

Introduction

The Department of Defense (DoD) faces many security challenges at home and abroad in the 21st century, requiring responses able to adapt to any threat. Environmental stewardship is an integral part of sustaining the nation's force capabilities. Through continued commitment to preserve and protect the lands with which it has been entrusted, DoD not only maintains mission readiness, but ensures the security of future generations.

Leadership is a cornerstone principle of the Department, and as such, DoD recognizes the role of sustainability as a strategy. Sustainability, in the military context, refers to the ability of DoD to simultaneously meet current as well as future mission requirements worldwide, safeguard human health, improve quality of life, and enhance the natural environment. Increasingly, DoD integrates environmental accountability across all missions, activities, and functions into day-to-day decision-making and long-term planning, reinforcing the Department's dedication to environmental stewardship.

Pursuant to §2706 of title 10, United States Code, DoD submits an annual report to Congress on the progress of its environmental programs. To keep pace with changing statutes, regulations, and programmatic needs, the Office of the Secretary of Defense provides oversight and guidance for these programs to the DoD

Components—Army, Navy and Marine Corps, Air Force, and Defense agencies. The Department regularly revisits policies to address how best to satisfy environmental requirements related to management, oversight, and execution of its conservation, environmental restoration, compliance, and pollution prevention activities. The FY2008 Defense Environmental Programs Annual Report to Congress provides a comprehensive review of DoD's progress in protecting the environment while executing its primary mission to defend this nation.

This report illustrates DoD's improvements over multiple years in the environmental program areas of conservation, restoration, compliance, and pollution prevention. Progress is presented on a fiscal year or calendar year basis, depending on the program area's reporting requirement.

Although each environmental program area is presented separately, DoD recognizes the cross-cutting nature of environmental stewardship and employs cohesive initiatives to effectively address environmental concerns and mission readiness.

- ▶ **Conservation**—DoD manages over 30 million acres of land that are rich in natural and cultural resources, including, but not limited to national landmarks, historic treasures, rare ecosystems, threatened and endangered species, and sacred sites that cannot be replicated and must be part of its protective mission. The Department implements an array of conservation programs specifically designed to address the varying conservation challenges across military installations. Three principles guide DoD efforts to preserve its natural and cultural heritage while protecting and enhancing resources to support military readiness—stewardship, leadership, and partnership. DoD and the Components identify and prioritize natural and cultural resource projects based on sound scientific data and best management practices. Examples of DoD conservation initiatives include regional ecosystem management initiatives; invasive species control; habitat corridor conservation partnerships for threatened, endangered, and at-risk species; and archaeological artifact collection and curation. These and other projects improve species and habitat management, foster cooperation between DoD and land managers, enhance the use of the land for military training, and reduce potential problems associated with encroachment on military operational ranges. Military installations also provide the public with numerous educational and recreational opportunities due to the quality and relative pristine nature of many of its natural and cultural resources.
- ▶ **Restoration**—DoD works hard to ensure that its environmental restoration activities are effective at cleaning up soil, sediment, groundwater, and surface water contamination on military installations throughout the United States and its territories. Given the vast extent of the Department's property holdings and the training platforms that these properties provide, DoD seeks appropriate and expeditious cleanup of military sites. Recognizing that containing and remediating environmental contamination is not only a DoD concern, the Department keeps local communities informed about cleanup efforts and progress at military installations. Returning the environment to a state that is protective of human health and the environment is invaluable to troops, installation operators, wildlife, and civilian populations at former, current, and realigned defense properties. Additionally, beneficial reuse can be achieved at military installations that have been realigned or closed, with DoD and local reuse authorities working together to ensure environmental cleanup levels are achieved while planning for proper reuse of the land. DoD's restoration program ensures that the damages that occurred from prior operations do not endanger current users of these resources.

- ▶ **Compliance**—DoD's environmental programs are designed to ensure military services and installations comply with domestic and overseas environmental laws. Environmental compliance is not only a matter of protecting human health and the environment, but it is a matter of national security as noncompliance can delay military training and operations. Our troops and their families rely on the Department to provide environmentally-safe areas to live, work, and train. Therefore, complying with environmental laws and regulations is a matter of trust the Department cannot violate. Compliance is also a tool to help ensure the continued protection of natural assets needed for military training and testing purposes. DoD's compliance efforts are designed to exceed the minimum requirements of environmental regulations and foster the development of innovative solutions to complex environmental problems.
- ▶ **Pollution Prevention**—DoD increasingly utilizes pollution prevention practices to reduce costs associated with regulatory compliance while orienting DoD's environmental quality programs around a sustainability construct. DoD requires a large reserve of resources to operate at home and around the world. Efforts to minimize DoD's environmental footprint are mostly organized under the Department's Pollution Prevention Programs, with DoD implementing and integrating energy, environment, and transportation initiatives to promote sustainable practices across the Services. Pollution prevention activities not only tackle environmental pollution at the source, but also instill a forward-planning construct across the Components in moving beyond compliance into active environmental stewardship.

From protecting the air, water, and natural resources on and around military installations to preventing the formation of pollution, a common thread ties all of DoD's environmental programs together: sustainability. Whether it is managing the operational platforms of military missions or incorporating energy-efficiency and green procurement strategies as part of the Department's emphasis on forward-planning, sustainability is a central criterion to global operational success. DoD continues to prove its leadership capabilities beyond the battlefield by contributing to the long-term sustainability of its operations throughout the world.

Defense Environmental Funding

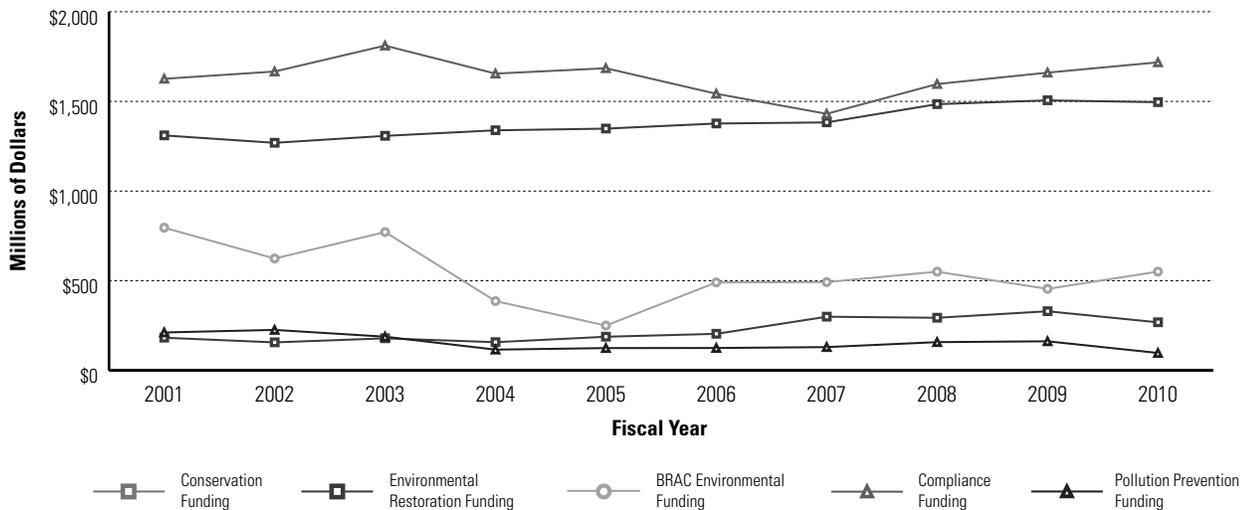
The Department of Defense (DoD) maintains, promotes, and restores environmental assets at its domestic and overseas ranges and installations through an effective planning, programming, budgeting, and execution process that allocates financial resources to where they are needed. This budget and review process ensures that the Components—Army, Navy and Marine Corps, Air Force, and the Defense agencies—identify and request adequate funding to meet mission, legal, and regulatory environmental requirements.

The budget cycle for each fiscal year (FY) begins years in advance, as DoD incorporates environmental management into its operations. The Components build their environmental cleanup budgets from the site-level up. The remaining environmental budgets are developed at the installation level up. These site- and installation-level estimates form the basis for Component environmental budget submissions to the Secretary of Defense. The Secretary includes these requirements as part of the overall Defense budget that the President submits to Congress. Each FY, Congress authorizes DoD's activities through the National Defense Authorization Act and provides funds through the Department of Defense Appropriations Act and the Military Construction, Military Quality of Life, and Veteran's Affairs Appropriations Act (hereafter, MilCon Appropriations Act).

Most funding for DoD's Conservation, Compliance, and Pollution Prevention Programs comes from the Operations and Maintenance appropriations in the DoD Appropriations Act. The Components also use funds for these programs obtained through the MilCon Appropriations Act to build necessary facilities (e.g., wastewater treatment plants). The DoD Appropriations Act also includes funds for environmental management in the Procurement; Research, Development, Testing, and Evaluation; Military Personnel appropriations; and the Defense Working Capital Fund. Special conservation programs also provide significant funds for natural resources management through the sale of forest products; leases of land for agriculture and grazing; and the sale of special licenses for hunting, fishing, and trapping.

The Department's Compliance Program (and to a lesser degree, Conservation and Pollution Prevention Programs) includes funding for infrastructure sustainment activities at overseas installations,

Figure 1 Defense Environmental Funding Trend



such as activities needed to comply with environmental requirements determined after a review of existing treaties, laws, and other agreements (known as the Final Governing Standards).

Restoration activities within the Defense Environmental Restoration Program (DERP) are funded from the Environmental Restoration (ER) and Base Realignment and Closure (BRAC) accounts. The ER account funds DERP environmental restoration activities at active military installations and formerly used defense sites (FUDS) within the United States and its territories. These funds are further separated into five Component-specific ER accounts. A separate appropriation funds environmental restoration activities at BRAC installations, which addresses closure-related environmental compliance and environmental planning activities. Restoration activities outside the United States are funded through the Compliance Program, since ER funds are restricted for use within the United States and its territories.

Defense Environmental Funding Trends

Over the past 10 years, DoD has invested nearly \$42 billion to ensure the success of its environmental programs. In FY2008, DoD obligated approximately \$4.3 billion for environmental activities: \$352.8 million for conservation; \$1.5 billion for ER at active installations and FUDS properties; \$527.1 million for BRAC environmental requirements; \$1.5 billion for compliance; \$121.3 million for pollution prevention; and \$263.9 million for environmental technology. Although all the DoD’s environmental programs work toward the same goal—maintaining readiness while protecting human health and the environment—each program has a unique focus and different funding needs. Figure 1 illustrates how the funding priorities differ for each program.

Congress appropriates funding for DoD’s Conservation, Restoration, Compliance, and Pollution Prevention Programs, as well as for Environmental Technology, to ensure that the Department is able to continue serving as an environmental steward for the United States and its territories. Although the Department

reported recurring costs associated with Manpower and Education & Training for Compliance, Conservation, and Pollution Prevention separately under Compliance in previous years, the Department began distributing these costs across the appropriate environmental program budgets beginning in FY2007. There is a resulting decrease in Compliance recurring costs and a corresponding increase in the Conservation and Pollution Prevention Programs. Restoration funding for Manpower is included in the total program costs and not reported separately.

Conservation

Through the Conservation Program, the Department invests in conserving, protecting, and restoring natural and cultural resources located on and near its installations in order to enhance and protect the military mission. Policy and funding are provided to manage and protect the following:

- ▶ Natural Resources—flora and fauna with additional emphasis on threatened, endangered, and at-risk species; rivers and other waters; wetlands; soil; and air.
- ▶ Cultural Resources—archeological sites, historic buildings, relics of prior civilizations, recovered artifacts, and other national historic treasures.

The Components obligated \$352.8 million in FY2008 for conservation efforts. Conservation funding from FY2007 through FY2010 reflects DoD’s efforts to work with surrounding communities to reduce the impact of development that would inhibit training and adversely affect mission accomplishment. Figure 2 shows actual, appropriated, and requested funds for recurring and nonrecurring Conservation Program activities. Recurring funds finance continuous conservation management activities, while nonrecurring funds pay for one-time conservation projects associated with threatened and endangered species; wetland protection; or other natural, cultural, or historical resources. Appendix A: Environmental Management Budget Overview and Appendix C: Conservation Budget Overview provide additional information about Conservation funding by Component.

Figure 2 Conservation Funding (millions)*

	FY2007 Actual	FY2008 Actual	FY2009 Appropriated	FY2010 Requested
Recurring†	\$128.7	\$217.8	\$214.8	\$208.9
Nonrecurring	\$170.9	\$135.0	\$128.7	\$114.3
Total	\$299.6	\$352.8	\$343.6	\$323.2

* Due to rounding, subtotals may not equal fiscal year totals.
 † Beginning in FY2007, recurring costs include Manpower and Education & Training.

Restoration

In FY2008, the Components obligated \$1.5 billion in ER funding for environmental restoration activities at active installations and FUDS properties. The Components obligated an additional \$527.1 million for environmental activities at BRAC installations. Of the \$2.0 billion obligated for restoration activities, \$1.7 billion funded cleanup of hazardous substances, pollutants, and contaminants from past DoD activities through the Installation Restoration Program (IRP) and \$327.8 million funded through the Military Munitions Response Program (MMRP). Figure 3 shows actual, appropriated, and requested ER funding with breakouts by IRP and MMRP program category. Figure 4 displays actual, appropriated, and requested funding for BRAC installations.

Figure 3 Environmental Restoration Funding (millions)*

	FY2007 Actual	FY2008 Actual	FY2009 Appropriated	FY2010 Requested
IRP	\$1,167.2	\$1,241.0	\$1,190.9	\$1,078.7
MMRP	\$215.8	\$267.0	\$355.2	\$396.1
Total	\$1,383.0	\$1,508.2	\$1,546.2	\$1,474.8

* Due to rounding, subtotals may not equal fiscal year totals.

Figure 4 BRAC Environmental Funding (millions)*

	FY2007 Actual	FY2008 Actual	FY2009 Appropriated	FY2010 Requested
Total	\$497.8	\$527.1	\$524.9	\$554.2

* Due to rounding, subtotals may not equal fiscal year totals.

ER Account Funding

The ER account funds environmental restoration activities at active installations and FUDS properties. As shown in Figure 3, of the \$1.5 billion obligated for ER activities in FY2008, \$1.2 billion funded cleanup activities under the IRP and \$267.0 million funded cleanup under the MMRP.

The Department currently invests the greatest portion of funding on its remaining high relative risk sites, continuing its commitment to implement remedies at all of these sites. The amount of funding required for high relative risk sites decreases as DoD completes cleanup requirements at these sites. Funding priorities will then shift to medium relative risk sites, to meet the Department’s FY2011 goal for implementing remedies at these sites. As the Department achieves its IRP goals, DoD will reallocate IRP funding to the MMRP to further investigate and prioritize munitions response sites and implement cleanup

remedies in support of MMRP goals. Funding amounts for FY2007 through FY2010 also reflect the transfer of funds from the ER to the BRAC account to provide funding for the 2005 round of base closures. These funding shifts are permanent to remediate installations affected by BRAC 2005.

New requirements to address emerging contaminants (e.g., perchlorate; naphthalene; and 1,4-dioxane) also drive investments in cleanup. The Department will continue to modify its plans and programs to meet these challenges and adjust total cleanup cost-to-complete estimates accordingly.

Appendix A: Environmental Management Budget Overview and Appendix G: Restoration Budget Overview provide further information about ER funding by Component.

BRAC Environmental Funding

The BRAC account provides funding for restoration, closure-related compliance, and planning activities at closing or realigned military installations in the United States and its territories. Unlike other appropriations, Congress provides BRAC funding according to BRAC rounds and allows it to remain available until expended—there are no expiration dates for these funds. Over the past 10 years, DoD obligated \$5.8 billion for environmental activities at BRAC installations. FY2007 through FY2010 funding levels reflect funding for restoration at BRAC rounds I-IV, as well as BRAC 2005 installations.

Figure 4 shows actual, appropriated, and requested BRAC environmental funding. The FY2009 appropriation for BRAC environmental activities is \$524.9 million, and DoD is requesting \$554.2 million for FY2010.

Appendix A: Environmental Management Budget Overview and Appendix G: Restoration Budget Overview provide additional information about BRAC environmental funding by Component.

Compliance

Congress appropriates funding annually to ensure that DoD remains in compliance with all applicable federal, state, and local environmental laws and regulations. During FY2008, DoD invested \$1.5 billion for Compliance activities.

Recurring compliance funding is used to cover the relatively constant activities that an installation must perform to maintain compliance with environmental regulations and permit requirements. These activities can include routine sampling and analysis of discharges to air and water, as well as hazardous waste disposal. Other recurring costs include managing National Pollutant Discharge Elimination Systems, updating Clean Air Act inventories, and conducting self-assessments. Nonrecurring compliance costs address one-time events, such as projects to upgrade wastewater treatment facilities or install air pollution controls to meet existing standards. Typically, DoD’s largest annual nonrecurring compliance investment results from Clean Water Act (CWA) requirements for infrastructure investment in wastewater treatment plants; petroleum, oil, and lubricant storage tanks that meet CWA requirements; and storm

water management. Figure 5 shows actual, appropriated, and requested funds for recurring and nonrecurring compliance activities. Appendix A: Environmental Management Budget Overview and Appendix R: Compliance Budget Overview provide additional information about compliance funding by Component.

Figure 5 Compliance Funding (millions)*

	FY2007 Actual	FY2008 Actual	FY2009 Appropriated	FY2010 Requested
Recurring	\$842.5	\$950.2	\$982.6	\$1,001.7
Nonrecurring	\$588.4	\$544.0	\$688.8	\$616.1
Total	\$1,430.8	\$1,494.2	\$1,671.4	\$1,617.9

* Due to rounding, subtotals may not equal fiscal year totals.

Pollution Prevention

DoD employs pollution prevention efforts not only to minimize health and safety risks to its personnel and residents of nearby communities but also to reduce operating and compliance costs. The Pollution Prevention Program also promotes sustainment by minimizing the asset footprint required to manage hazardous materials used in support of the Department’s mission. As a result, DoD’s pollution prevention investments have the potential to reduce costs Department-wide. As Figure 6 shows, DoD invested \$121.3 million for pollution prevention activities in FY2008.

Recurring pollution prevention investments include associated Manpower and Education & Training, supplies, travel, data management, Toxics Release Inventory, and other reporting activities. Hazardous material reduction and CWA requirements are the priorities within the nonrecurring budget. These nonrecurring projects are significant drivers in reducing compliance costs.

Appendix A: Environmental Management Budget Overview and Appendix V: Pollution Prevention Budget Overview provide additional information about pollution prevention funding by Component.

Figure 6 Pollution Prevention Funding (millions)*

	FY2007 Actual	FY2008 Actual	FY2009 Appropriated	FY2010 Requested
Recurring†	\$79.7	\$78.0	\$93.6	\$63.5
Nonrecurring	\$50.5	\$43.3	\$71.2	\$39.3
Total	\$130.2	\$121.3	\$164.8	\$102.9

* Due to rounding, subtotals may not equal fiscal year totals.
 † Beginning in FY2007, recurring costs include Manpower and Education & Training.

Environmental Technology

DoD’s environmental technology programs provide new and improved methods, equipment, materials, and protocols to meet military readiness needs. For example, these programs have produced increased efficiency in paint application and metal plating, resulting in less hazardous waste and lower associated

treatment costs. The DoD Environmental Technology Annual Report to Congress covers this area in more detail, and fulfills Congressional reporting requirements. Environmental technology is included exclusively in this section of the report to ensure completeness of the environmental budget discussion.

The Office of the Secretary of Defense administers the Strategic Environmental Research and Development Program (SERDP) and Environmental Security Technology Certification Program (ESTCP). SERDP and ESTCP focus on the highest-priority environmental technology needs that apply to more than one Component, and help avoid duplication of effort among Components with similar problems. A portion of environmental technology funding is also invested in Defense Warfighter Protection (DWWFP). Environmental technology funding for FY2007 through FY2010 is shown in Figure 7.

Figure 7 Environmental Technology Funding (millions)*

	FY2007 Actual	FY2008 Actual	FY2009 Appropriated	FY2010 Requested
Army	\$69.2	\$79.8	\$69.0	\$54.1
Navy	\$46.9	\$48.7	\$47.3	\$42.9
Air Force	\$12.3	\$25.8	\$23.7	\$22.0
SERDP	\$62.2	\$65.8	\$68.7	\$69.2
ESTCP	\$32.3	\$38.8	\$38.7	\$31.6
DWWFP	\$5.0	\$5.0	\$5.0	\$5.0
Total	\$227.8	\$263.9	\$252.3	\$224.8

* Due to rounding, subtotals may not equal fiscal year totals.

Overseas Environmental Activities

The Department complies with environmental requirements of host nations overseas as determined by review of the Final Governing Standards. Investments in the implementation of programs similar to those that have proved to be successful domestically are necessary to sustain the use of, and access to, the infrastructure and natural resources needed to meet the military mission. Overseas environmental funding is included in the Conservation, Compliance, and Pollution Prevention funding charts—Figures 2, 5, and 6, respectively—and is also displayed separately in Figure 8. Funding for remediation activities abroad is included in the overseas compliance activities budget.

Figure 8 Overseas Environmental Funding (millions)*

	FY2007 Actual	FY2008 Actual	FY2009 Appropriated	FY2010 Requested
Conservation	\$14.3	\$12.2	\$11.1	\$10.3
Cleanup	\$25.1	\$25.5	\$31.9	\$54.0
Compliance	\$102.2	\$125.1	\$123.0	\$104.0
Pollution Prevention	\$12.7	\$12.2	\$13.9	\$9.3
Total	\$154.4	\$175.1	\$179.9	\$177.6

* Due to rounding, subtotals may not equal fiscal year totals.

Conservation

As the third-largest federal land management agency in the United States, the Department of Defense (DoD) is a steward of over 30 million acres of land at more than 3,700 locations. DoD installations are rich in natural and cultural resources, including wetlands, rare ecosystems, threatened and endangered species (TES), archaeological sites and collections, historic records, buildings and structures, traditional cultural places, and sacred sites. The Department develops plans and implements actions or activities to manage these resources through natural and cultural resource inventories.

During Fiscal Year (FY) 2008, DoD's conservation efforts continued to focus on sustainable use, management, restoration, and resource protection. The Department also strived for full and sustained compliance with all federal, state, and local environmental laws and regulations while preserving the military mission. To meet these needs, DoD partnered with other federal, state, and local agencies and interested stakeholders to improve the efficiency of conservation efforts and stewardship of natural and cultural resources under the Department's jurisdiction. Through conservation efforts, DoD maintains the land, water, and airspace needed for military readiness while protecting these valuable resources for current and future generations.

Natural Resource Management

DoD identifies and manages natural resources on its installations by collecting and analyzing information to determine management needs; resource characteristics; and constraints related to military testing, training, and readiness capabilities. By engaging in integrated planning to encourage the sustained use of these resources, the Department manages the resources needed for military readiness while maximizing critical environmental protection.

Sikes Act Requirements and Integrated Natural Resource Management Plans

The Sikes Act, as amended in 1997, requires DoD to prepare and implement an Integrated Natural Resource Management Plan

(INRMP) for each installation with significant natural resources requiring conservation and rehabilitation. An INRMP provides management guidance and sets priorities for natural resource protection, improvement, and restoration. INRMPs are intended to:

- ▶ Reflect mutual agreement between the U.S. Fish and Wildlife Service (FWS), state fish and wildlife agency, and the installation
- ▶ Document budget requirements for natural resources
- ▶ Serve as a principal information source for National Environmental Policy Act documents
- ▶ Guide planners and facility managers in the use and conservation of natural resources on lands and waters under DoD control
- ▶ Balance the management of natural resources unique to each installation with mission requirements for current and future military operations and conservation activities
- ▶ Ensure no net loss in the capability of installation lands to support the military mission
- ▶ Outline the natural resource management activities needed to develop a required military mission training platform.

While preparing an INRMP, each installation must work cooperatively with other installation personnel (e.g., military trainers and operators, facility managers, installation planners); provide an opportunity for public comment; and formally cooperate with the FWS and appropriate state fish and wildlife agencies.

Natural resource programs need to be continually assessed to remain effective. The Sikes Act requires that all INRMPs be formally reviewed for “operation and effect” by the installation, in conjunction with the FWS and the state fish and wildlife

agency, every 5 years. Assessment outcomes include: no action needed, update needed, or revision needed. DoD revises INRMPs when there are significant changes to the military mission or the means by which natural resource assets are managed. Figures 9 and 10 illustrate DoD’s costs to implement INRMPs and progress updating and approving INRMPs, respectively. Appendix D: Natural Resources provides additional information on DoD’s efforts under the Sikes Act.

Threatened and Endangered Species

Congress passed the Endangered Species Act (ESA) in 1973, to protect plant and animal species at risk of extinction. The ESA defines an endangered species as one “in danger of extinction throughout all or a significant portion of its range,” while a threatened species is “likely to become endangered” within the foreseeable future. As of August 28, 2008, the FWS listed 1,327 species as either threatened or endangered within the United States, nearly 350 of which inhabit DoD lands. DoD manages its lands for the protection of these species, including managing, protecting, and sometimes enhancing the habits crucial to endangered species survival.

In FY2008, DoD spent over \$40 million to protect TES. The Department is required to conserve these species and their habitat which is crucial to their survival, and to take no action that would jeopardize their continued existence or adversely modify critical habitat. Under the ESA, any area that is essential to the conservation of a species can be designated as critical habitat by the FWS and National Marine Fisheries Service. The FY2004 National Defense Authorization Act modified the ESA critical habitat provision to allow an approved INRMP to be used by the Department of the Interior in lieu of a critical habitat designation if the plan is determined to provide a benefit to the species for which critical habitat is proposed for designation. INRMPs are often more effective than critical habitat designations because they

Figure 9 DoD Costs to Implement INRMPs

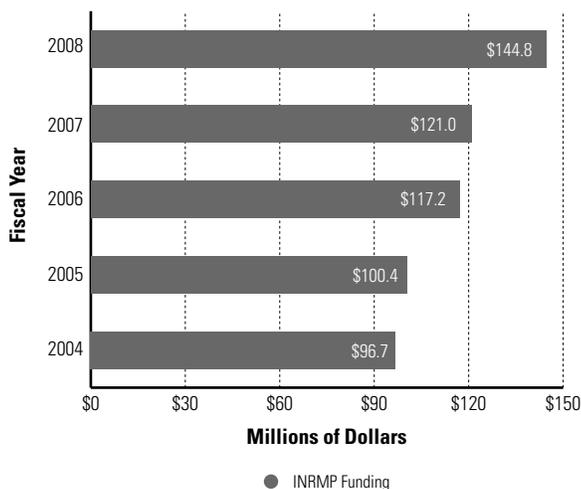
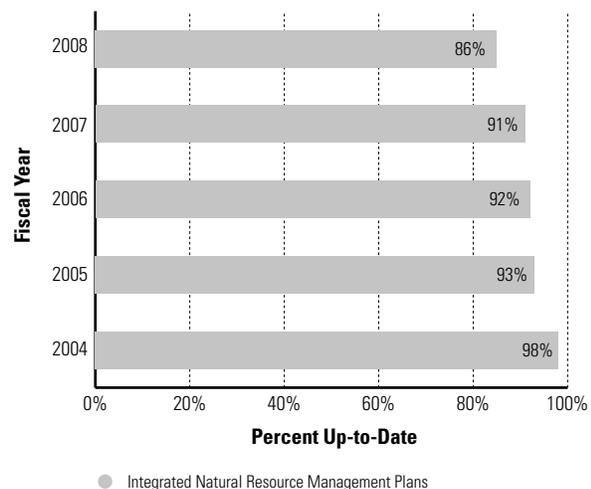


Figure 10 DoD INRMP Progress



facilitate a holistic approach to species protection and conservation, while simultaneously enhancing installation flexibility to fulfill testing and training mission obligations.

Cultural Resource Management

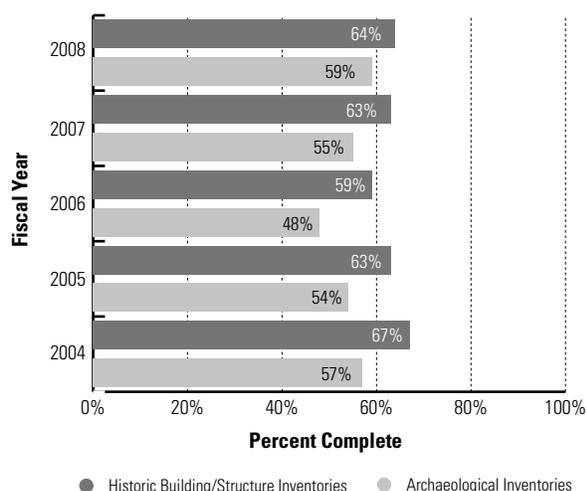
Cultural assets include historic properties, cultural items; American Indian, Eskimo, Aleut, or Native Hawaiian sites; archaeological resources; and archaeological artifact collections and associated records. Protection of the nation’s heritage is an essential part of DoD’s mission. DoD’s cultural resources embody the rich history and traditions that are an important part of the U.S. military. DoD manages approximately 30 million acres of land, which includes National Historic Landmarks and historic properties listed on the *National Register of Historic Places*. DoD uses cultural asset management to support the sustained use of and access to these valuable assets. This planning ensures that operational requirements are met, while minimizing harmful effects on these assets. Cultural resource management is guided by the National Historic Preservation Act of 1966; Executive Order 13287, “Preserve America;” the Native American Graves Protection and Repatriation Act; and the Archaeological Resources Protection Act.

Appendix E: Cultural Resources provides additional information on DoD’s efforts to protect cultural resources.

Cultural Resource Inventories

Each DoD installation conducts surveys and maintains an inventory of cultural resources found on the installation. These inventories help installations manage assets and protect important national treasures. Figure 11 illustrates the percentage of up-to-date cultural resource inventories at DoD installations. By the end of FY2008, DoD had completed 64 percent of historic building/structure inventories and 59 percent of archaeological inventories.

Figure 11 DoD Cultural Resource Inventories Progress



Integrated Cultural Resource Management Plans

Installations prepare Integrated Cultural Resource Management Plans (ICRMPs) on an annual basis to track Component progress in protecting cultural resources while taking into consideration installation-specific missions and operational requirements. These plans are kept current through annual review, and updates are accomplished every 5 years or as needed. Installations often use ICRMPs in conjunction with INRMPs to effectively manage installation assets.

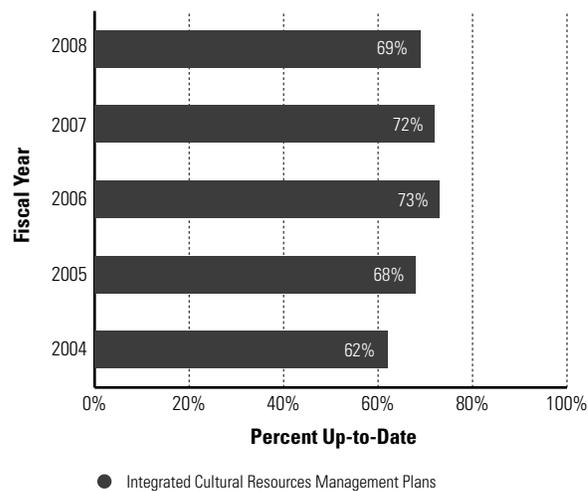
DoD Instruction (DoDI) 4715.16, Cultural Resource Management, updated the list of ICRMP contents. Since 1996, DoD installations have been required to review their ICRMPs at least once annually. In addition, they are required to revise and update their plans at least every five years, if necessary. As illustrated in Figure 12, 69 percent of DoD installations requiring an ICRMP had updated and approved plans in FY2008.

Military Museums

As a valuable resource for current and future generations, military museums contain some of the finest examples of artifacts and collections depicting the Nation’s colorful military history. Each DoD Component sets museum policies and requirements applicable to their individual training, collection, display, and mission needs. By establishing funding priorities, updating policy as needed, and implementing procedures to improve management processes, the DoD Components increase efficiency while balancing mission needs, training requirements, and conservation. DoD remains committed to improving museum management, exercising best business practices, and increasing operational efficiency to ensure that these valuable resources are available to members of the Armed Forces, their families, retirees, and the public for years to come.

Military Museums reports can be found at <http://www.acq.osd.mil/ie/>.

Figure 12 DoD ICRMP Progress



Legacy Resource Management Program

In 1990, Congress passed legislation establishing the Legacy Resource Management Program to provide financial assistance for DoD efforts to preserve its natural and cultural heritage while protecting and enhancing resources to support military readiness. The Legacy program funds projects that emphasize stewardship, leadership, and partnership in exploring new ideas and implementing innovative technologies for natural and cultural resource management. DoD also works in partnership with other organizations under the program to conserve natural and cultural assets in a cost-effective and technically sound manner. The Legacy program facilitates partnerships with federal, state, and local agencies and other stakeholders to cost effectively manage natural and cultural resources.

In FY2008, the Legacy Resource Management Program invested \$7.1 million in 67 projects. The Legacy program supported projects such as the Sonoran Ecosystem Management Initiative, the Gulf Coast Plain Ecosystem Partnership, the Great Basin Initiative, the Chesapeake Bay Program, Partners in Flight, and the In-Theater Heritage Planning and Training program.

Native Americans

DoD is proud of the progress made toward building collaborative relationships with Native American tribes. October 20, 2008, marked the 10-year anniversary of the Department's American Indian and Alaska Native Policy. DoD Components rely on this Policy for guidance on how to address tribal interests while ensuring mission success. The September 2006 DoDI 4710.02, entitled DoD Interactions with Federally-Recognized Tribes, further implements the Policy and provides additional details on statutory and regulatory requirements relative to tribal governments. In addition, Congress appropriated \$10 million for the Native American Lands Environmental Mitigation Program (NALEMP) in FY2008, of which 70 percent funded tribes directly for mitigation costs through cooperative agreements. Through NALEMP, DoD has identified approximately 901 potential impacts affecting more than 180 tribes.

Appendix F: Native Americans provides details on DoD's Native American partnerships and projects.

Restoration

The Department of Defense (DoD) is committed to the environmental cleanup of soil, sediment, groundwater, and surface water contamination in the United States and its territories resulting from past storage and management activities. Standard practices once used for managing and disposing of hazardous waste and hazardous substances were later determined to be detrimental to the environment. Consequently, DoD began to identify, characterize, and clean up related contamination in the 1970s. Since 1986, DoD has applied the Defense Environmental Restoration Program (DERP) to restore environmentally impacted property and pursue restoration activities at its active installations, Base Realignment and Closure (BRAC) installations, and Formerly Used Defense Sites (FUDS).

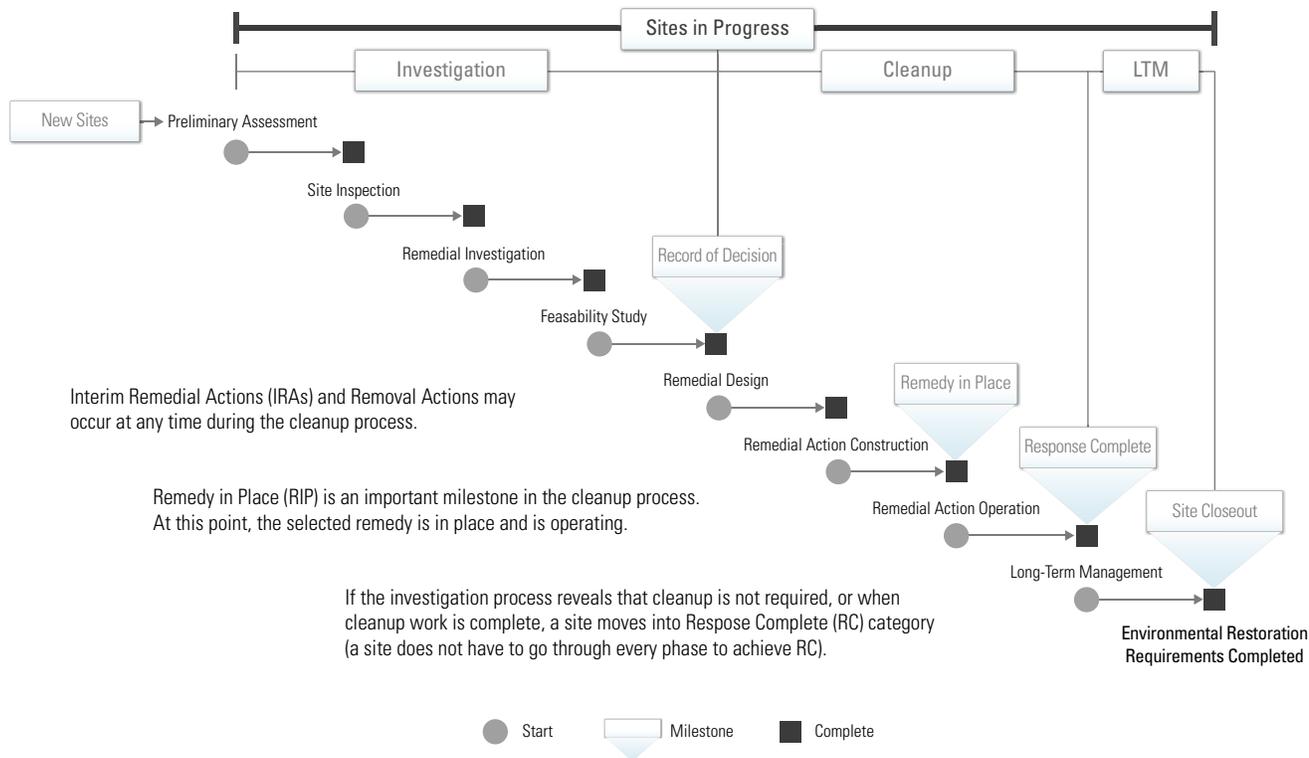
Applicable Requirements

In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that established a framework for the identification, investigation, and cleanup of hazardous substances resulting from past practices. Although CERCLA was not initially applied at Federal Government sites, the Superfund Amendments and Reauthorization Act (SARA) of 1986 created the DERP, codifying DoD's environmental stewardship responsibilities and established restoration standards for use in the United States and its territories. Since the DERP's inception, the Office of the Secretary of Defense (OSD) has overseen the program and its implementation by the

Components—the Army, Navy and Marine Corps, Air Force, Defense Logistics Agency, and Defense Threat Reduction Agency.

CERCLA's environmental restoration process consists of several phases as illustrated in Figure 13. Although some phases may overlap or occur concurrently, environmental response activities at DoD sites are generally conducted in the sequence shown. The Department applies the environmental restoration process set by CERCLA and its implementing regulation, the National Oil and Hazardous Substances Pollution Contingency Plan, to all its CERCLA cleanup sites within the United States and territories.

Figure 13 DoD CERCLA Environmental Restoration Process Phases and Milestones



Current Management Practices

The DERP provides for the identification, investigation, and cleanup of contamination and military munitions associated with past activities at three types of DoD property classifications—active installations, BRAC installations, and FUDS properties—to ensure that potential threats to public health and the environment are appropriately assessed and addressed. Each of the following site classifications is supported by a different funding account:

- ▶ **Active Installations**—Bases where DoD currently conducts its training and operations. Sites at these installations are funded through four environmental restoration (ER) accounts, one for each Component and one DoD-wide, each managed by its respective Component. Appendix H: Active Installations Environmental Restoration Progress provides additional information about active installations.
- ▶ **BRAC Installations**—Properties that have been identified for closure or realignment under one of the five BRAC rounds (1988, 1991, 1993, 1995, and 2005). Like the ER accounts, BRAC funding is appropriated by Congress; however, DoD manages these funds through a separate account structure. BRAC environmental funding is used solely for financing environmental remediation, compliance, and closure-related requirements for BRAC installations. Appendix I: BRAC Installations Environmental Restoration Progress provides additional information about BRAC installations.
- ▶ **FUDS Properties**—Real properties that were under the jurisdiction of OSD and owned by, leased by, or otherwise possessed by DoD. These properties are now owned by private

individuals, corporations, state and local governments, federal agencies, and tribal governments. Similar to active installation, FUDS activities are funded through an ER account. Appendix J: FUDS Environmental Restoration Progress provides additional information about FUDS properties.

The September 2001 Management Guidance for the DERP, which provides guidance and procedures on managing the program, was developed to meet the requirements set forth by CERCLA at active installations, BRAC installations, and FUDS properties. To effectively address remediation at these current and former installations, DoD organized the DERP into three distinct program categories:

- ▶ **Installation Restoration Program (IRP)**—The IRP, established in 1985, addresses the release of hazardous substances, pollutants, or contaminants resulting from past practices that pose environmental health and safety risks. Currently, there are 27,989 IRP sites at active and BRAC installations and FUDS properties.
- ▶ **Military Munitions Response Program (MMRP)**—The MMRP, initiated in 2001, addresses safety, environmental and health hazards from unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents (MC) found at locations other than operational ranges on active and BRAC installations and FUDS properties. DoD maintains an inventory of all sites addressed under the MMRP. Currently, there are 3,674 munitions response sites (MRSs) on active installations and former defense properties listed on DoD’s MRS inventory.

- ▶ **Building Demolition/Debris Removal (BD/DR)**—BD/DR provides for the demolition and removal of unsafe buildings or structures at facilities or sites that meet specified criteria. Most BD/DR activities take place on FUDS properties. DoD conducts BD/DR activities at 453 sites on active installations and FUDS properties. Due to the small size of the program, BD/DR sites are included in IRP site counts unless indicated otherwise.

Prioritization

It is crucial that the Department be able to direct necessary resources to sites that pose the greatest risk first. With 31,663 sites under the DERP, DoD does not have the capability to address every site at once. Prioritization of sites enables DoD to apply careful consideration and planning to ensure that resources are effectively used to minimize risk and maximize progress made toward restoration goals, addressing sites on a “worst-first” basis. To reduce health and safety risks posed by historical contamination, DoD employs a risk-based management approach for the DERP made up of three main elements: (1) a systematic process for prioritizing sites based on risk evaluation; (2) program goals and performance metrics to track progress and fulfill restoration requirements at sites; and (3) an outreach program focusing on regulators and stakeholder communities to identify and address concerns.

DoD uses two prioritization tools to determine the risk that each site poses relative to other sites in its inventory to enable funding to be allocated for greatest risk reduction. The Relative Risk Site Evaluation (RRSE) is used for prioritizing IRP sites, and the Munitions Response Site Prioritization Protocol (MRSPP) is used for MRSs:

- ▶ **Relative Risk Site Evaluation**—The RRSE framework is a methodology used across DoD to evaluate the relative risk posed by a site in relation to other sites. DoD uses RRSE to prioritize IRP sites into three categories—high, medium, or low relative risk—based on the nature and extent of the site’s contamination, the likelihood that contaminants will migrate, and potential impacts on populations and ecosystems. Sites lacking sufficient information to complete an RRSE are designated as “Not Evaluated.” RRSE evaluations are “Not Required” for sites having all remedies in place (RIP), even those in the remedial action operation phase or that have achieved response complete (RC), although they may be in the long-term management (LTM) phase. The RRSE framework is intended only for IRP sites. The framework does not extend to the sites solely under the MMRP or BD/DR program, or to potentially responsible party or compliance activities.

In prioritizing sites for cleanup, DoD also considers factors such as installation cleanup strategy, progress toward program goals, and stakeholder concerns. At BRAC installations, DoD considers the RRSE framework when determining site prioritization—but reuse needs and priorities, as well as property transfer and redevelopment plans, also are important factors in sequencing cleanup activity.

- ▶ **Munitions Response Site Prioritization Protocol**—

DoD developed the MRSPP to assign a relative priority to each MRS, based on potential hazards and site conditions, to accurately rank all sites for remediation and funding. DoD promulgated the MRSPP in FY2006. The risk that potential hazards present at an MRS is captured by three hazard modules that address (1) hazards of UXO and DMM; (2) unique, acute physiological effects of chemical warfare materiel; and (3) chronic health and environmental hazards posed by MC and any incidental environmental contaminants.

DoD’s approach is to evaluate each MRS based on the greatest potential hazards posed by UXO, DMM, or MC, and to consider the three module ratings as a group to determine an MRS’s relative priority. Although DoD recognizes that other factors (e.g., economic, programmatic, and stakeholder concerns) may affect sequencing decisions, the relative priority assigned through the MRSPP will be the primary factor for sequencing response actions. With FY2007 serving as a transition year, Components were permitted to submit either the Risk Assessment Codes, or MRSPP scores to address relative risk at MRSs. However, Components are required to report only MRSPP scores beginning in FY2008. Currently, DoD is developing an online training program to be released in FY2009. This program will educate military personnel and stakeholders on the implementation of the MRSPP to ensure accurate and consistent application.

Performance Evaluation Criteria

DoD monitors DERP progress by environmental restoration phase (e.g., investigation, cleanup) and risk category, demonstrating program progress as sites move from investigation through the cleanup phase to completion of all restoration requirements. Specifically, DoD has developed comprehensive program goals and performance metrics to measure DERP progress and success under the IRP and MMRP. DoD uses several milestones, most notably RIP, which indicates that remedial action is operating at a site, and RC, which demonstrates that all cleanup objectives are complete. DoD plans to achieve program goals set forth by leveraging regulatory partnerships and planning, managing, and budgeting to ensure the availability of sufficient funding to support restoration plans.

The Department also measures DERP progress through program cost-to-complete (CTC) estimates, or estimations of anticipated funds necessary to complete restoration requirements at IRP sites and MRSs. CTC estimates, derived from site-level funding information during the budgeting process, provide the most accurate picture of the anticipated cost of addressing future restoration requirements. DoD values CTC estimates as an important oversight and program management tool for ensuring the most cost-effective cleanup strategies are implemented at active and BRAC installations, and FUDS properties. The total CTC for the DERP will continue to decline as IRP sites and MRSs move through the cleanup phases and achieve their goals.

IRP Performance Goals

DoD developed performance metrics and comprehensive goals to assess progress toward IRP goals. These metrics include phase progress at the site level, progress toward achieving RIP/RC status at the installation level, and progress in achieving overall relative risk reduction. DoD examines progress-to-date and projections of future progress when evaluating these performance metrics. The IRP goals focus on completing required cleanup activities at the highest risk sites first. Goals include:

- ▶ Reduce risk or achieve RIP/RC at all medium relative risk IRP sites at active installations and FUDS properties by the end of FY2011
- ▶ Reduce risk or achieve RIP/RC at all low relative risk IRP sites at active installations by the end of FY2014
- ▶ Reduce risk or achieve RIP/RC at all low relative-risk IRP sites at FUDS properties by the end of FY2020
- ▶ Achieve RIP/RC at all IRP sites at BRAC installations identified in the first four rounds by the end of FY2015
- ▶ Achieve RIP/RC at all IRP sites at BRAC 2005 installations by the end of FY2014.

While DoD did not achieve RIP/RC at all high relative risk sites at active installations and FUDS properties by the end of FY2007, the Department is working aggressively to complete required cleanup actions at these sites, while mitigating potential threats to human health and the environment. BRAC installation goals have the added objective of preparing property to be environmentally suitable for transfer and reuse in accordance with CERCLA requirements.

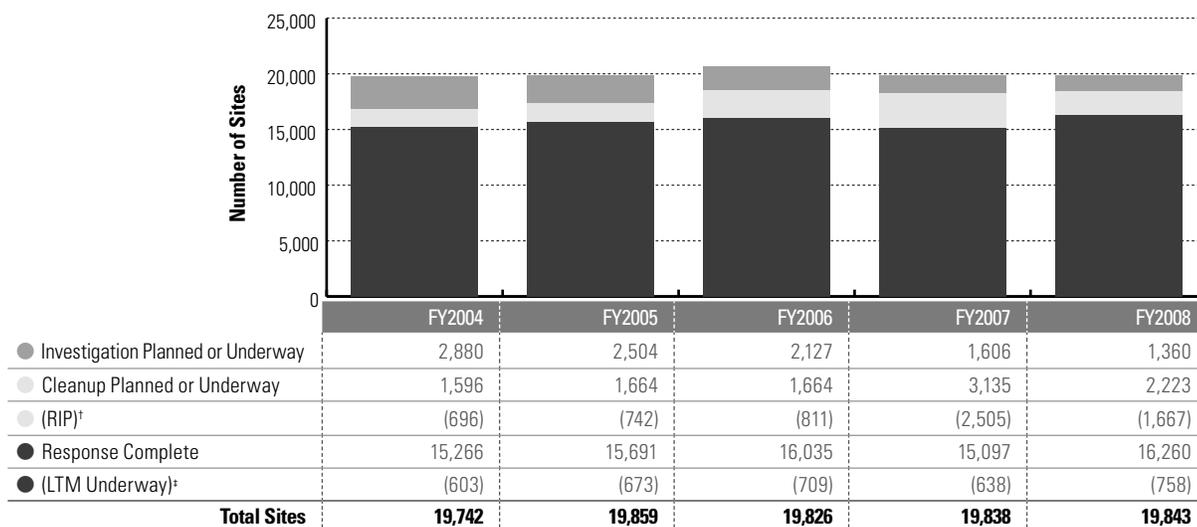
MMRP Performance Goals

DoD has developed and implemented program goals and performance metrics to measure MMRP progress. As with the IRP, DoD has developed goals for the MMRP to first address sites with the greatest risk and facilitate their advancement through the program phases. Risk-based goals are addressed based on prioritization of sites under the MRSP. Performance goals are as follows:

- ▶ Complete site inspections for all MRSs at active installations and FUDS properties by the end of FY2010
- ▶ Achieve RIP/RC at all MRSs at active installations by the end of FY2020
- ▶ Achieve RIP/RC at all MRSs at BRAC installations identified in the first four rounds by the end of FY2009
- ▶ Achieve RIP/RC at all MRSs identified at BRAC 2005 installations by the end of FY2017.

By the end of FY2008, DoD had completed preliminary assessments (PAs) at 95 percent of MRSs at active installations and at 99 percent of MRSs at FUDS properties, with only a few sites not meeting the FY2007 goal to complete PAs at all MRSs. DoD remains committed to completing PAs on the few remaining sites. DoD will continue to develop long-term goals and performance metrics for the MMRP as sites are prioritized and munitions response actions are sequenced. To this end, DoD will re-evaluate current goals at the end of FY2010 to ensure that they remain challenging and reasonable.

Figure 14 DoD IRP Site Status at Active Installations by Cleanup Phase*



* Includes BD/DR sites.

† RIP is a subset of Cleanup Planned or Underway.

‡ LTM is a subset of Response Complete.

Performance Summary

Through FY2008, DoD has conducted environmental activities at 31,663 sites (27,989 IRP sites and 3,674 MRSs) on active and BRAC installations and FUDS properties. Response actions have been completed at 23,445 sites (about 74 percent), which represents significant progress toward achieving the Department's environmental restoration goals.

IRP Site Status and Progress

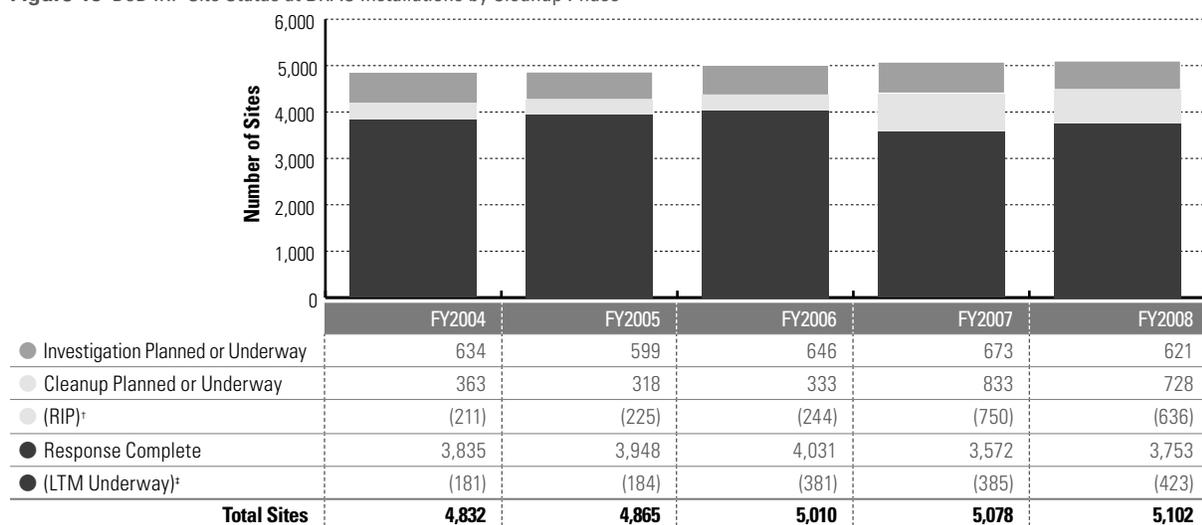
Progress toward IRP goals is evaluated by reviewing progress to date and anticipated future progress. By examining these performance metrics, DoD identifies and addresses programmatic areas for improvements. A majority of DoD's sites in the IRP have advanced from the investigation and study phases toward completing response actions. DoD has achieved RIP/RC status

at 87 percent of all IRP sites, whereas investigation continued at only 9 percent of sites. Figures 14, 15, and 16 illustrate the status of IRP sites at active installations, BRAC installations, and FUDS properties as of the end of FY2008, respectively.

In FY2008, DoD had 19,843 IRP sites at active installations in its inventory. Only 7 percent of these sites remained in the investigation phase, and 11 percent of sites had cleanup planned or underway. DoD had achieved RIP/RC at 90 percent of IRP sites, and moved 1,163 sites into RC since the previous year.

DoD had 5,102 IRP sites at BRAC installations in its inventory as of FY2008. Investigation activities were carried out at 12 percent of total sites, whereas 14 percent of sites had cleanup planned or underway. The majority, or 86 percent of sites, had reached RIP/RC by the end of FY2008.

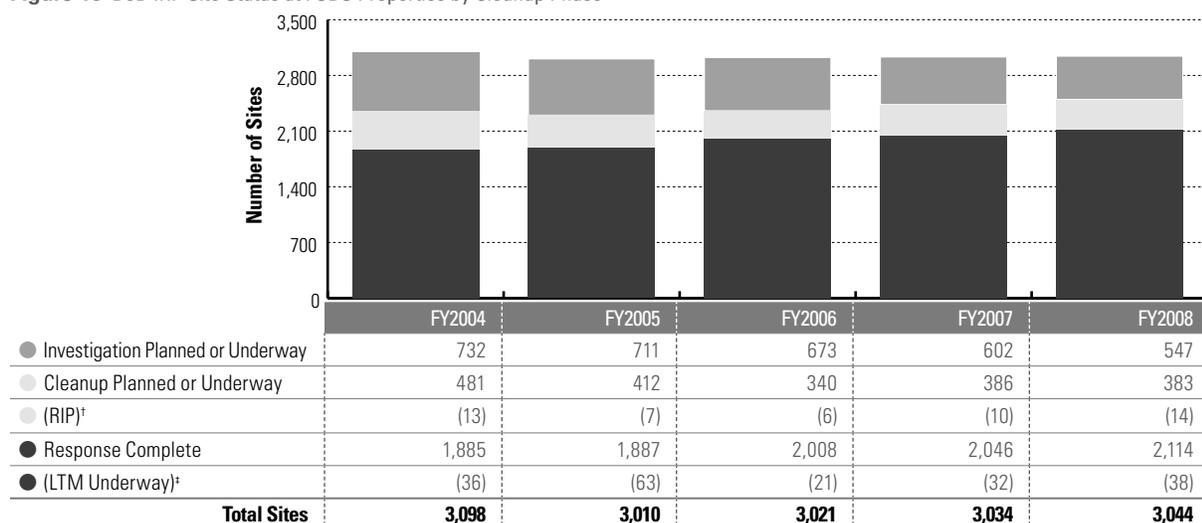
Figure 15 DoD IRP Site Status at BRAC Installations by Cleanup Phase



† RIP is a subset of Cleanup Planned or Underway.

‡ LTM is a subset of Response Complete.

Figure 16 DoD IRP Site Status at FUDS Properties by Cleanup Phase*



* Includes BD/DR sites.

† RIP is a subset of Cleanup Planned or Underway.

‡ LTM is a subset of Response Complete.

There were 3,044 IRP sites at FUDS properties in FY2008. Investigation continued at 18 percent of these sites, and cleanup was planned or underway at 13 percent of IRP sites. DoD had achieved RIP/RC at 70 percent of sites at FUDS properties by the end of FY2008.

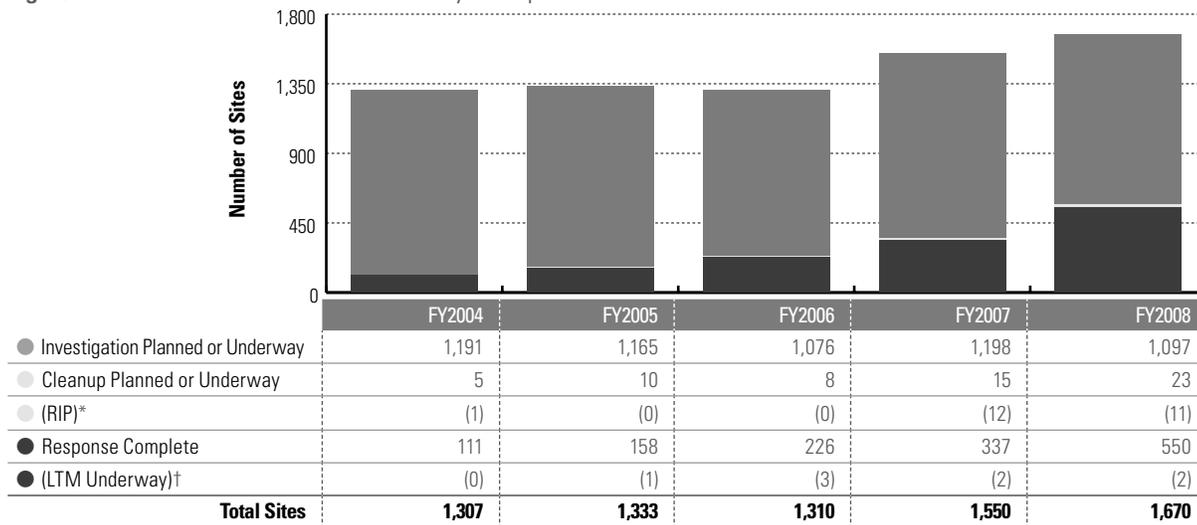
MRS Status and Progress

DoD continues to build the MMRP and is progressing on all key program elements, including the establishment of program goals. The MRS Inventory is updated annually, and is released in conjunction with the Defense Environmental Programs Annual Report to Congress. Because the initial reconciliation is

between lists that DoD and other government agencies maintain, inventory changes do not necessarily reflect newly discovered MRSs; rather, they reflect a division of large munitions response areas into multiple discrete MRSs. The current inventory is publicly available at <http://deparc.xservices.com/do/mmrp>.

By the end of FY2008, DoD had 3,674 MRSs in its inventory. Similar to IRP sites, MRSs are categorized according to phase status in the response process. Figures 17, 18, and 19 show the status of MRSs at active installations, BRAC installations, and FUDS properties, respectively. Munitions response actions at

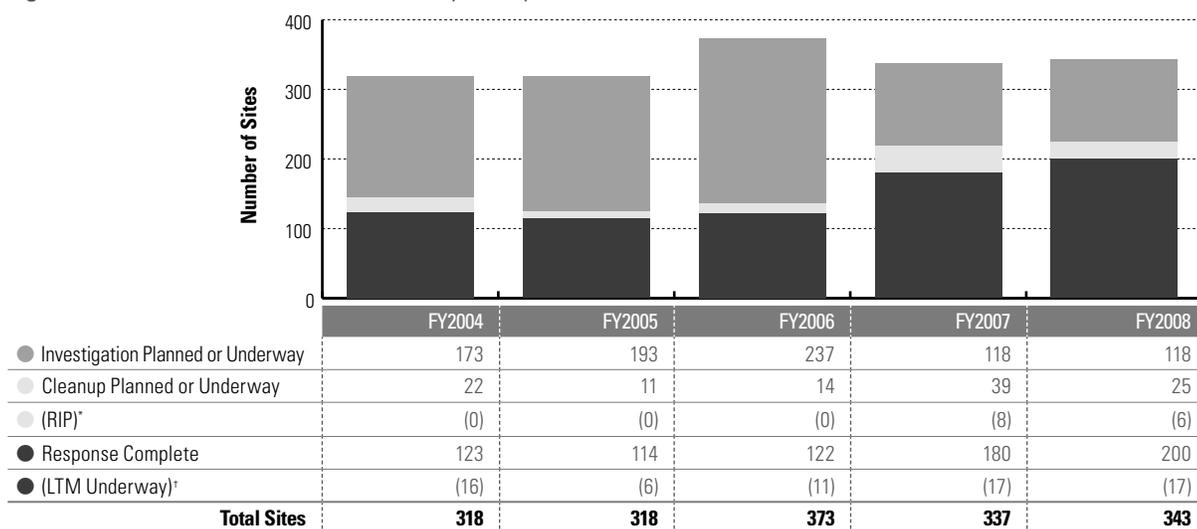
Figure 17 DoD MRS Status at Active Installations by Cleanup Phase



* RIP is a subset of Cleanup Planned or Underway.

† LTM is a subset of Response Complete.

Figure 18 DoD MRS Status at BRAC Installations by Cleanup Phase



* RIP is a subset of Cleanup Planned or Underway.

† LTM is a subset of Response Complete.

BRAC installations and FUDS properties have been a part of the DERP for several years, providing DoD with solid experience in addressing environmental and safety hazards associated with the past use of military munitions. Consequently, DoD has achieved RIP/RC at 1,335 MRSs at active and BRAC installations and at FUDS properties.

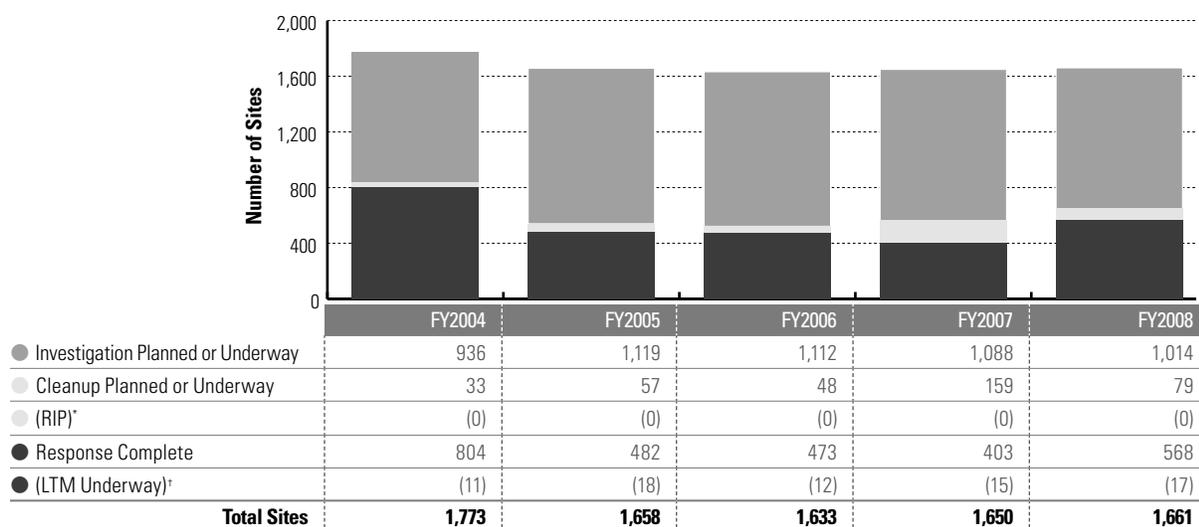
DoD had 1,670 MRSs at active installations in its FY2008 inventory. Because the MMRP is newer than the IRP, a larger percentage of MRSs remains in investigation. At active installations, investigation activities were carried out at 1,097 sites, or 66 percent of MRSs. By the end of FY2008, 34 percent of sites had reached RIP/RC.

DoD had 343 MRSs at BRAC installations in its FY2008 inventory, enabling the Department to move sites through the

cleanup phases more expeditiously. Only 34 percent of sites remained under investigation, and DoD had achieved RIP/RC at 60 percent of MRSs at BRAC installations by the end of FY2008.

At FUDS properties, DoD had identified 1,661 MRSs as of the end of FY2008. Investigation activities were carried out at 1,014 MRSs, or 61 percent of total MRSs on FUDS properties. In FY2008, DoD had achieved RIP/RC at 568 sites, or 34 percent of total MRSs on FUDS properties.

Figure 19 DoD MRS Status at FUDS Properties by Cleanup Phase



* RIP is a subset of Cleanup Planned or Underway.

† LTM is a subset of Response Complete.

Compliance

The Department of Defense (DoD) must protect and sustain environmental resources needed to support military operations. DoD's Compliance Program requires the Department to minimize impacts to human health and the environment through compliance with environmental regulations. The Compliance Program includes management of air emissions, water discharges, and waste disposal practices. The program is structured so that DoD facilities meet federal, state, and local environmental laws and regulations while continually improving environmental stewardship of natural and cultural resources. The Department performs periodic reviews to measure DoD's progress toward meeting compliance requirements while providing the Components with guidance and subsequent procedures for achieving regulatory standards.

DoD's compliance activities encompass planning, programming, and budgeting to achieve, maintain, and monitor compliance with applicable environmental requirements. The Department actively develops plans and programs for enhancing environmental quality and uses commercially proven or innovative solutions to meet and often exceed compliance requirements. DoD Instruction (DoDI) 4715.6, Environmental Compliance, establishes a framework for measuring DoD's compliance progress. DoD conducts internal and external compliance self-assessments at installations; reports all

information required by applicable statutes, regulations, permits, orders, and agreements; promptly corrects any environmental violations discovered; and appropriately remedies any adverse impacts to the environment.

This section presents details of DoD's performance metrics for Clean Air Act (CAA), Clean Water Act (CWA), and Safe Drinking Water Act (SDWA) requirements, as well as enforcement actions and any associated fines and penalties.

Air Quality

DoD manages air pollutant emissions for the purposes of meeting national clean air standards, maximizing operational flexibility, and protecting public health. Requirements established in the CAA and its amendments are the central drivers behind air pollution compliance programs.

DoD operations generate air pollutants that can cause injury to human health and negative impact on the environment. Air pollutant emissions are regulated by the CAA from area, stationary, and mobile sources.

DoD's Compliance Program helps the Department manage air pollutant emissions, make appropriate investments to promote the attainment of National Ambient Air Quality Standards (NAAQS), and enhance training and operational flexibility by maximizing the use of air resources, while leveraging energy conservation opportunities. DoD tracks emissions for criteria pollutants and total hazardous air pollutants (HAPs). The following six principal pollutants have NAAQS and are identified as criteria pollutants: ozone (O₃); nitrogen oxides (NO_x); particulate matter (regulated as PM₁₀ and PM_{2.5}); sulfur dioxide (SO₂); carbon monoxide (CO); and lead (Pb). Because NO_x represents multiple compounds, DoD reports nitrogen dioxide (NO₂) emissions as a quantifiable surrogate. Similarly, DoD reports the regulated precursors of O₃, volatile organic compounds (VOCs) and NO₂, which react with sunlight to form ground-level O₃. Under the CAA, Congress identified nearly 200 HAPs known to have harmful human health effects. Figure 20 details the Department's CAA emissions in Calendar Year (CY) 2006 and CY2007.

To minimize impacts on domestic and overseas air resources, DoD strives to ensure full and sustained compliance with air emissions laws of the United States and host nations' Final Governing Standards (FGSs). The Department must establish, maintain, and comply with FGSs for each foreign country where DoD maintains substantial installations.

Appendix S: Air Quality provides additional information about DoD's effort to protect air quality.

Figure 21 DoD Progress on CWA

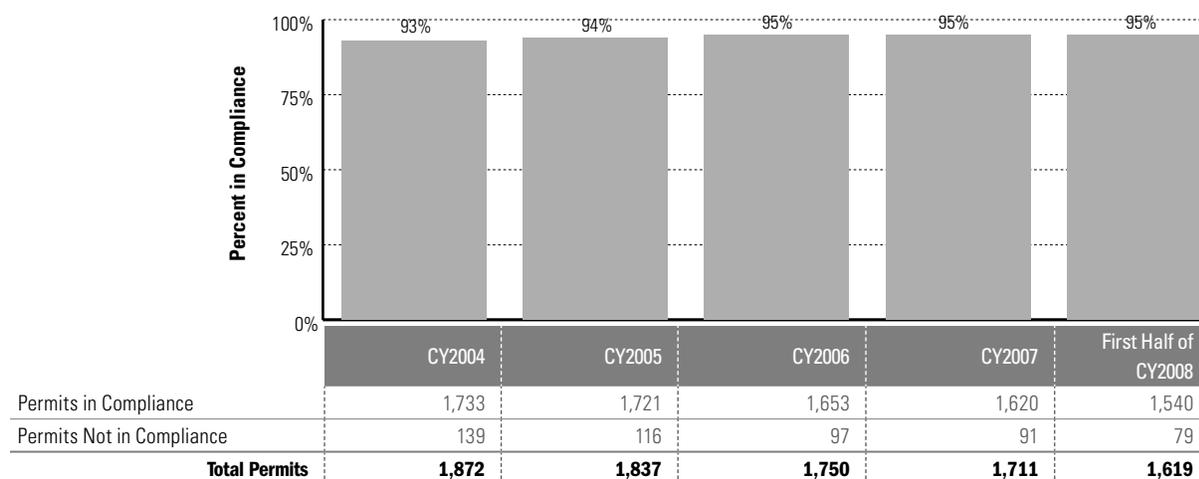


Figure 20 DoD HAP Emissions and Criteria Pollutants for Stationary Sources (tons)

	CY2006	CY2007
HAPs	1,921	1,897
VOCs	11,055	10,228
NO ₂	13,236	13,766
PM ₁₀	46,958	47,448
PM _{2.5}	967	843
SO ₂	13,004	11,940
CO	9,517	10,151
Lead	12	11

Water Quality

The success of DoD's mission and the quality of life for DoD personnel, their families, and nearby communities relies directly on protecting and preserving natural resources. DoD strives to comply with U.S. Environmental Protection Agency (EPA) and state water quality and drinking water standards to protect water assets. These standards describe protective water quality criteria and allowable uses for bodies of water.

Surface Water Pollution

There are two types of discharge sources to surface water bodies: point source and nonpoint source. Each has common contributors of discharge and pollutants. Point source discharges and pollutants commonly originate from DoD sewage treatment plants, industrial wastewater discharges, and combined sewer overflows. Nonpoint sources typically originate from stormwater runoff that traverses construction projects, range operations, shipyards, and military base operations.

Point and nonpoint source discharges to surface waters typically require permission by federal, state, and local agencies. Three common pollution prevention programs are applicable to DoD operations: CWA §402 National Pollutant Discharge Elimination System permitted discharges, CWA §301 (b)(1)(B) Publicly Owned Treatment Works (POTW) permitted sanitary sewage discharges, and CWA §307 permitted pre-treatment discharges

to the local POTW. Since CY2007, the percentage of permits in compliance for all of DoD remained the same at 95 percent, as illustrated in Figure 21. Between CY2004 and the first half of CY2008, the total number of permits decreased by 14 percent; however, the percentage of permits in compliance increased by 2 percent.

Additional water pollution controls are derived from internal DoD policies: DoDI 4715.6, Environmental Compliance; Objective 2.2 of the 2007 Defense Installation Strategic Plan; and the October 2004 DoD memorandum, Revised Pollution Prevention and Compliance Metrics.

Drinking Water Protection

Certain DoD operations are subject to SDWA requirements that are established to protect surface and underground supplies of drinking water. For example, DoD’s public water distribution systems must comply with requirements specified in their distribution permits. These permitted and enforceable limits help ensure the distributed water supply meets standards for water quality.

DoD’s public water distribution goals are to:

- ▶ Support readiness by conserving resources through efficient management of drinking water assets;
- ▶ Consistently provide safe drinking water to protect the health of the people living and working on DoD installations; and
- ▶ Distribute public water in compliance with these standards to 100 percent of the DoD population.

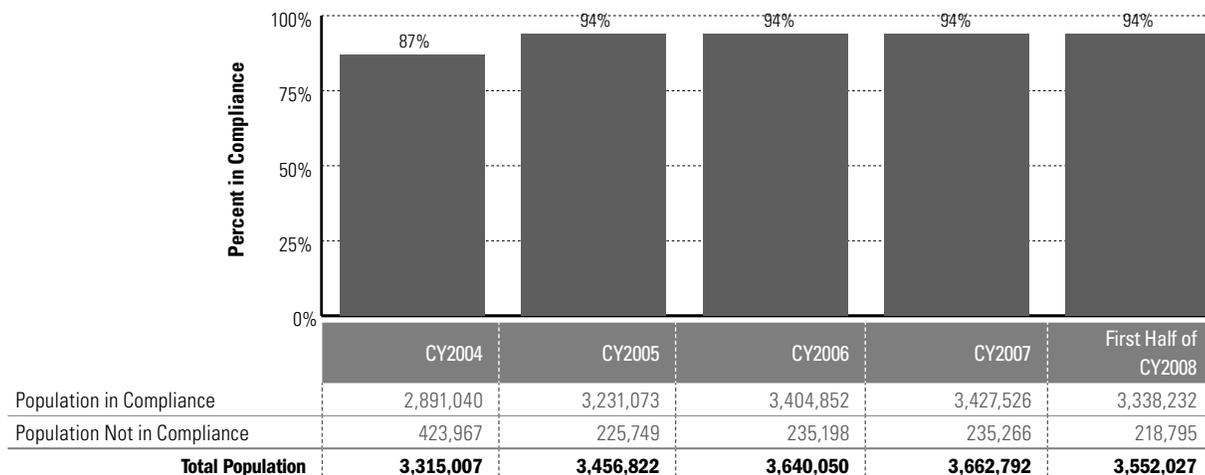
Figure 22 illustrates short- and long-term trends for the DoD population served in accordance with SDWA and appropriate FGSs. Since CY2007, the total population served by DoD water systems decreased by 3 percent, and the total population receiving drinking water in compliance remained stable at 94 percent. Over the long term, between CY2004 and the first half of CY2008, the total population served by DoD water systems increased by

7 percent, and the percentage of the total population receiving drinking water in compliance also increased by 7 percent.

In addition, DoD has waste management units that inject hazardous wastes underground. Underground injection is the subsurface emplacement of liquids through a well or dug-hole whose depth is greater than its width. These operations must comply with requirements specified in their underground injection control permits. Underground injection operations can include hazardous waste disposal, septic systems, cesspools, and dry wells. Permitted and enforceable limits help to ensure that usable aquifers are protected from contamination.

Appendix T: Water Quality provides additional information about DoD’s efforts to protect water quality.

Figure 22 DoD Progress on SDWA or FGSs



Enforcement Actions and Fines Assessed

DoD is committed to upholding full and sustained compliance with federal, state, and local environmental laws and regulations that protect human health and preserve natural resources. Despite its resolution, noncompliance occasionally occurs, which may result in enforcement actions being filed against DoD. DoDI 4715.6 defines an enforcement action as any formal, written notification by EPA or other authorized federal, state, or local environmental regulatory agency of the violation of any applicable statutory or regulatory requirement.

Enforcement Actions

Figure 23 shows new, closed, and open enforcement actions assessed against DoD. New enforcement actions, as defined in DoDI 4715.6, are any enforcement action received during the reporting period, according to the date of the formal written notification. Closed enforcement actions are enforcement actions that have been resolved through: revocation by the regulator, closure following a written notice from the regulator, closure after a reasonable time span following written notice of intent to the regulator to close the enforcement action, or receipt of a signed compliance agreement or order. An open enforcement action is one that has been issued but is not yet closed. Enforcement actions show a general decrease over the past 4 years, with 270 new, 227 closed, and 169 open enforcement actions in Fiscal Year (FY) 2008. Increased regulatory actions account for increases in new and open enforcement actions in FY2008.

Fines Assessed

Figure 24 illustrates the fines assessed against DoD. In FY2008, the amount of fines assessed increased to \$1.1 million since FY2007. Although this amount marks a significant increase over the course of 1 year, the fines assessed in FY2008 were still lower than fines reported in FY2004, FY2005, or FY2006. In FY2008, fines that state regulatory agencies assessed totaled \$589,500, which represent a \$273,000 increase compared with the previous year. Fines that local regulatory agencies assessed decreased by 48 percent from past years to \$35,200. No fines that were imposed or assessed against DoD exceeded \$1.0 million in FY2008.

Appendix U: Enforcement Actions provides additional information about FY2008 enforcement actions.

Figure 23 DoD Enforcement Actions (Domestic and Overseas)

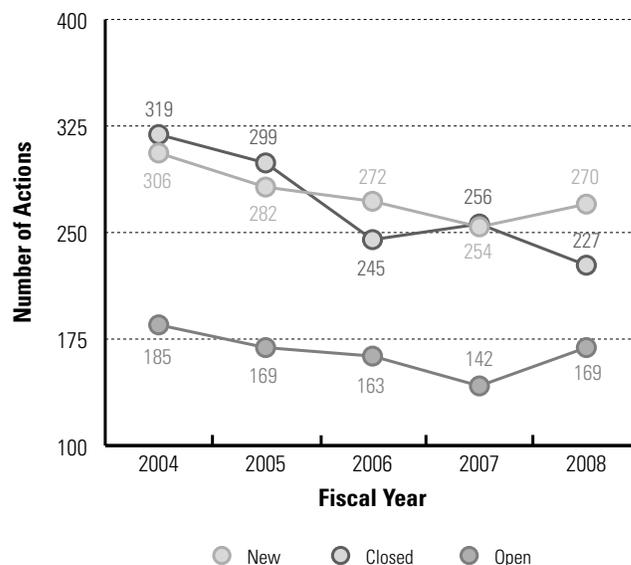
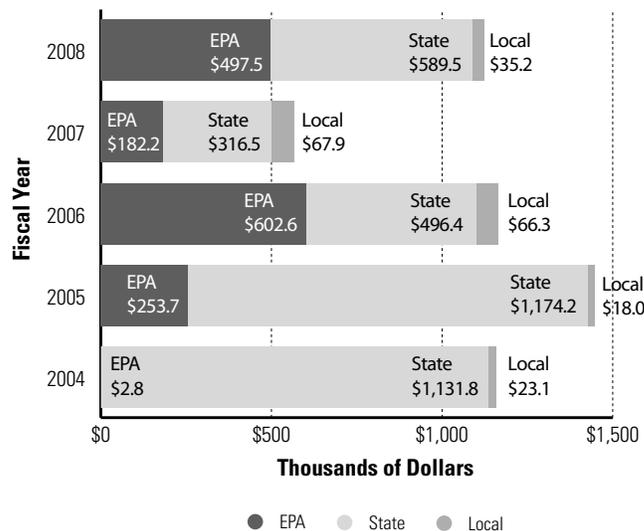


Figure 24 DoD Fines Assessed*



* Subtotals were rounded and may not equal fiscal year totals.

Pollution Prevention

The Department of Defense (DoD) implements pollution prevention activities as a proactive approach to reducing the Department's environmental footprint and ensuring consistent environmental management across Components. Pollution prevention is used to reduce the cost of environmental compliance by integrating sustainability strategies across military operations. DoD continues to provide leadership in developing and deploying pollution prevention strategies to ensure continuous environmental improvement while contributing to sustained military readiness.

DoD's Pollution Prevention Program includes reducing and recycling solid and hazardous materials, improving energy and water efficiency, purchasing environmentally preferable products, reducing toxic chemical releases, eliminating the uses of ozone-depleting substances (ODSs), and incorporating sustainability into the Department's environmental construct. Pollution prevention activities help DoD achieve regulatory compliance as well as plan for future environmental management considerations. By integrating pollution prevention into day-to-day mission activities, DoD protects human health and the environment while supporting military readiness.

DoD's primary pollution prevention framework is outlined in DoD Instruction (DoDI) 4715.4: Pollution Prevention. The DoDI ensures that Components not only comply with environmental laws, regulations, and standards, but also accomplish specific environmental objectives associated with an array of pollution prevention activities. Beyond tangible environmental and human health benefits, DoD's Pollution Prevention Program helps the Department realize cost-savings by promoting pollution minimization and life-cycle cost considerations as part of DoD's operational management. Through comprehensive education, training, and awareness programs, DoD instills knowledge on the importance of incorporating pollution prevention activities across the Components.

Executive Order (E.O.) 13423: Strengthening Federal Environmental, Energy, and Transportation Management contains several provisions related to pollution prevention activities, including the reduction of hazardous and toxic chemicals and the purchase and use of environmentally preferable products. These new requirements will help ensure that DoD sets proper goals to reduce the quantity of toxic and hazardous chemicals and materials it acquires, uses, or disposes of, and maintains cost-effective waste prevention and recycling programs at its facilities.

Throughout Fiscal Year (FY) 2008, DoD continued to prevent pollution generation and integrate environmental considerations into its overall management structure. As environmental issues increasingly enter the forefront of public policy and international relations, DoD recognizes its role in responsible environmental stewardship. From a strategic perspective, pollution prevention activities ensure that ongoing operations are safe, uninterrupted, and contribute to sustained mission readiness. DoD is developing and applying innovative practices within its environmental management programs to ensure safe training and protection of military personnel in tandem with providing long-term protection and sustainability of national lands, wildlife, and natural resources.

DoD employs an array of pollution prevention activities to secure a sustainable future of operational readiness and environmental management. Through DoD's Green Procurement Program (GPP), the Department can leverage its purchasing power to ensure natural resources, water, and energy conservation criteria are part of a comprehensive and cost-effective acquisition policy. Additionally, an environmental management system (EMS) framework enables DoD to identify the environmental aspects of its mission; identify and prioritize areas that need to be addressed; track progress towards environmental goals; and promote a comprehensive pollution prevention strategy. Regardless of the program being implemented, DoD continues to integrate sustainability as a strategy for securing operational readiness while protecting human health, and the environment.

Solid and Hazardous Waste Management

DoD is committed to reducing solid and hazardous waste generation through a strong emphasis on pollution prevention. Components use integrated solutions to reduce waste generation and increase the diversion of materials from the waste stream. DoD increased its diversion of non-hazardous solid wastes in 1998, by setting a solid waste diversion rate goal of 40 percent or greater by the end of Calendar Year (CY) 2005. This goal was met in FY2001, when DoD's diversion rate reached 45 percent. In FY2005, DoD revised its solid waste reporting metric to include construction and demolition (C&D) debris and municipal solid waste diversion rates. In FY2008, DoD released the DoD Integrated (Non-Hazardous) Solid Waste Management (ISWM) Policy Memorandum and established corresponding DoD ISWM Guidelines, which call for a 40 percent diversion goal for non-hazardous solid waste without C&D waste by 2010. The goal for C&D debris waste diversion is 50 percent by 2010.

The percentage of solid and hazardous waste diverted varies depending on the amount, location, and types of waste generated. In FY2008, DoD generated a total of 6.2 million tons of solid waste. As shown in Figure 25, the Department had an overall diversion rate of 63 percent in FY2008 for non-hazardous solid waste, thus exceeding DoD solid waste diversion goals. The implementation of ISWM practices has resulted in cost-savings of \$1 billion, specifically through waste prevention and recycling, solid waste and C&D debris reduction, and minimizing the amount of waste going to landfills and incinerators.

In CY2007, DoD disposed of 180 million pounds of hazardous waste, as illustrated in Figure 26, which represents a reduction of 106 million pounds since CY1996. DoD continually accesses opportunities for reducing or eliminating the use of hazardous wastes so as to protect human health and the environment.

Appendix W: Solid and Hazardous Waste provides additional information on solid and hazardous waste management.

Figure 25 DoD Solid Waste Diversion Rate

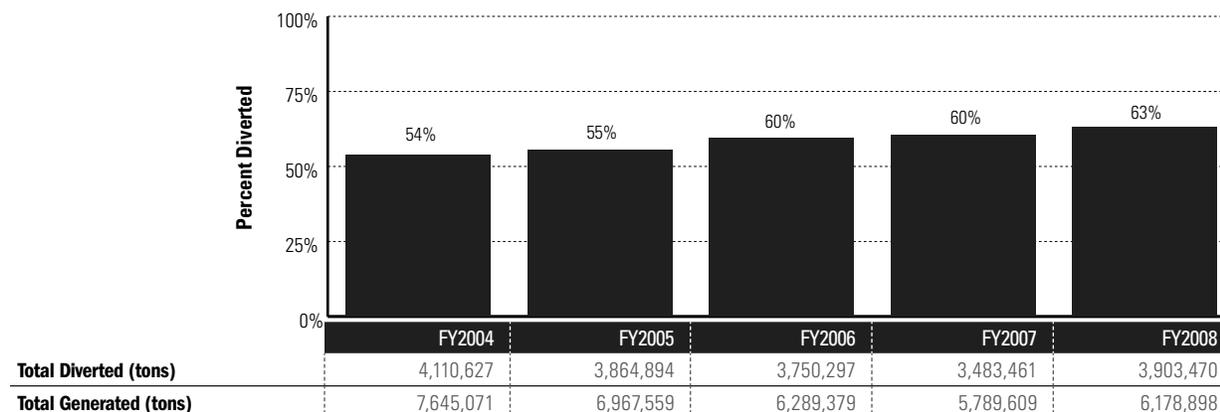
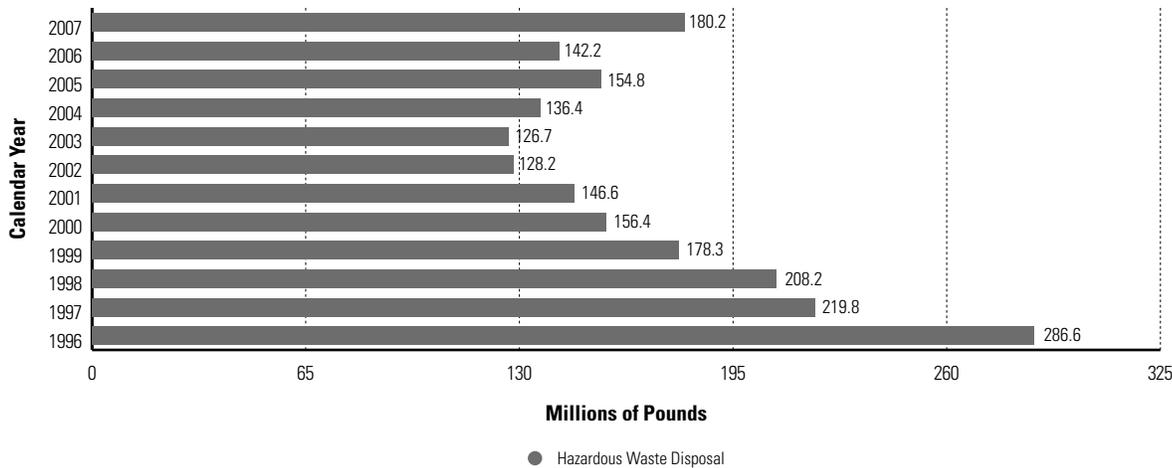


Figure 26 DoD Hazardous Waste Disposal



Green Procurement Program

DoD is the largest purchasing entity in the Federal Government spending more than \$300 billion on goods and services each year. DoD established a formal Green Procurement Program (GPP) in 2004 to ensure that the Department orients its acquisitions around environmental considerations such as resource conservation and energy use. DoD’s GPP is focused on enhancing and sustaining mission readiness through cost-effective acquisitions that reduce resource consumption and solid and hazardous waste generation while enabling DoD to remain in compliance with federal laws and regulations. DoD’s GPP applies to all acquisitions—from major systems programs to individual unit supply and service requisitions—and considers factors such as energy use, resource conservation, and cost-savings. Products and services included in DoD’s GPP are office products, printing services, fleet vehicles, traffic control barricades and signage, park and recreation services, appliances, building construction, renovation, and maintenance.

In FY2005, DoD was one of 12 federal agencies to sign a Federal Electronics Challenge Memorandum of Understanding that promoted the implementation of environmentally preferable, energy-efficient, and cost-effective practices when buying, using, and managing the life cycle of electronic assets. In the following year, DoD issued a memorandum supporting U.S. Department of Agriculture efforts to promote the use of biobased products, to encourage and reemphasize the importance of using biobased products in DoD operations and applications wherever feasible. DoD also hosted a biobased products showcase and educational event to facilitate information sharing among the biobased product industry and individuals who specify, buy, and use commercial or industrial products in DoD operations. With these accomplishments, DoD will continue to place emphasis on green purchasing and strive to ensure that every procurement meets applicable federal requirements.

Appendix X: Green Procurement provides additional information on DoD’s GPP.

Toxics Release Inventory

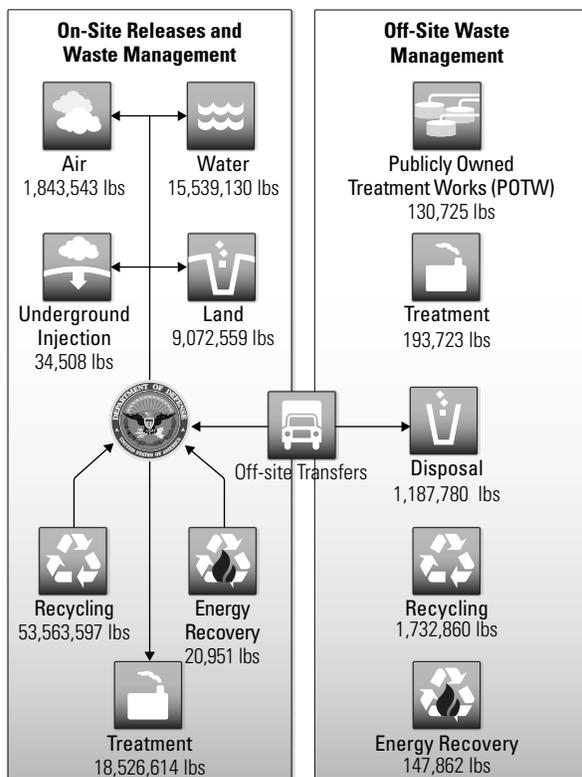
In accordance with E.O. 13423: Strengthening Federal Environmental, Energy, and Transportation Management, each federal facility is required to implement the Emergency Planning and Community Right-to-Know Act (EPCRA), which includes Toxics Release Inventory (TRI) reporting. The primary purpose of TRI reporting is to establish a centralized repository of information on toxic chemical releases that can be accessed by the public and utilized by federal agencies for waste management purposes.

DoD is diligent about TRI reporting and reducing releases of toxic chemicals while maintaining mission readiness. Many TRI-reported releases from DoD facilities occur as by-products of critical DoD manufacturing and utilities processes (e.g., nitrate compounds from wastewater treatment, hydrochloric acid aerosols from coal-fired heating plants), as illustrated in Figure 27. To further reduce its TRI releases, DoD invests significant resources and oversees the development of new technologies to enable substitution of alternatives to conventional toxic chemicals. Through TRI reporting, DoD can identify:

- ▶ Processes that produces releases and off-site transfers of TRI chemicals
- ▶ Procedures or processes that require the use of TRI toxic chemicals
- ▶ Pollution prevention opportunities.

Appendix Y: Toxic Release Inventory provides additional information on TRI.

Figure 27 CY2007 TRI Releases and Transfers, Including Ranges



Ozone-Depleting Substances

DoD is a leader in ODS reduction, and was one of the first organizations to commit to reducing the use of ODSs after the signing of the Montreal Protocol in 1987. DoD developed the world’s first Halon 1301 alternatives for certain military weapons systems and continues to substitute safer compounds as a way to eliminate the use of harmful materials without sacrificing military preparedness.

Each Component has adopted its own approach to reducing ODSs based on specific mission requirements. For example, the Army instituted an aggressive ODS elimination policy targeting its legacy weapons systems. The Navy developed a comprehensive four-pronged approach to eliminate the use of Class I ODSs at facilities and in mission-critical weapon systems. The Marine Corps has completed implementation of installation-level ODS elimination initiatives at all but two of its facilities, and is also implementing a transition plan to upgrade its Light Armored Vehicle fire suppression systems to non-ODS technology. The Air Force adopted a centralized ODS management program to ensure appropriate emphasis on eliminating ODS usage as technically and economically feasible alternatives become available. Lastly, the Defense Logistics Agency supports warfighting readiness and preparedness through its management of the DoD ODS Reserve, the only available source within DoD of Class I ODSs.

These and related DoD efforts have yielded very positive results. In addition to the DoD Best-of-the-Best Stratospheric Ozone Protection Award, the Navy received six awards for its ongoing efforts to eliminate ODSs. The Air Force also received two awards, one for the overall Air Force ODS management program, and the other for work on aviation halon replacement.

Appendix Z: Ozone-Depleting Substances provides additional information on ODSs.

Looking Forward

The Department of Defense's (DoD's) mission is to defend the people, resources, and interests of the United States. Preserving and protecting the land, water, and airspace entrusted to DoD is crucial to ensuring military readiness. DoD must continue to manage these resources responsibly to not only preserve needed access to resources for training but also protect the community. DoD sees environmental protection as an essential link in meeting the nation's security commitment to the American people.

To keep pace with changing statutes, regulations, and programmatic needs, the Department regularly revisits policies to address how best to satisfy these requirements related to management, oversight, and execution of various programs. In September 2008, DoD published DoD Instruction (DoDI) 4715.16, which addresses cultural resources management. The DoDI provides new responsibilities and procedures for DoD's cultural resources programs and a new set of reporting requirements to track progress. The Department requires full compliance with the Instruction beginning in FY2009.

In the coming year, DoD will expand eligibility for the Defense Environmental Restoration Program (DERP). Under the new policy, previously ineligible cleanup activities will be funded from the Environmental Restoration accounts, increasing

program transparency and cohesion while decreasing management and transactional costs. DoD will update its inventory, performance goals, and funding projections as this new policy is implemented.

DoD also will continue to implement and cross-integrate environment, energy, and transportation plans and programs, as Executive Order (E.O.) 13423 requires. The Department will develop an Electronics Stewardship Plan, Toxic and Hazardous Chemicals Reduction Plan, and Integrated Solid Waste Management Policy; finalize the DoDI for Environmental Management Systems (EMS); and update its Green Procurement Strategy to reflect new goals promoting sustainable practices among federal agencies.

Under these plans, DoD identified key objectives and targets for the coming year: develop Component-specific chemical reduction goals; identify three specific toxic or hazardous chemicals to be targeted for reduction, deletion, or replacement; focus on Electronic Product Environmental Assessment Tool (EPEAT) registered products as it strives to meet the 95 percent implementation goal; and continue to implement EMS at all appropriate facilities.

To remain successful, the Department's environmental programs will continue to transform in response to emerging environmental challenges, while integrating sustainable activities with other aspects of the Defense mission. Sustainability of the environment, human health, and military readiness is a foundation of DoD's environmental strategy that will help DoD continue forward as an environmental leader.