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# 6 Restoration

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The Department of Defense (DoD) began environmental restoration in 1975 under the Installation Restoration Program (IRP). In 2001, DoD established the Military Munitions Response Program (MMRP) under the Defense Environmental Restoration Program to address munitions-contaminated sites. The IRP and MMRP enable the Department to comply with 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. This chapter satisfies the National Defense Authorization Act for Fiscal Year (FY) 2007 §313 reporting requirement to provide an annual update to the MMRP Comprehensive Plan, including cleanup progress updates, adjustments to the MMRP goals, and funding estimates through FY10.

This chapter summarizes IRP and MMRP requirements, evaluation criteria, and performance trends for the Department's:

- Active installations
- Base Realignment and Closure installations
- Formerly Used Defense Site properties

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

- Cost Recovery
- Restoration Partnerships

### Restoration at a Glance

Environmental Restoration fiscal year (FY) 2010 funding: **\$1.6 billion**

Base Realignment and Closure (BRAC) FY10 funding: **\$666.7 million**

#### Installation Restoration Program (IRP) Accomplishments

- Achieved remedy in place/response complete at **86 percent** of IRP sites on active installations through FY10
- Transferred **14,298 acres** under BRAC Early Transfer Authority in FY10

#### Military Munitions Response Program (MMRP) Accomplishments

- Achieved a statutory goal by completing site inspections at **97 percent** of munitions response sites on active installations through FY10
- Decreased the cost-to-complete estimate for the MMRP by **11 percent** in FY10

## Requirements

The Department of Defense (DoD) conducts cleanup in accordance with these requirements:

- 10 United States Code §§2700–2710, “Environmental Restoration”
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- Defense Base Closure and Realignment Act of 1990
- National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2002
- NDAA for FY07 §313
- Superfund Amendments and Reauthorization Act (SARA)

- Executive Order 12580, “Superfund Implementation”
- 32 Code of Federal Regulations (CFR), Part 179, “Munitions Response Site Prioritization Protocol”
- 32 CFR, Part 202, “The Restoration Advisory Board (RAB) Rule”
- DoD Instruction 4715.7, “Environmental Restoration Program”
- Defense State Memorandum of Agreement/Cooperative Agreements Program Guide
- RAB Rule Handbook

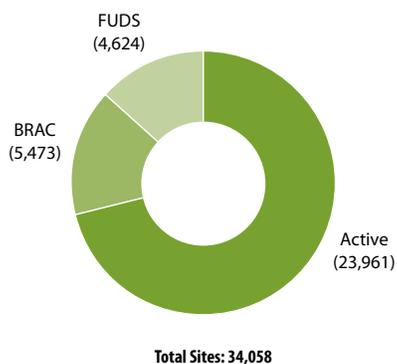
## Program Summary

### DERP Applicability

DoD conducts cleanup on these three types of properties in the United States, District of Columbia, and U.S. territories (Figure 6-1):

- **Active installations** are bases where DoD conducts training and operations.
- **Base Realignment and Closure (BRAC) installations** are bases that have been identified for realignment or closure under one of the five Congressionally-approved BRAC rounds. Congress authorized four rounds of BRAC in 1988, 1991, 1993, and 1995, commonly referred to as Legacy BRAC; a fifth round in 2005 is called BRAC 2005. DoD uses different tools to transfer BRAC property to other parties. For example, DoD can use its Early Transfer Authority (ETA) to transfer property before cleanup is complete. ETA requires approval by the U.S. Environmental Protection Agency (EPA) Administrator and the state governor for properties listed on EPA’s National Priorities List (NPL). For non-NPL properties, ETA only requires the state governor’s approval.
- **Formerly Used Defense Site (FUDS) properties** are lands that were under DoD’s jurisdiction, but transferred out of DoD control before SARA was signed on October 17, 1986. The Secretary of Defense designated the Army as the Executive Agent to manage environmental cleanup on FUDS properties. The U.S. Army Corps of Engineers performs program

Figure 6-1 Total Number of Restoration Sites by Property Type



management and execution of cleanup on FUDS properties in consultation with current landowners, stakeholders, local communities, and regulators. FUDS cleanup is unique because DoD no longer owns these properties and has very limited control over the actions of non-DoD landowners. For properties where DoD held jurisdiction at the time of contamination, the Department determines who is responsible for the existing environmental and health hazards. If another party is partially responsible for the contamination, DoD may negotiate a settlement for the other party to conduct or partially fund the cleanup.

DoD conducts cleanup at its facilities on the NPL as well as non-NPL sites. For DoD facilities on the NPL, an Interagency Agreement (IAG) is signed between EPA and DoD under CERCLA Section 120(e). DoD has signed IAGs at 137 out of 141 DoD facilities on the NPL. For the four remaining IAGs, DoD and EPA did not reach an agreement within the required time period. See the Restoration Narratives in Appendix F for further information about specific IAGs.

### Defense Environmental Restoration Program (DERP) Process

The DERP includes the following program areas (Figure 6-2):

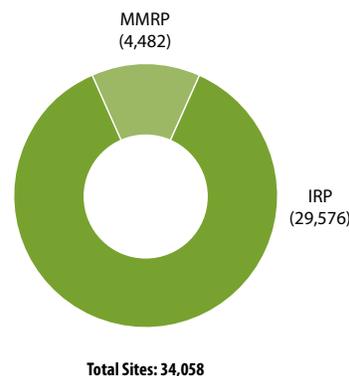
- **Installation Restoration Program (IRP)** governs cleanup (i.e., identification, investigation, removal actions, remedial actions, or a combination of removal and remedial actions) to address the release of hazardous substances and pollutants or contaminants; petroleum, oil, or lubricants; DoD unique 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)** directs cleanup at locations where UXO, DMM, or MC are known or suspected to be present. DoD refers to these locations as munitions response sites (MRSs). The MMRP applies to all locations with the exception of operational ranges, locations outside of the United States, operating storage and manufacturing facilities, and where munitions result from combat.
- **Building Demolition/Debris Removal (BD/DR)** demolishes and removes unsafe buildings and structures at facilities or sites that meet specific criteria. Due to the program’s small size (408 sites), BD/DR sites are included in IRP site counts unless otherwise indicated.

DoD funds cleanup of IRP sites and MRSs at active installations and FUDS properties through five Environmental Restoration (ER) accounts: Army, Navy, Air Force, Defense-wide, and FUDS. The Department funds cleanup at closing installations through two BRAC accounts: Legacy BRAC and BRAC 2005. DoD funds cleanup at realigning installations through its ER accounts.

Figure 6-2 Total Number of Restoration Sites by Program



### Risk Management and Prioritization

DoD prioritizes funding to first clean up sites that pose the greatest threat to safety, human health, and the environment. DoD uses these tools to determine a site's risk relative to other sites:

- **The Relative Risk Site Evaluation (RRSE)** prioritizes 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 the potential impacts of contamination on populations and ecosystems.
- **The Munitions Response Site Prioritization Protocol (MRSP)** consists of three separate modules to evaluate hazards associated with explosives, chemical warfare materiel, MC, and other incidental environmental contaminants. Based on relative risk in these hazard areas, DoD gives each MRS a numeric score or an alternative rating. Beginning in FY08, the Secretary of Defense required the DoD Components to begin reporting MRSP scores. Through FY10, the Department assigned numeric scores to 630 MRSs and alternative ratings to 3,852 MRSs.

The scores yielded from the RRSE and MRSP affect how DoD sequences IRP sites and MRSs for cleanup. In addition to relative risk, DoD considers other factors such as economic, programmatic, and stakeholder concerns, as well as reuse and redevelopment plans in prioritizing sites for cleanup.

In FY10, six MRSs were sequenced for cleanup ahead of higher priority MRSs. Of these six sites, three sites are being addressed out of order due to concerns expressed by regulators and stakeholders; two sites are being addressed out of order due to the availability of funding, equipment, and personnel; and one site is being addressed out of order based on special considerations due to health, safety, and ecological risk assessments.

### Cost Recovery

DoD uses cost recovery to recoup or share cleanup costs when contamination at an installation is either partially or wholly caused by another party's activities. Cost recovery helps the DoD Components increase funding and resources available for cleanup. As such, the DoD Components do the following to recoup cleanup costs:

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

### Restoration Partnerships

DoD participates in various partnerships to further the DERP. DoD invests considerable resources in these two partnerships.

- **Restoration Advisory Boards (RABs)** are community-oriented forums that encourage and facilitate communication between citizens and installation decision-makers regarding cleanup at active installations, BRAC installations, and FUDS properties. Participants may include representatives from the community; installation; state, local, or tribal governments and regulatory agencies; local activist organizations; or the business community. Installation Commanders gauge community interest and evaluate criteria to establish a RAB every two years. RABs are funded through DoD administrative support, Technical Assistance for Public Participation (TAPP) Grants, and EPA Technical Assistance Grants.

- **The Defense State Memorandum of Agreement (DSMOA)** Program is a partnership between the Office of the Secretary of Defense and states (or territories). It is designed to expedite environmental cleanup. DSMOAs provide a framework for DoD to openly coordinate with state regulators to help achieve cleanup goals. Under the DSMOA Program, states may apply for funding from DoD for any eligible restoration services they perform. After signing a DSMOA with DoD, the state must apply for a Cooperative Agreement (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 FY10 DEP ARC reports on the FY08 through FY10 DSMOA funding period. The Department may reimburse states under DSMOA when states demonstrate the proposed cleanup is:
  - DoD's responsibility under DERP
  - Sought by DoD, and not imposed by the state
  - Associated with a specific installation
  - On the Joint Execution Plan, which is a planning document for the coordination of resources

The Secretary of Defense designated the Army as the Executive Agent to manage DSMOA. For more information about existing DSMOAs and CAs, please go to: <https://dsmoa.usace.army.mil>

For more information on the Restoration Program, please go to: <http://www.denix.osd.mil/derp/>

## Evaluation Criteria

DoD measures progress toward specific goals for IRP sites and MRSs at active installations, BRAC installations, and FUDS properties. The DoD Components use the goals to help guide investment decisions and set restoration targets for each FY.

**IRP Goals:** DoD currently tracks progress against remedy in place (RIP), which occurs when cleanup systems are constructed and operational, and response complete (RC), which occurs when the site has achieved the agreed upon cleanup standards (though it may still be monitored due

to restricted property use). DoD developed specific IRP goals with target time lines for achieving risk reduction and RIP/RC (Figure 6-4).

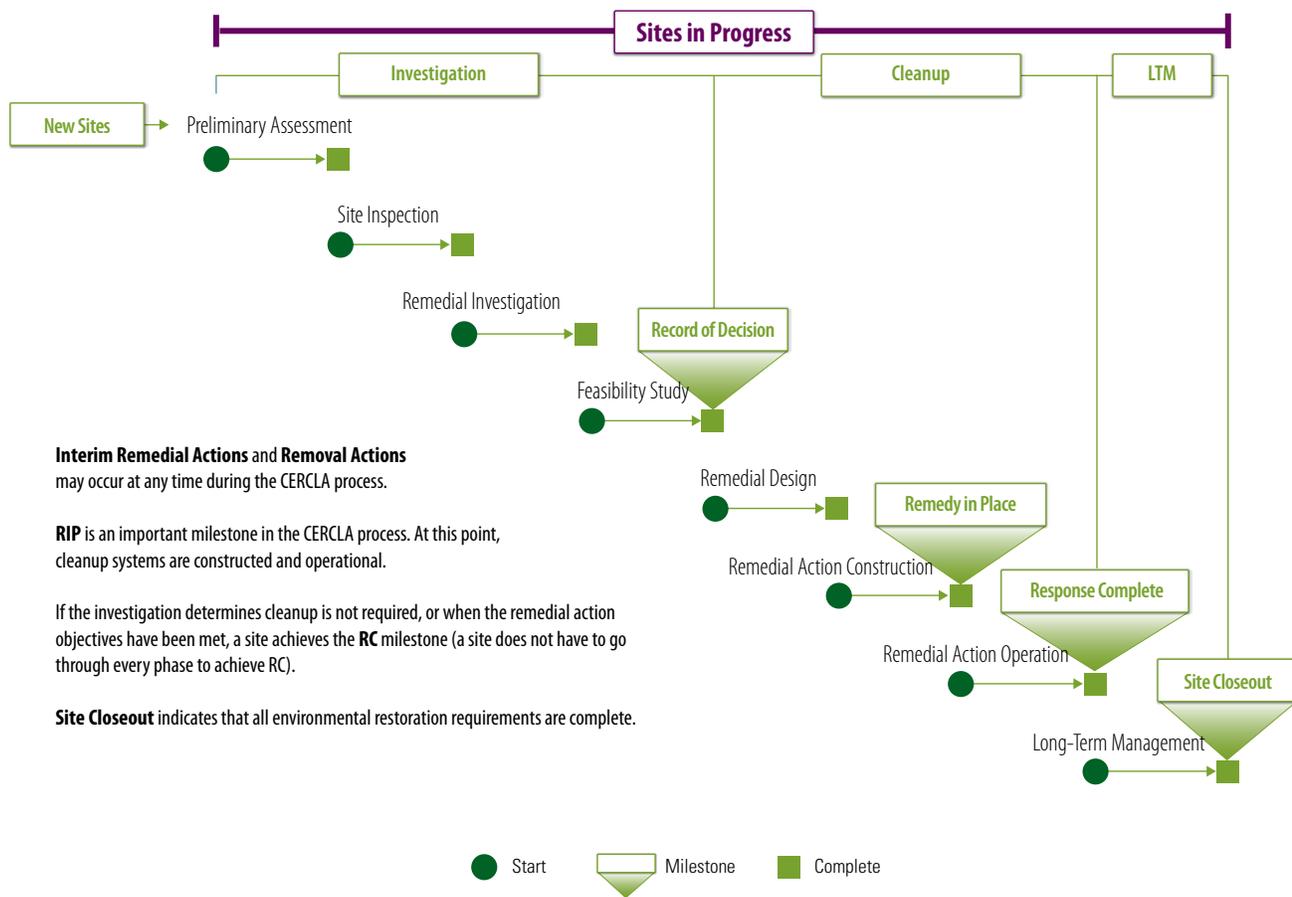
**MMRP Goals:** The NDAA for FY07 §313 established the following goals for DoD to clean up MRSs:

- Complete preliminary assessments (PAs) at all active installations and FUDS properties by the end of FY07
- Achieve RIP/RC at all Legacy BRAC MRSs by the end of FY09
- Complete site inspections (SIs) at all active installations and FUDS properties by the end of FY10
- Establish a RIP/RC goal at active installations, BRAC 2005 installations, and FUDS properties

DoD developed RIP/RC goals for MRSs at active installations and BRAC 2005 installations. As the MMRP evolves, DoD will develop RIP or RC goals for FUDS properties that are both reasonable and challenging (Figure 6-4).

**Cost-to-Complete (CTC):** CTC estimates are the anticipated funds needed to complete cleanup at IRP sites and MRSs. The CTC estimates are derived from site-level funding information and can be impacted by prioritization, input from regulators and other stakeholders, the complexity of the cleanup, and the technologies that are available and chosen. DoD uses CTC estimates to ensure it employs cost-effective cleanup strategies at active installations, BRAC installations, and FUDS properties. CTC estimates that decrease as restoration sites move through the phases of cleanup and achieve program goals indicate DoD is making progress.

Figure 6-3 DoD CERCLA Environmental Restoration Phases and Milestones



**Restoration Phases and Milestones:** The DoD Components monitor cleanup progress and risk reduction at sites by aligning cleanup status with five phases and milestones in the CERCLA process (Figure 6-3):

1. Investigation completed, underway, or planned
2. Cleanup completed, underway, or planned
3. RIP achieved
4. RC achieved
5. Long-term management (LTM) completed, underway, or planned.

The Department strives for consistency and transparency when evaluating cleanup. As such, DoD and EPA continue to participate in the Joint Measures Harmonization Work Group to address inconsistencies between DoD and EPA data when reporting progress. The Work Group’s objectives are to review both agencies’ goals and performance metrics and to develop a transparent, consistent approach to reporting the progress of DoD’s cleanup program.

## Performance Summary

### Installation Restoration Program

DoD:

- Achieved RIP/RC at **86 percent** of IRP sites on active installations through FY10
- Transferred **14,298 acres** through ETA at BRAC installations in FY10
- Achieved RIP/RC at **72 percent** of IRP sites on FUDS properties through FY10

### Active Installations

Through FY10, DoD identified 21,528 IRP sites on active installations.

Between FY06 and FY10, DoD increased the percentage of high relative risk sites achieving RIP/RC from 83 percent to 94 percent (Figure 6-4). While DoD did not achieve RIP/

Figure 6-4 DoD Restoration Performance Goals and Progress\*

Installation Restoration Program	FY06	FY07	FY08	FY09	FY10
<b>Active Installations</b>					
Reduce risk or achieve RIP/RC at all high relative risk IRP sites by the end of FY07 <sup>†</sup>	83%	92%	93%	94%	94%
Reduce risk or achieve RIP/RC at all medium relative risk IRP sites by the end of FY11 <sup>†</sup>	52%	58%	65%	70%	75%
Reduce risk or achieve RIP/RC at all low relative risk IRP sites by the end of FY14 <sup>†</sup>	59%	65%	69%	74%	77%
Achieve RIP/RC at all IRP sites by the end of FY14	85%	89%	90%	86%	86%
<b>BRAC Installations</b>					
Achieve RIP/RC at all Legacy BRAC IRP sites by the end of FY15	86%	86%	87%	88%	88%
Achieve RIP/RC at all BRAC 2005 IRP sites by the end of FY14	66%	62%	47%	54%	61%
<b>FUDS Properties</b>					
Reduce risk or achieve RIP/RC at all high relative risk IRP sites by the end of FY07	48%	50%	54%	55%	59%
Reduce risk or achieve RIP/RC at all medium relative risk IRP sites by the end of FY11	43%	46%	50%	52%	52%
Reduce risk or achieve RIP/RC at all low relative risk IRP sites by the end of FY20	44%	43%	52%	56%	58%
Achieve RIP/RC at all IRP sites by the end of FY20	67%	68%	70%	71%	72%
<b>Military Munitions Response Program</b>					
<b>Active Installations</b>					
Complete PAs at all MRSs by the end of FY07 <sup>†</sup>	70%	96%	95%	97%	96%
Complete SIs at all MRSs by the end of FY10 <sup>†</sup>	24%	29%	51%	72%	97%
Achieve RIP/RC at all MRSs by the end of FY20	17%	23%	34%	43%	38%
<b>BRAC Installations</b>					
Achieve RIP/RC at all Legacy BRAC MRSs by the end of FY09	38%	63%	67%	68%	70%
Achieve RIP/RC at all BRAC 2005 MRSs by the end of FY17	0%	20%	27%	33%	39%
<b>FUDS Properties</b>					
Complete PAs at all MRSs by the end of FY07	99%	99%	99%	96%	98%
Complete SIs at all MRSs by the end of FY10	34%	45%	58%	67%	84%

\* The Department considers a goal to be met when it achieves a 95 percent completion rate

† New sites added to the inventory after FY08 are not subject to the relative risk reduction or PA and SI completion goals

RC at all high relative risk sites by FY07 as planned, it is still working aggressively to reduce risk at the remaining sites. These sites generally pose significant challenges due to their complexity.

DoD strives to reduce risk by achieving RIP/RC at all medium relative risk sites by the end of FY11 and at all low relative risk sites by the end of FY14. DoD increased the percentage of sites achieving RIP/RC at medium relative risk sites from 52 percent in FY06 to 75 percent in FY10. DoD also increased the percentage of sites achieving RIP/RC at low relative risk sites from 59 percent in FY06 to 77 percent in FY10 (Figure 6-4).

The Department is successfully moving sites through the investigation and cleanup phases. This is evidenced in FY10 by DoD increasing the number of sites achieving RC by 455 (Figure 6-5).

DoD is working toward achieving RIP/RC at all active IRP sites by the end of FY14. Between FY09 and FY10, the Department made progress reducing risk and achieving RIP/RC at medium and low relative risk sites. The overall percentage of sites achieving RIP/RC remained at 86 percent because new sites, some of which were not evaluated using the RRSE, were added to the inventory in FY10.

Appendix D, Section 6 contains IRP performance data at active installations by DoD Component.

### BRAC Installations

Through FY10, DoD identified 5,127 IRP sites on BRAC installations.

DoD's goal is to achieve RIP/RC at all Legacy BRAC IRP sites by the end of FY15. Between FY06 and FY10, DoD

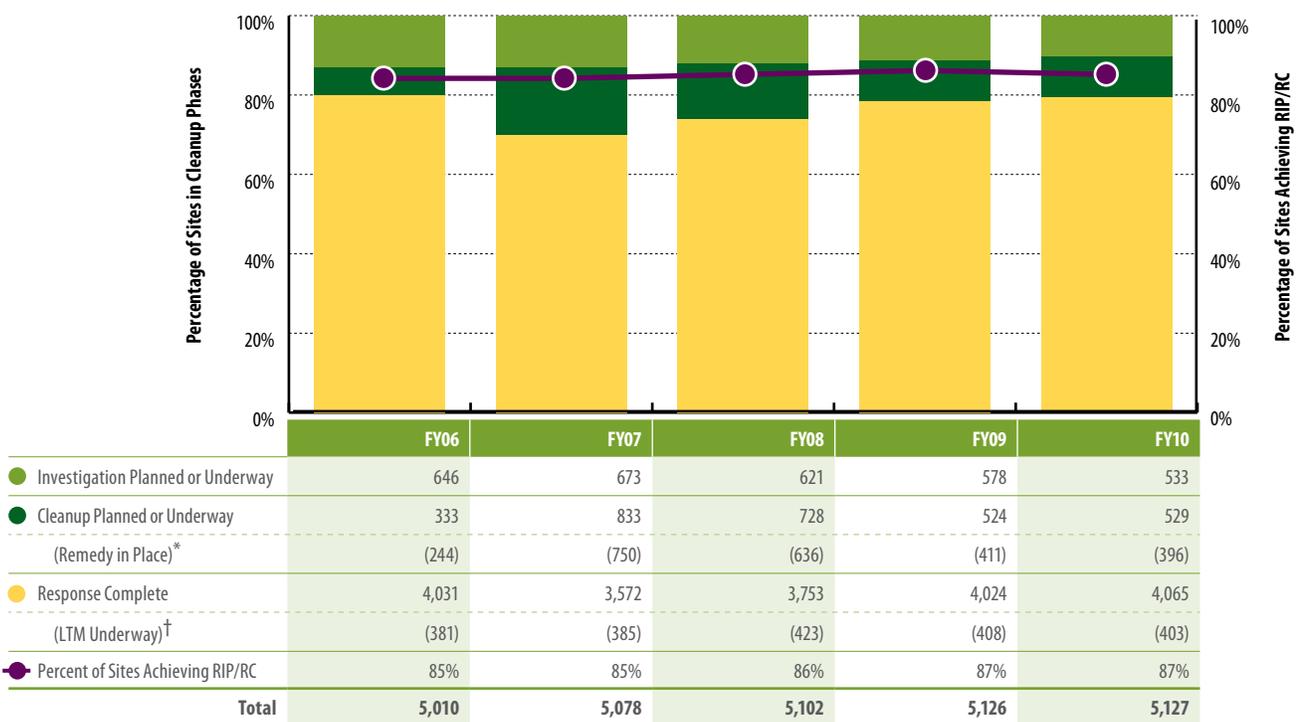
Figure 6-5 DoD IRP Site Status at Active Installations by Cleanup Phase



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

† LTM is a subset of Response Complete.

Figure 6-6 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.

Figure 6-7 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.

increased the percentage of Legacy BRAC sites at RIP/RC from 86 percent to 88 percent (Figure 6-4).

Through FY10, DoD achieved RIP/RC at 61 percent of all BRAC 2005 sites, an increase from 54 percent in FY09. Despite this progress, the proportion of BRAC 2005 sites achieving RIP/RC fell from 66 percent in FY06 (Figure 6-4). The reason for this decrease is that between FY06 and FY10, the BRAC 2005 inventory increased by 79 sites, or 33 percent. The actual number of sites achieving RIP/RC between FY06 and FY10 did not decrease.

DoD has been aggressively moving Legacy BRAC and BRAC 2005 sites through the cleanup process. This means that sites moved through the investigation and cleanup phases to achieve RIP/RC. Between FY06 and FY10, DoD increased the number of Legacy BRAC and BRAC 2005 IRP sites achieving RIP/RC by 186 sites (Figure 6-6).

Another noteworthy achievement is the transfer of BRAC property through ETA. In FY10, the Army transferred a total of 14,298 acres through ETA at the Lone Star Army

Ammunition Plant in Texas. Through FY10, the Department has transferred over 30,000 acres through ETA.

Appendix D, Section 6 contains IRP performance data at BRAC installations by DoD Component.

### FUDS Properties

Through FY10, DoD identified 2,921 IRP sites on FUDS properties.

Between FY06 and FY10, the Department increased the percentage of high relative risk sites achieving RIP/RC from 48 percent to 59 percent (Figure 6-4). While DoD did not achieve RIP/RC at all high relative risk sites by FY07 as planned, it is still working to reduce risk at the remaining sites. These sites generally pose significant challenges due to their complexity.

DoD is effectively moving sites on FUDS properties through the investigation and cleanup phases to achieve RIP/RC. Between FY06 and FY10, DoD decreased the percentage of sites in the investigation phase from 22 percent to 17 percent. During the same period, the Department also

Figure 6-8 DoD IRP CTC Estimates at Active Installations, BRAC Installations, and FUDS Properties (Billions of Dollars)<sup>†</sup>



\* Subtotals may not add to total due to rounding.

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

increased the percentage of sites achieving RIP/RC from 67 percent to 72 percent. Between FY09 and FY10, DoD increased the number of sites achieving RIP/RC on FUDS properties by 88 sites (Figure 6-7).

Appendix D, Section 6 contains IRP performance data at FUDS properties.

### CTC

In FY10, DoD estimated the CTC to be \$12.8 billion for IRP cleanup.

Between FY09 and FY10, DoD increased the CTC estimates for IRP cleanup by five percent. Despite this increase, DoD decreased the CTC estimates by eight percent since FY06 (Figure 6-8). This downward trend in IRP CTC estimates reflects DoD’s success in moving sites through the cleanup phases to achieve RIP/RC.

Appendix D, Section 6 contains IRP CTC data by DoD Component.

### Military Munitions Response Program

DoD:

- Achieved its goal by completing site inspections at **97 percent** of MRSs at active installations by FY10
- Decreased the MMRP CTC estimates on active installations, BRAC installations, and FUDS properties by **11 percent**
- Increased the percentage of MRSs on FUDS properties achieving RIP/RC from **29 percent** in FY06 to **38 percent** in FY10

### Active Installations

Through FY10, DoD identified 2,433 MRSs on active installations, a 33 percent increase from FY09 (Figure 6-9).

In FY10, the number of MRSs increased because:

- the Army added the National Guard Bureau non-DoD owned, non-operational defense sites to its MRS inventory
- the Air Force is conducting an additional inventory of its MMRP, which resulted in the identification of new MRSs
- the Air Force is also splitting MRSs into smaller sites to put uncontaminated sites back to use

Figure 6-9 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.

DoD’s MMRP goals include completing PAs at all MRSs by the end of FY07 and completing SIs at all MRSs by the end of FY10. Through FY10, DoD completed PAs at 96 percent of MRSs. Between FY09 and FY10, DoD increased the percentage of SIs completed at MRSs from 72 percent to 97 percent, achieving its goal (Figure 6-4).

Between FY06 and FY10, DoD continued moving sites through the investigation and cleanup phases to achieve RIP/RC. During this time, the Department increased the percentage of MRSs achieving RIP/RC from 17 percent to 38 percent at active installations (Figure 6-9).

Between FY09 and FY10, the number of sites achieving RIP/RC increased by 158 sites; however, the percentage of sites achieving RIP/RC decreased because the MRS inventory increased.

Appendix D, Section 6 contains MMRP performance data at active installations by DoD Component.

### BRAC Installations

Through FY10, DoD identified 346 MRSs on BRAC installations.

Between FY06 and FY10, DoD increased the percentage of sites achieving RIP/RC at Legacy BRAC MRSs from 38 percent to 70 percent (Figure 6-4). DoD did not achieve RIP/RC at all Legacy BRAC MRSs by the end of FY09 as planned. While the Department did not meet this goal, it continues working to reduce risk at these sites, which pose challenges due to their complexity.

DoD’s goal is to achieve RIP/RC at all BRAC 2005 MRSs by the end of FY17. Between FY09 and FY10, DoD increased the percentage of MRSs achieving RIP/RC from 33 percent to 39 percent at BRAC 2005 installations (Figure 6-4). DoD is showing continual progress toward meeting its goal in the next seven years.

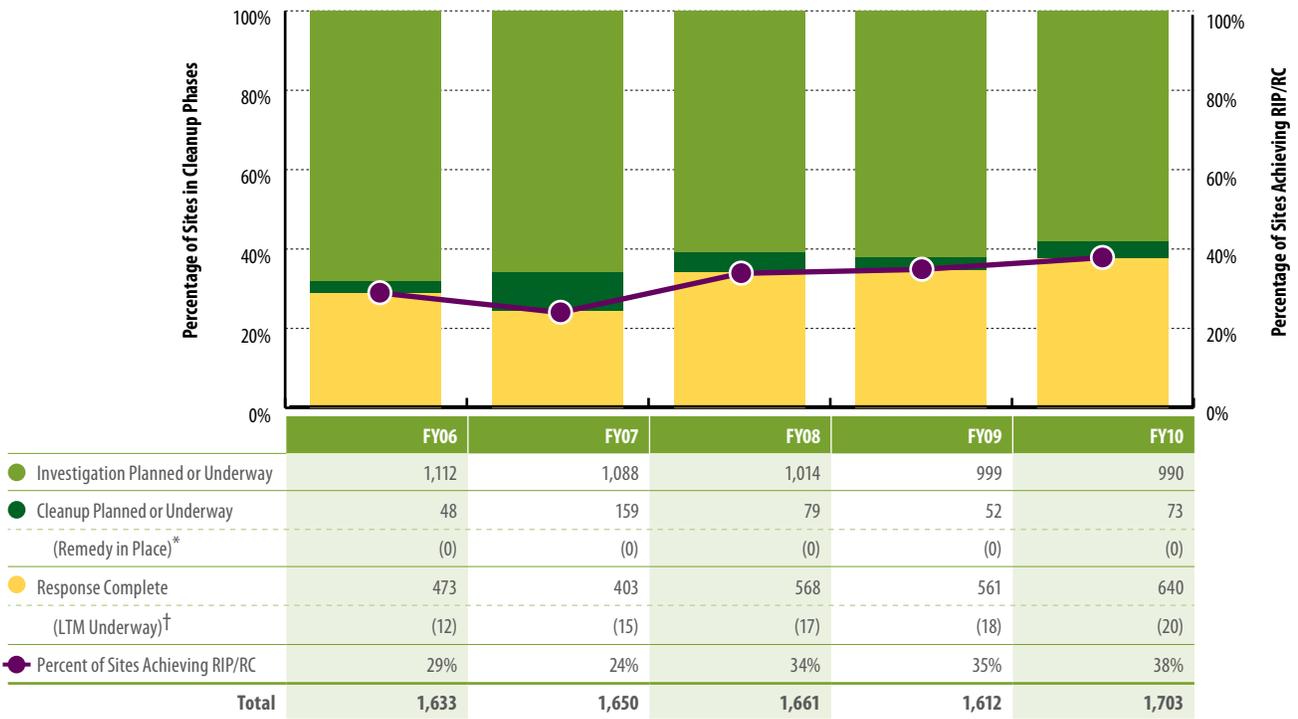
Between FY06 and FY10, DoD demonstrated it is successfully moving MRSs through the investigation and cleanup phases at Legacy BRAC and BRAC 2005 installations. During this time, the Department decreased the percentage of MRSs

Figure 6-10 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.

Figure 6-11 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.

Figure 6-12 DoD MMRP CTC Estimates at Active Installations, BRAC Installations, and FUDS Properties (Billions of Dollars)<sup>†</sup>



\* Subtotals may not add to total due to rounding.

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

in the investigation phase from 64 percent to 31 percent. This corresponds to an increase in the percentage of MRSs achieving RIP/RC from 33 percent to 65 percent during the same time period (Figure 6-10).

Appendix D, Section 6 contains MMRP performance data at BRAC installations by DoD Component.

### FUDS Properties

Through FY10, DoD identified 1,703 MRSs on FUDS properties.

DoD completed PAs at 98 percent of MRSs on FUDS properties to date. Between FY09 and FY10, DoD increased the percentage of SIs completed from 67 percent to 84 percent (Figure 6-4). However, DoD did not meet its goal of completing SIs at all MRSs on FUDS properties by the end of FY10. The FUDS inventory has significantly increased since this goal was established in FY04. The additional MRSs, as well as the challenging task of obtaining rights of entry from current land owners, have caused a delay in meeting the goal. In an effort to complete SIs at the remaining MRSs in the current inventory, the Army established an internal timeline to ensure that it completes SIs at FUDS properties by FY13.

DoD is making progress cleaning up MRSs on FUDS properties. Between FY06 and FY10, DoD decreased the percentage of MRSs in the investigation phase from 68 percent to 58 percent. During this same period, DoD increased the percentage of MRSs achieving RIP/RC from 29 percent to 38 percent (Figure 6-11).

Appendix D, Section 6 contains MMRP performance data at FUDS properties.

### CTC

In FY10, DoD estimated the CTC for MMRP cleanup to be \$15.2 billion.

Between FY09 and FY10, DoD decreased the CTC estimates for MMRP cleanup by 11 percent. DoD has decreased the CTC estimates by 19 percent since FY06 (Figure 6-12). This downward trend in MMRP CTC estimates reflects DoD's success in moving sites through the cleanup phases to achieve RIP/RC.

Appendix D, Section 6 contains MMRP CTC performance data by DoD Component.

### Technology

Technology is an important part of the MMRP. The application of innovative, effective environmental technologies can improve cleanup efficiency, resulting in reduced risk and accelerated completion of the program. DoD supports research and development programs focusing on technologies to improve the safety, efficiency, and cost-effectiveness of munitions cleanup. Information on the specific technologies to advance the MMRP can be found at the Strategic Environmental Research and Development Program and Environmental Security Technology Certification Program Web site:

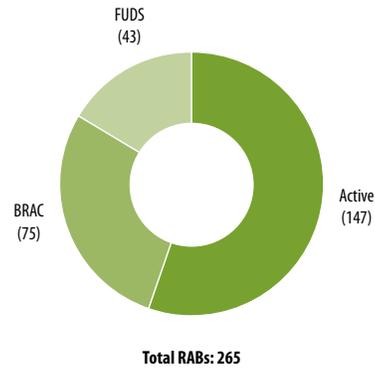
<http://serdp-estcp.org/>

### Cost Recovery

Installations report the amount of cleanup costs recovered in the reporting year and the amount recovered cumulatively through FY10. DoD recovered \$20.3 million in cleanup costs in FY10. The Department has recovered approximately \$578 million cumulatively through FY10.

Appendix D, Section 6 contains Cost Recovery data by DoD Component.

Figure 6-13 Total Number of RABs



### Restoration Partnerships

#### RABs

DoD currently maintains 265 RABs on active installations, BRAC installations, and FUDS properties (Figure 6-13). DoD has supported a consistent number of RABs since it established the program in FY94. In FY10, DoD established three RABs and adjourned one RAB at Fort Richardson, Alaska (Figure 6-14).

In FY10, DoD spent \$3.5 million to support RABs, which represents an 18 percent increase since the previous year. Expenditures vary from year to year, based on community interest and participation, as well as cleanup requirements.

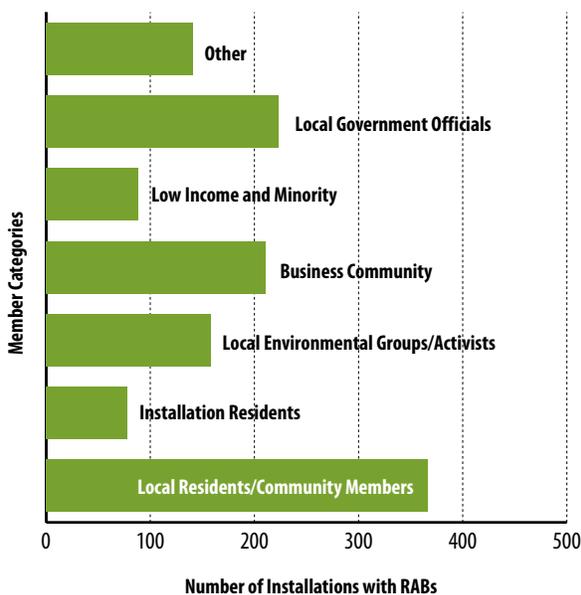
Figure 6-14 RABs Established and Adjourned in FY10

Installation Name	FFID	DoD Component	Established/Adjourned
Yuma Proving Ground	AZ921412099100	Army	Established
NSA Andersen Guam	GU917309951900	Navy	Established
San Diego Naval Training Center	CA917002320200	Navy	Established
Fort Richardson, AK	AK021452215700	Army	Adjourned

Figure 6-15 RABs Awarded TAPP Funding in FY10 (Actual Dollars)

Installation Name	FFID	TAPP Amount
<b>Army</b>		
Picatiny Arsenal	NJ221382070400	\$20,672
<b>Navy</b>		
Calverton NWIRP	NY217002379400	\$24,950
<b>Formerly Used Defense Sites</b>		
Kinchloe AFB	MI59799F226000	\$24,300
<b>Total</b>		<b>\$69,922</b>

Figure 6-16 FY10 RAB Community Membership (Participation by Category)



DoD may provide TAPP Grants to support technology assessments, relative risk site evaluations, health risk evaluations, and technical training and other support. In FY10, two DoD installations and one FUDS property received TAPP grants for their respective RABs, totaling \$69,922 (Figure 6-15).

In FY10, local residents, local government officials, and business community members made up a majority of RAB participants (Figure 6-16). The DoD Components report that most RABs advised DoD on the scope of environmental or public health studies. RABs also commonly provided input to prioritizing sites and selecting cleanup activities (Figure 6-17). RABs review plans and technical documents, and provide comments or advice as their two primary activities, a similar trend to FY09 (Figure 6-18).

Appendix D, Section 6 contains data on the number of RABs by DoD Component.

### DSMOA

Since 1986, DoD signed 53 DSMOAs with 48 states, 4 U.S. territories, and the District of Columbia. Only Arkansas, North Dakota, and the Virgin Islands have not signed DSMOAs. Of the 53 eligible partners, 52 have signed CAs for the FY08-FY10 funding period. The Navy signed two CAs, with California and West Virginia, outside the DSMOA program for the FY08-FY10 period.

Figure 6-17 FY10 Advice Provided by RABs (Participation by Category)

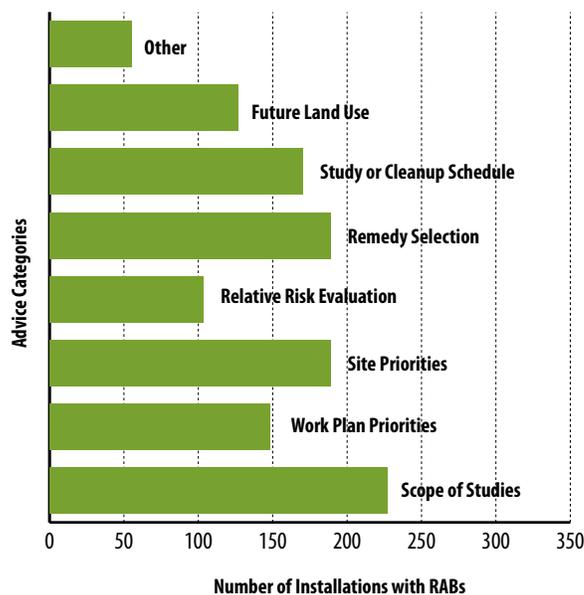
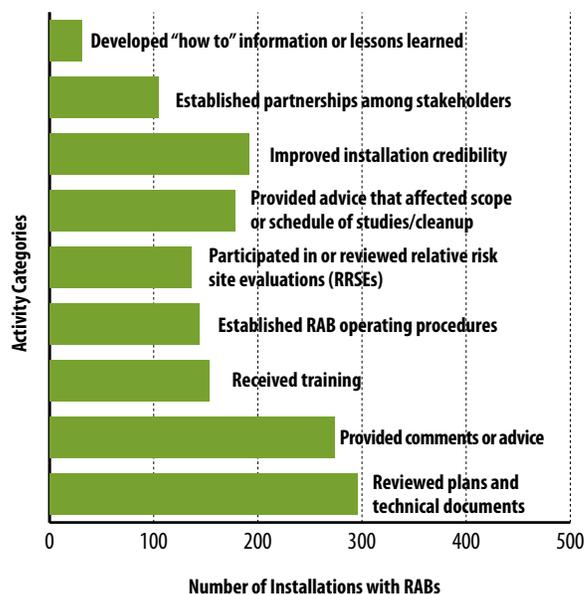


Figure 6-18 FY10 Primary RAB Activities (Participation by Category)



In FY10, DoD reimbursed \$27 million through DSMOA (Figure 6-19). An overview of FY10 DSMOA reimbursements by state and U.S. territory appears in Figure 6-20.

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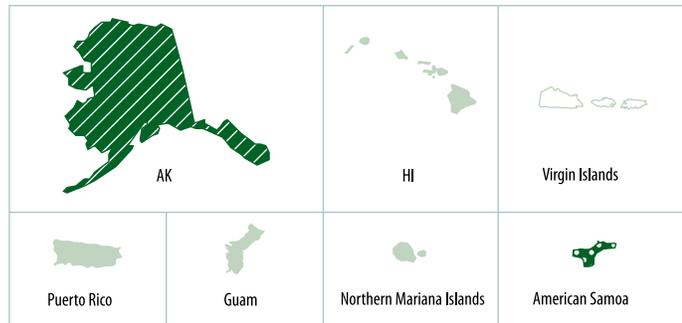
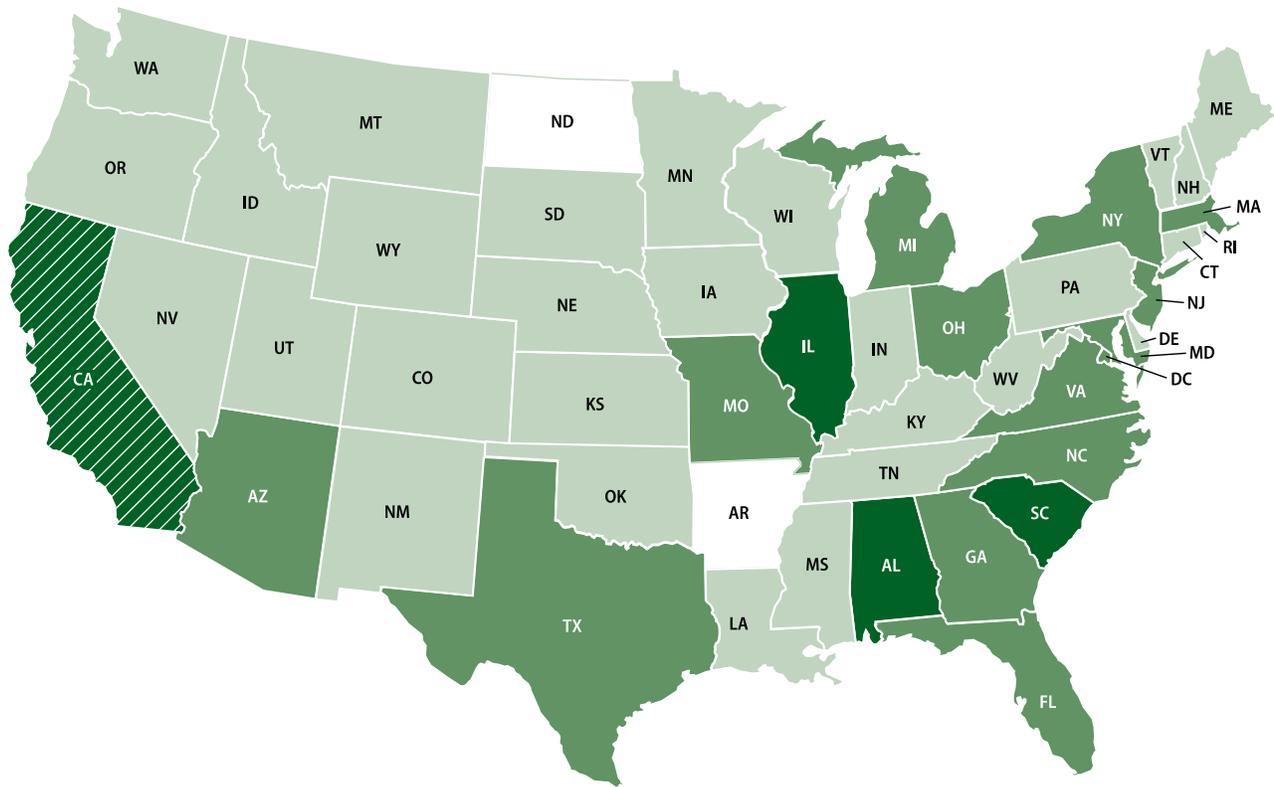
**Figure 6-19** DSMOA and Cooperative Agreement Status (Actual Dollars)

State/Territory	DSMOA Signed (mm/dd/yy)	CA Application Signed (mm/dd/yy)	FY10 DSMOA Reimbursements
Alabama	5/29/90	5/10/10	\$1,772,355
Alaska	6/4/90	5/10/10	\$2,142,157
American Samoa	7/10/91	N/A	\$0
Arizona	3/13/91	5/6/10	\$541,291
Arkansas	N/A	N/A	N/A
California	5/31/90	5/10/10	\$5,920,045
Colorado	10/18/93	4/21/10	\$424,439
Connecticut	4/23/98	5/10/10	\$0
Delaware	2/26/90	4/22/10	\$0
District of Columbia	5/9/94	5/6/10	\$599,062
Florida	6/14/90	4/22/10	\$739,474
Georgia	5/8/90	4/29/10	\$597,648
Guam	11/27/91	4/29/10	\$60,823
Hawaii	9/10/91	4/16/10	\$263,761
Idaho	2/6/91	4/21/10	\$188,910
Illinois	12/17/92	4/19/10	\$1,312,153
Indiana	4/17/91	5/11/10	\$105,780
Iowa	2/1/08	4/19/10	\$36,915
Kansas	8/6/92	4/11/10	\$317,794
Kentucky	6/6/91	4/20/10	\$109,792
Louisiana	11/13/91	4/20/10	\$62,528
Maine	6/24/91	4/22/10	\$457,210
Maryland	11/26/90	4/16/10	\$672,444
Massachusetts	10/18/91	5/6/10	\$901,935
Michigan	8/27/92	4/22/10	\$980,622
Minnesota	6/29/91	5/4/10	\$332,542
Mississippi	10/13/89	5/11/10	\$200,075
Missouri	5/22/91	4/26/10	\$704,745
Montana	4/17/98	4/20/10	\$76,197
Nebraska	9/29/92	4/19/10	\$158,084
Nevada	9/12/90	4/16/10	\$330,345
New Hampshire	1/22/93	4/16/10	\$201,231
New Jersey	4/3/92	5/12/10	\$561,810
New Mexico	6/12/90	4/21/10	\$125,277
New York	6/6/91	4/20/10	\$603,459
North Carolina	6/6/91	4/20/10	\$620,977
North Dakota	N/A	N/A	N/A
Northern Mariana Islands	10/18/91	5/28/10	\$0
Ohio	10/6/92	4/20/10	\$516,330
Oklahoma	12/28/92	4/19/10	\$165,279
Oregon	6/30/04	5/6/10	\$50,325
Pennsylvania	4/14/94	5/3/10	\$144,452
Puerto Rico	2/4/91	5/11/10	\$370,830
Rhode Island	9/26/91	4/29/10	\$252,340

**Figure 6-19, cont.** DSMOA and Cooperative Agreement Status (Actual Dollars)

State/Territory	DSMOA Signed (mm/dd/yy)	CA Application Signed (mm/dd/yy)	FY10 DSMOA Reimbursements
South Carolina	5/8/91	4/20/10	\$1,169,751
South Dakota	10/25/91	4/15/10	\$105,029
Tennessee	6/2/92	4/21/10	\$232,812
Texas	4/8/91	4/20/10	\$562,477
Utah	11/11/98	4/21/10	\$376,494
Vermont	6/22/90	5/10/10	\$29,218
Virgin Islands	N/A	N/A	N/A
Virginia	8/31/90	4/19/10	\$634,623
Washington	2/3/94	1/1/10	\$0
West Virginia	5/24/90	5/10/10	\$8,894
Wisconsin	7/22/92	4/19/10	\$126,732
Wyoming	6/27/90	4/20/10	\$196,510
<b>Total</b>			<b>\$27,063,976</b>

Figure 6-20 FY10 DSMOA Reimbursements by State and U.S. Territory



- Greater than \$2 million
- Greater than \$1 million and less than or equal to \$2 million
- Greater than \$500,000 and less than or equal to \$1 million
- Less than or equal to \$500,000
- Signed DSMOA; No Cooperative Agreement
- No DSMOA or Cooperative Agreement