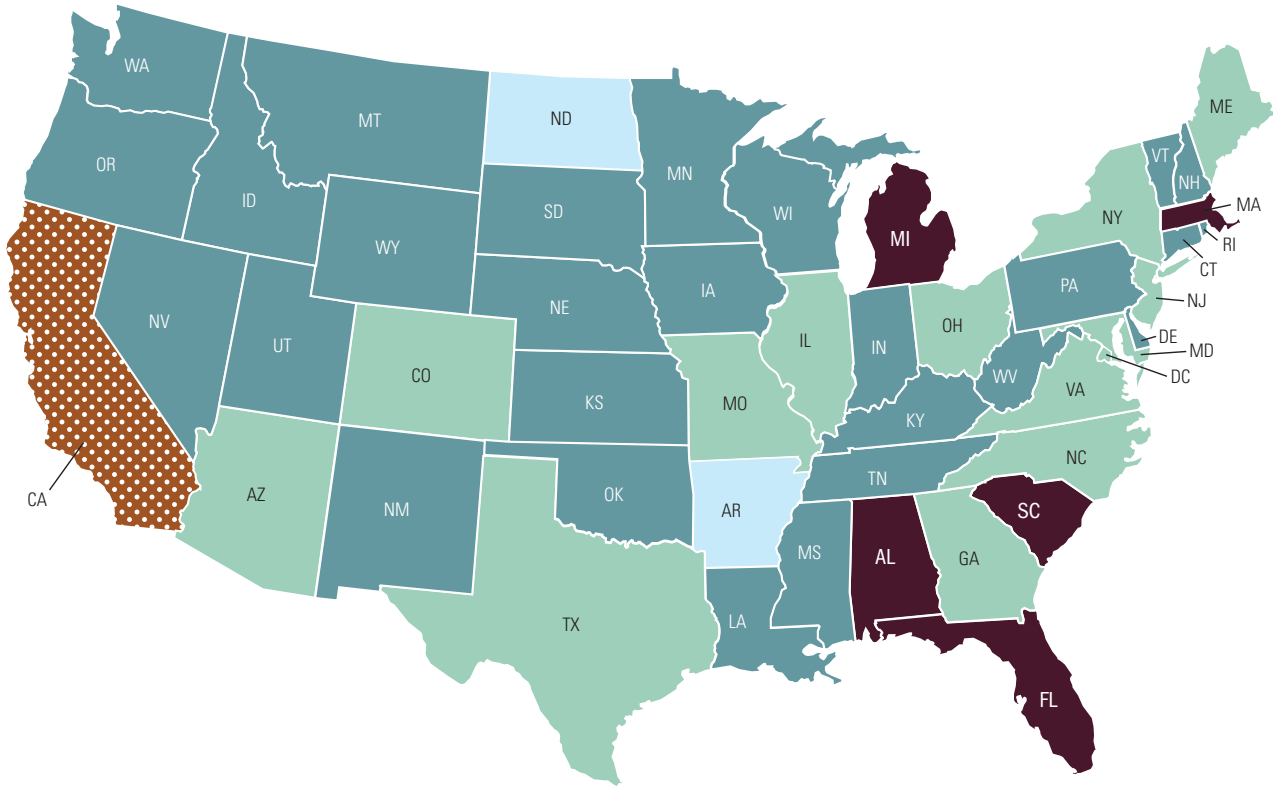
After signing a DSMOA with DoD, the state must apply for a CA to receive financial assistance for cleanup activities at DoD facilities. The CA outlines the planning and funding structure for a two year period; the current funding period is FY2008 through FY2010. States must follow a "six-step" process to produce and validate a CA:

1. Initiate the CA Process
2. Prepare a Joint Execution Plan
3. Develop the CA Budget
4. Obtain concurrence from DoD on the CA Budget
5. Prepare and submit the CA application package to DoD
6. Obtain CA approval and funding

The six-step process accomplishes three things: it accurately projects program funding requirements; it provides support documentation necessary for planning, programming, and budgeting; and, through the Joint Execution Plan, it defines cleanup milestones and performance standards. DoD recently automated the six-step process through the DSMOA Web site.

The DSMOA Web site (<https://dsmoa.usace.army.mil>) is an information and services portal. DSMOA members can view existing DSMOAs and CAs. States can use the site to develop Joint Execution Plans, prepare budget estimates, and obtain DoD Component approval of proposed costs. USACE has provided web seminar recordings and online tutorials through the portal.

Figure 8-30 DSMOA Reimbursements by State or Territory



## Performance Summary

Since 1986, DoD has signed 53 DSMOAs with 48 states, 4 territories, and the District of Columbia (Figure 8-31). Only Arkansas, North Dakota, and the Virgin Islands have not signed DSMOAs. Iowa, which signed a DSMOA in FY2008, is the most recent state to join the program.

Of the 53 eligible partners, 52 have signed CAs for the FY2008-2010 funding period (Figure 8-30). California has received the most reimbursements through DSMOA, over \$8 million since it signed a DSMOA with DoD in FY1990 (Figure 8-31). American Samoa has signed a DSMOA, but did not complete a CA for the current funding period.

In FY2009, the Steering Committee proposed a new standard format for Joint Execution Plans. In June 2009, the Steering Committee developed and ratified its new charter. Additionally, OSD published a memorandum on December 18, 2008, clarifying eligibility requirements for state reimbursement through DSMOA.

The Navy signed two CAs outside the DSMOA program for the FY2008-2010 period. Those CAs are with California and West Virginia.

**Figure 8-31** DSMOA and CA Status

State/ Territory	DSMOA Signed (mm/dd/yy)	CA Application Signed (mm/dd/yy)	Cumulative Reimbursement Since DSMOA Signed
Alabama	5/29/90	6/26/08	\$1,837,503
Alaska	6/4/90	6/25/08	\$1,571,712
American Samoa	7/10/91	N/A	N/A
Arizona	3/13/91	6/9/08	\$814,021
Arkansas	N/A	N/A	N/A
California	5/31/90	6/4/08	\$8,690,766
Colorado	10/18/93	6/17/08	\$540,527
Connecticut	4/23/98	6/24/08	\$83,741
Delaware	2/26/90	7/23/08	\$79,237
District of Columbia	5/9/94	6/17/08	\$678,359
Florida	6/14/90	6/6/08	\$1,141,117
Georgia	5/8/90	6/9/08	\$598,563
Guam	11/27/91	6/9/08	\$239,442
Hawaii	9/10/91	6/9/08	\$523,563
Idaho	2/6/91	5/30/08	\$114,881
Illinois	12/17/92	5/25/08	\$784,672
Indiana	4/17/91	5/29/08	\$193,358
Iowa	2/1/08	5/30/08	\$29,469
Kansas	8/6/92	6/12/08	\$175,920
Kentucky	6/6/91	6/24/08	\$167,502
Louisiana	11/13/91	6/11/08	\$46,417
Maine	6/24/91	6/4/08	\$529,853
Maryland	11/26/90	6/11/08	\$688,964
Massachusetts	10/18/91	6/9/08	\$1,698,393
Michigan	8/27/92	6/6/08	\$1,074,444
Minnesota	6/28/91	5/28/08	\$220,680
Mississippi	10/13/89	6/20/08	\$149,133

Missouri	5/22/91	5/20/06	\$666,222
Montana	4/17/98	5/22/08	\$71,209
Nebraska	9/29/92	6/6/08	\$120,623
Nevada	9/12/90	6/2/08	\$319,266
New Hampshire	1/22/93	6/2/08	\$173,538
New Jersey	4/3/92	5/21/08	\$671,055
New Mexico	6/12/90	6/3/08	\$221,865
New York	6/6/91	6/18/08	\$902,291
North Carolina	6/6/91	6/8/08	\$566,537
North Dakota	N/A	N/A	N/A
Northern Mariana Islands	10/18/91	7/1/06	\$8,559
Ohio	10/6/92	6/18/08	\$805,794
Oklahoma	12/28/92	5/22/08	\$116,847
Oregon	6/30/04	6/10/08	\$77,737
Pennsylvania	4/14/94	6/13/08	\$367,596
Puerto Rico	2/4/91	6/2/08	\$284,900
Rhode Island	9/26/91	5/21/08	\$376,666
South Carolina	5/8/91	6/17/08	\$1,382,034
South Dakota	10/25/91	5/31/08	\$78,080
Tennessee	6/2/92	6/18/08	\$151,171
Texas	4/8/91	6/13/08	\$960,132
Utah	11/11/98	6/3/08	\$222,357
Vermont	6/22/90	7/3/08	\$17,295
Virgin Islands	N/A	N/A	N/A
Virginia	8/31/90	6/12/08	\$927,428
Washington	2/3/94	6/17/08	\$243,171
West Virginia	5/24/90	6/12/08	\$33,974
Wisconsin	7/22/92	5/30/08	\$151,907
Wyoming	6/27/90	6/18/08	\$59,211