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FY 2011 Defense Environmental Programs Annual Report to Congress

INTRODUCTION

This FY 2011 Defense Environmental Programs Annual Report to Congress presents the funding invested in and progress of Department of Defense (DoD) environmental programs – Environmental Restoration, Environmental Quality, and Environmental Technology – and satisfies the requirements of 10 U.S.C. § 2711. In FY 2011, DoD invested approximately $4.2 billion for the environmental programs: $2.1 billion for environmental restoration activities; $1.4 billion for environmental compliance activities; $394.7 million for conservation activities; $85.6 million for pollution prevention activities; and $217.9 million for environmental technology.

Table 1 summarizes the overall DoD environmental funding from FY 2007 through FY 2013 by program area.

Table 1: Overall DoD Environmental Funding by Program Area (millions of dollars)

	FY07 Actual	FY08 Actual	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Estimated	FY13 Requested
Active Installations and Formerly Used Defense Sites (FUDS)*	$1,383.0	$1,508.2	$1,494.2	$1,564.9	$1,592.0	$1,520.8	$1,424.4
Legacy Base Realignment and Closure (BRAC)*	$458.8	$483.4	$452.2	$471.9	$335.8	$393.5	$318.0
BRAC 2005*	$53.7	$55.5	$74.3	$194.7	$138.4	$127.3	$73.1
Compliance+	$1,430.8	$1,494.2	$1,513.2	$1,492.1	$1,423.0	$1,554.4	$1,449.1
Natural and Cultural Resources+	$299.6	$352.8	$350.0	$437.4	$394.7	$408.4	$378.5
Pollution Prevention+	$130.1	$121.3	$114.4	$90.9	$85.6	$101.0	$110.6
Environmental Technology	$227.8	$263.6	$252.5	$255.8	$217.9	$223.9	$219.9
DoD Total**	**$3,983.8**	**$4,279.0**	**$4,250.8**	**$4,507.7**	**$4,187.4**	**$4,329.3**	**$3,973.6**

* The Environmental Restoration program includes active installations, FUDS properties, Legacy BRAC locations, and BRAC 2005 locations.

+ Environmental Quality programs include Compliance, Conservation (Natural and Cultural Resources), and Pollution Prevention.

** Due to rounding, subtotals may not equal FY totals.

For more information on DoD's environmental programs, please visit: http://www.denix.osd.mil.

I. ENVIRONMENTAL RESTORATION PROGRAM

The Department began environmental restoration in 1975 under the Installation Restoration Program (IRP). The IRP addresses hazardous substances, pollutants, and contaminants at active installations, Base Realignment and Closure (BRAC) locations, and Formerly Used Defense Sites (FUDS). In 2001, the Department established the Military Munitions Response Program (MMRP) to address munitions-contaminated sites. The IRP and

MMRP enable the Department to comply with environmental cleanup laws such as the Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund.

The Department measures cleanup progress at IRP sites on active installations, BRAC locations, and FUDS properties, as well as at munitions response sites (MRSs)[1] at active and BRAC locations, against two milestones:

- Remedy In Place (RIP), which occurs when cleanup systems are constructed and operational; and

- Response Complete (RC), which occurs when the site finishes cleanup activities (though DoD or a subsequent owner may continue to monitor the remedy).

To measure progress against these milestones, the Department developed goals for achieving RIP or RC (referred to as RIP/RC) at IRP sites and MRSs.

Assessment of IRP Progress

Table 2 summarizes DoD progress toward the IRP goals. The table presents the number and percentage of sites that have achieved RIP/RC from the beginning of the program through FY 2011, the number and percentage of sites projected to achieve RIP/RC in FY 2013, and the number and percentage of sites projected to achieve RIP/RC from the beginning of the program through FY 2013.

Table 2: IRP Site Goals and Progress

	Goal	Number (and Percentage)of Sites at RIP/RC Through FY11	Number (and Percentage) of Sites Projected to Achieve RIP/RC in FY13	Number of Sites Projected to Achieve RIP/RC Through FY13
Active Installations	Achieve RIP/RC by the end of FY14	18,986 (86%)	621 (3%)	20,205 (91%)
FUDS Properties	Achieve RIP/RC by the end of FY20	2,184 (74%)	91 (3%)	2,409 (82%)
Legacy BRAC Locations	Achieve RIP/RC by the end of FY15	4,346 (88%)	100 (2%)	4,575 (93%)
BRAC 2005 Locations	Achieve RIP/RC by the end of FY14	113 (62%)	31 (17%)	161 (89%)
DoD Total		25,629 (85%)	843 (3%)	27,350 (91%)

The Department is successfully moving sites through the investigation and cleanup phases toward achieving RIP/RC. However, as the program matures, achieving the RIP/RC milestone takes longer because cleanup at the remaining sites is more complex and requires more time, regulatory involvement, and financial resources. In FY 2009, the Department updated the Defense Environmental Restoration Program eligibility criteria to include certain releases previously addressed under the Compliance Program, such as corrective action under the

[1] MRSs are defined as discrete locations where unexploded ordnance (UXO), discarded military munitions, or munitions constituents are known or suspected to be present (32 Code of Federal Regulations 179.3).

Resource Conservation and Recovery Act. As a result, the Department has added over 2,000 sites to its active installation site inventory since FY 2009, which will impact progress toward achieving the RIP/RC goal.

Although DoD increased the number of active IRP sites at RIP/RC by 403 in FY 2011, the overall percentage of sites achieving RIP/RC remained at 86 percent because the total inventory increased by 577 sites in FY 2011. By the end of FY 2013, the Department plans to have 91 percent of IRP sites at active installations at RIP/RC.

The Department achieved RIP/RC at 74 percent of IRP sites at FUDS properties by the end of FY 2011, a 2-percent increase from FY 2010, even though the FUDS IRP inventory increased by 23 sites. DoD plans to have 82 percent of IRP sites at FUDS properties at RIP/RC by the end of FY 2013.

The Department's inventory of IRP sites at Legacy BRAC locations decreased by 31 since FY 2010. This decrease is due in part to Department of Navy deletion of duplicate sites from its inventory; additionally, some Army sites transitioned from the BRAC Program to the Active Program in FY 2011. As a result, the number of sites achieving RIP/RC decreased by nine, while the percentage of sites remained at 88 percent. By the end of FY 2013, DoD plans to have 93 percent of IRP sites at Legacy BRAC locations at RIP/RC and is on track to meet its goal.

Through FY 2011, DoD achieved RIP/RC at 62 percent of BRAC 2005 sites. Although DoD increased the number of BRAC 2005 IRP sites at RIP/RC by seven, there was only a 1-percent increase in inventory from FY 2010. By the end of FY 2013, DoD plans to have 89 percent of IRP sites at BRAC 2005 locations at RIP/RC and is on track to meet its goals.

The Department's primary challenge to achieving its goals is the complexity of the remaining sites. To reduce costs and achieve cleanup faster, DoD is working with other Federal Agencies and the National Academy of Science to identify best practices for closing and monitoring sites. Emerging changes to cleanup requirements (e.g., 1, 4-dioxane) may impact the Department's long-term cleanup liability. DoD is working with the Environmental Protection Agency to identify and assess emerging cleanup requirements to ensure proposed requirements are based on sound scientific data. DoD will also identify potential mitigation measures and actions to reduce cleanup liability.

Table 3 summarizes the status of IRP sites at active installations, FUDS properties, Legacy BRAC locations, and BRAC 2005 locations.

Table 3: IRP Site Status

	Total Site Inventory (FY11)	Remedy in Place (RIP)			Response Complete (RC)		
		Number of Sites at RIP Through FY10	Number of Sites at RIP Through FY11	Change in RIP Status from FY10 to FY11	Number of Sites at RC Through FY10	Number of Sites at RC Through FY11	Change in RC Status from FY10 to FY11
Active Installations							
Army	10,947	10,188	10,188	0	9,976	9,956	-20*
Department of Navy (DON)[+]	3,907	3,251	3,356	105	2,495	2,347	-148**
Air Force	6,898	4,802	5,098	296	4,255	4,505	250
Defense Logistics Agency (DLA)	353	342	344	2	327	330	3
Active Total	**22,105**	**18,583**	**18,986**	**403**	**17,053**	**17,138**	**85**
FUDS Properties							
FUDS Total	**2,944**	**2,117**	**2,184**	**67**	**2,110**	**2,162**	**52**
Legacy BRAC Locations							
Army	2,007	1,770	1,877	107	1,745	1,847	102
DON[+]	1,092	1,005	1,000	-5[++]	827	847	20
Air Force	1,775	1,416	1,421	5	1,266	1,276	10
DLA	48	164	48	-116[‡]	157	47	-110[‡]
Legacy BRAC Total	**4,922**	**4,355**	**4,346**	**-9**	**3,995**	**4,017**	**22**
BRAC 2005 Locations							
Army	110	62	68	6	38	43	5
DON[+]	26	16	17	1	5	7	2
Air Force	45	28	28	0	27	27	0
DLA[‡‡]	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BRAC 2005 Total	**181**	**106**	**113**	**7**	**70**	**77**	**7**
DoD Total	**30,152**	**25,161**	**25,629**	**468**	**23,228**	**23,394**	**166**

* The number of sites at RC decreased due to joint basing.

+ DON incudes Navy and Marine Corps.

** In preparation for the establishment of new RC goals, the number of sites at RC decreased because DON reverted some sites from RC to RIP status in FY 2011 based on DON requirements for written regulatory approval of RC.

++ The number of sites at RIP decreased because DON removed duplicate sites from its inventory in FY 2011.

‡ The number of sites at RIP and RC decreased because DLA transferred Defense Distribution Depot Memphis to the Army in FY 2011.

‡‡ DLA does not have BRAC 2005 locations.

Table 4 summarizes IRP funding from FY 2007 through FY 2013 at active installations, FUDS properties, Legacy BRAC locations, and BRAC 2005 locations.

Table 4: IRP Funding (millions of dollars)

	FY07 Actual	FY08 Actual	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Estimated	FY13 Requested
Active Installations							
Army	$372.9	$396.2	$337.3	$327.8	$236.6	$197.5	$188.6
DON*	$252.9	$261.2	$245.5	$247.7	$246.9	$245.0	$246.7
Air Force	$382.9	$414.9	$387.8	$393.7	$448.8	$458.1	$476.5
Defense-wide+	$14.2	$14.8	$11.5	$15.2	$10.1	$12.3	$11.1
Active Total	**$1,022.9**	**$1,087.1**	**$982.1**	**$984.4**	**$942.4**	**$912.9**	**$922.9**
FUDS Properties							
FUDS Total	**$144.3**	**$153.9**	**$167.6**	**$164.5**	**$243.0**	**$211.9**	**$150.0**
Legacy BRAC Locations							
Army	$64.8	$53.8	$34.0	$77.7	$50.5	$43.6	$55.1
DON*	$177.6	$268.2	$219.2	$201.5	$130.3	$173.1	$116.0
Air Force	$106.0	$118.3	$112.3	$108.3	$110.6	$86.7	$94.0
Defense-wide+	$6.0	$3.6	$2.6	$4.0	$0.0	$0.0	$0.0
Legacy BRAC Total	**$354.4**	**$443.9**	**$368.1**	**$391.5**	**291.4**	**303.4**	**265.1**
BRAC 2005 Locations							
Army	$5.8	$4.3	$17.5	$8.9	$7.9	$21.4	$16.6
DON*	$9.6	$16.2	$2.6	$13.7	$12.9	$9.9	$8.1
Air Force	$2.0	$0.0	$0.0	$14.8	$3.0	$0.9	$0.8
Defense-wide+	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BRAC 2005 Total	**$17.4**	**$20.5**	**$20.1**	**$37.4**	**$23.8**	**$32.2**	**25.5**
DoD Total**	**$1,539.0**	**$1,705.4**	**$1,537.9**	**$1,577.8**	**$1,500.6**	**$1,460.4**	**$1,363.5**

* DON includes Navy and Marine Corps.

+ Defense-wide accounts include DLA and other Defense Agencies. DLA does not have BRAC 2005 locations.

** Due to rounding, subtotals may not equal FY totals.

Assessment of MMRP Progress

Table 5 lists the MMRP goals and summarizes DoD progress at MRSs. The table presents the number and percentage of MRSs that have achieved RIP/RC from the beginning of the program through FY 2011, the number and percentage of MRSs projected to achieve RIP/RC in FY 2013, and the number and percentage of MRSs projected to achieve RIP/RC from the beginning of the program through FY 2013.

Table 5: MRS Goals and Progress

	Goal	Number of Sites at RIP/RC Through FY11	Number of Sites Projected to Achieve RIP/RC in FY13	Number of Sites Projected to Achieve RIP/RC Through FY13
Active Installations	Achieve RIP/RC by the end of FY20	1,002 (38%)	142 (5%)	1,417 (54%)
FUDS Properties	N/A	691 (39%)	7 (<1%)	726 (41%)
Legacy BRAC Locations	Achieve RIP/RC by the end of FY09	205 (71%)	3 (1%)	226 (79%)
BRAC 2005 Locations	Achieve RIP/RC by the end of FY17	26 (44%)	14 (24%)	48 (81%)
DoD Total		1,924 (41%)	166 (4%)	2,417 (51%)

The Department is making progress addressing MRSs. The Department's goal was to complete site inspections (SIs) by the end of FY 2010. Now that the majority (96 percent) of the

SIs are complete, DoD is focused on achieving RIP/RC at MRSs this year. However, DoD will continue to add new MRSs to the inventory as additional ranges are closed.

The Department has achieved RIP/RC at 38 percent of MRSs at active installations through FY 2011. Between FY 2010 and FY 2011, 66 MRSs achieved RIP/RC; however, the percentage of MRSs achieving RIP/RC stayed the same because the inventory increased by 186 MRSs. DoD anticipates achieving RIP/RC at over half (54 percent) by the end of FY 2013 and is on track to meet its goal of achieving RIP/RC at 100 percent of sites by the end of FY 2020.

DoD is moving MRSs through the cleanup phases at FUDS properties, with 39 percent of MRSs at RIP/RC through FY 2011 and 41 percent of MRSs planned to achieve RIP/RC by the end of FY 2013. While 51 MRSs achieved RIP/RC in FY 2011, this represents only a 1-percent increase since FY 2010. This is attributable to an increase in the FUDS inventory of 49 MRSs. The primary challenges at FUDS properties are that the inventory has significantly increased since FY 2004 and the difficulty of obtaining rights of entry from current land owners, which have caused a delay in finishing investigations and cleaning up MRSs. The Army established an internal timeline to ensure that it completes SIs at FUDS properties by FY 2013.

DoD is steadily increasing the percentage of MRSs achieving RIP/RC, with 71 percent at Legacy BRAC locations and 44 percent at BRAC 2005 locations through FY 2011. This represents a 1-percent increase and a 5-percent increase since FY 2010 at Legacy BRAC and BRAC 2005 locations, respectively, while the Legacy BRAC inventory increased by two MRSs and the BRAC 2005 inventory decreased by two MRSs. The decrease in the BRAC 2005 inventory is due to the Army transitioning MRSs from the BRAC Program to the Active Program in FY 2011. By FY 2013, DoD plans to have 79 percent of MRSs at Legacy BRAC locations and 81 percent of MRSs at BRAC 2005 locations at RIP/RC. DoD is on track to meet its goal at BRAC 2005 locations.

DoD's biggest challenge at MRSs is the cost from digging up items other than Unexploded Ordnance (UXO). To address this challenge, DoD has developed advanced technologies to detect UXO and exclude subsurface items other than UXO. DoD is conducting live-site demonstrations and addressing impediments to the technology deployment, such as environmental regulator, remedial action contractor, and DoD remedial project manager acceptance. With the development and acceptance of classification technology, DoD will conduct more efficient, cost effective cleanups.

Table 6 summarizes the status of MRSs at active installations, FUDS properties, Legacy BRAC locations, and BRAC 2005 locations.

Table 6: MRS Status

	Total Site Inventory (FY11)	Remedy in Place (RIP)			Response Complete (RC)		
		Number of Sites at RIP Through FY10	Number of Sites at RIP Through FY11	Change in RIP Status from FY10 to FY11	Number of Sites at RC Through FY10	Number of Sites at RC Through FY11	Change in RC Status from FY10 to FY11
Active Installations							
Army	1,378	678	648	-30*	678	648	-30*
DON[+]	359	106	129	23	76	116	40
Air Force	881	152	225	73	151	225	74
DLA**	1	N/A	0	N/A	N/A	0	N/A
Active Total	**2,619**	**936**	**1,002**	**66**	**905**	**989**	**84**
FUDS Properties							
FUDS Total	**1,752**	**640**	**691**	**51**	**640**	**691**	**51**
Legacy BRAC Locations							
Army	132	79	78	-1[++]	79	78	-1[++]
DON[+]	26	9	11	2	4	11	7
Air Force	129	112	116	4	108	114	6
DLA**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Legacy BRAC Total	**287**	**200**	**205**	**5**	**191**	**203**	**12**
BRAC 2005 Locations							
Army	47	20	21	1	20	21	1
DON[+]	11	4	5	1	4	5	1
Air Force	1	0	0	0	0	0	0
DLA**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BRAC 2005 Total	**59**	**24**	**26**	**2**	**24**	**26**	**2**
DoD Total	**4,717**	**1,800**	**1,924**	**124**	**1,760**	**1,909**	**149**

* The number of sites at RIP and RC decreased due to joint basing.

[+] DON includes Navy and Marine Corps.

** DLA began reporting MRSs at active installations in FY 2011, and does not have MRSs at Legacy BRAC locations. DLA does not have BRAC 2005 locations.

[++] The number of sites at RIP and RC decreased because the Army reopened a site to conduct additional investigations.

Table 7 summarizes MMRP funding from FY 2007 through FY 2013 at active installations, FUDS properties, Legacy BRAC locations, and BRAC 2005 locations.

Table 7: MMRP Funding (millions of dollars)

	FY07 Actual	FY08 Actual	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Estimated	FY13 Requested
Active Installations							
Army	$29.9	$41.2	$64.6	$108.5	$85.5	$148.5	$147.4
DON*	$48.8	$51.7	$49.4	$38.0	$55.4	$63.7	$63.9
Air Force	$18.6	$41.3	$107.4	$100.6	$52.2	$67.4	$52.7
Defense-wide+	$0.0	$0.0	$0.0	$0.0	$0.0	$1.6	$0.0
Active Total	**$97.3**	**$134.2**	**$221.4**	**$247.1**	**$193.1**	**$281.2**	**$264.0**
FUDS Properties							
FUDS Total	**$118.5**	**$132.8**	**$123.1**	**$168.8**	**$213.5**	**$114.6**	**$87.6**
Legacy BRAC Locations							
Army	$54.0	$33.4	$52.1	$30.4	$15.8	$19.4	$18.9
DON*	$6.4	$22.9	$20.0	$8.2	$6.4	$37.4	$12.8
Air Force	$0.2	$1.8	$1.4	$2.5	$1.7	$2.7	$0.0
Defense-wide+	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Legacy BRAC Total	**$60.6**	**$58.1**	**$73.5**	**$41.1**	**$23.9**	**$59.5**	**$.7**
BRAC 2005 Locations							
Army	$0.0	$0.4	$2.4	$1.9	$17.7	$22.7	$7.9
DON*	$1.2	$2.3	$0.1	$1.3	$2.1	$3.5	$5.0
Air Force	$0.0	$0.0	$0.0	$0.0	$43.7	$0.7	$1.3
Defense-wide+	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BRAC 2005 Total	**$1.2**	**$2.7**	**$2.5**	**$3.2**	**$63.5**	**$26.9**	**$14.2**
DoD Total**	**$277.6**	**$327.8**	**$420.5**	**$460.2**	**$494.0**	**$482.2**	**$397.5**

* DON includes Navy and Marine Corps.

+ Defense-wide accounts include other defense agencies and DLA, which began reporting MRSs at active installations in FY 2011. DLA does not have MRSs at Legacy BRAC locations. DLA does not have any BRAC 2005 locations.

** Due to rounding, subtotals may not equal FY totals.

Planning, Compliance, and Other BRAC Funding

Table 8 summarizes planning, compliance, and other funding from FY 2007 through FY 2013 at Legacy BRAC and BRAC 2005 locations.

Table 8: Planning, Compliance, and Other Funding* (millions of dollars)

	FY07 Actual	FY08 Actual	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Estimated	FY13 Requested
Legacy BRAC Locations							
Army	$0.7	$9.8	$1.2	$28.8	$2.8	$3.1	$1.4
DON+	$36.1	-$32.1	$5.5	$7.6	$16.2	$2.4	$0.7
Air Force	$7.1	$3.6	$4.1	$3.0	$1.5	$25.1	$19.0
Defense-wide**	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Legacy BRAC Total	**$43.9**	**-$18.7**	**$10.8**	**$39.4**	**$20.5**	**$30.6**	**$21.1**
BRAC 2005 Locations							
Army	$10.3	$13.0	$19.9	$136.9	$46.3	$68.2	$33.3
DON+	$10.3	$1.2	$5.8	$4.6	$0.2	$0.0	$0.0
Air Force	$14.4	$18.2	$26.0	$12.6	$4.6	$0.0	$0.0
Defense-wide**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BRAC 2005 Total	**$35.0**	**$32.4**	**$51.7**	**$154.1**	**$51.1**	**$68.2**	**$33.3**
DoD Total++	**$78.9**	**$13.7**	**$62.5**	**$193.5**	**$71.6**	**$98.8**	**$54.4**

* Other funding may include revenue from land sales or reprogramming funds to other FYs. Negative values indicate funds were reprogrammed to other FYs.

+ DON includes Navy and Marine Corps.

** Defense-wide accounts include other defense agencies and DLA, which does not have BRAC 2005 locations.

++ Due to rounding, subtotals may not equal FY totals.

II. ENVIRONMENTAL QUALITY PROGRAMS

Compliance

The DoD Compliance Program provides resources to comply with applicable requirements, such as Federal, state, and local environmental laws and regulations and final governing standards. Under this Program, DoD activities include sampling and analyzing pollutant discharges to air and water, maintaining environmental permits for regulated activities, and regulated waste disposal. It also includes projects upgrading wastewater treatment facilities, providing safe drinking water, and installing air pollution controls to meet existing standards.

Table 9 summarizes Compliance Program funding from FY 2007 through FY 2013 for Army, Navy, Air Force, Marine Corps, and the Defense-wide accounts.

Table 9: Compliance Funding (millions of dollars)

	FY07 Actual	FY08 Actual	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Estimated	FY13 Requested
Army	$494.0	$475.4	$409.4	$401.1	$393.4	$429.3	$422.3
Navy	$349.6	$394.3	$390.3	$337.0	$369.0	$402.4	$393.1
Air Force	$303.0	$312.8	$311.7	$354.9	338.9	364.6	348.2
Marine Corps	$127.3	$108.7	$189.0	$125.0	126.0	141.0	128.0
Defense-wide*	$156.9	$203.0	$212.8	$274.1	$195.7	$217.1	$157.5
DoD Total+	**$1,430.8**	**$1,494.2**	**$1,513.2**	**$1,492.1**	**$1,423.0**	**$1,554.4**	**$1,449.1**

* Defense-wide accounts include DLA and other defense agencies.

+ Due to rounding, subtotals may not equal FY totals.

Overall Trend Analysis

From FY 2007 to FY 2010, overall DoD funding increased, but there was a significant decrease from FY 2010 to FY 2011 due to a decrease in Military Construction (MilCon) funding for DLA Clean Water Act (CWA)-compliant Fuel Storage Facilities. DoD anticipates that FY 2013 funding, considering the impact of one-time projects, will be consistent with prior years.

Explanation of Significant[2] Changes in Funding Amounts

- From FY 2011 to FY 2012, the increase in Marine Corps funding (+11.9 percent) is due to anticipated costs related to new ranges in Guam. Defense-wide account funding (+12.7 percent) increases are primarily due to DLA MilCon projects to comply with the CWA at Point Loma, California, and Mountain Home, Idaho.

- From FY 2012 to FY 2013, Defense-wide account funding reductions (-29.1 percent) reflect completion of one-time projects.

Natural and Cultural Resources

DoD supports mission readiness and training flexibility by managing its resources to enable continued access to realistic habitat conditions while complying with existing laws (e.g., Endangered Species Act, Sikes Act, National Historic Preservation Act), and ensuring long-term sustainability of our Nation's natural and cultural heritage. DoD manages and maintains cultural resources at over 600 DoD installations that contain over 120,000 archaeological sites. DoD also manages and protects nearly 425 Federally-listed species and over 500 at-risk species while supporting military mission requirements.

Table 10 summarizes natural and cultural resources funding from FY 2007 through FY 2013 for Army, Navy, Air Force, Marine Corps, and the Defense-wide accounts.

Table 10: Natural and Cultural Resources Funding (millions of dollars)

	FY07 Actual	FY08 Actual	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Estimated	FY13 Requested
Army	$166.6	$177.1	$180.4	$267.1	$177.1	$187.3	$187.7
Navy	$14.2	$22.4	$24.2	$34.3	$41.4	$64.8	$48.5
Air Force	$48.9	$73.7	$67.9	$57.2	$66.3	$71.5	$64.6
Marine Corps	$25.7	$27.9	$20.1	$20.5	$20.2	$23.2	$21.1
Defense-wide*	$44.2	$51.7	$57.4	$58.3	$89.7	$61.6	$56.6
DoD Total+	**$299.6**	**$352.8**	**$350.0**	**$437.4**	**$394.7**	**$408.4**	**$378.5**

* Defense-wide accounts include DLA and other defense agencies.

+ Due to rounding, subtotals may not equal FY totals.

[2] "Significant" is defined as an increase or decrease of ten percent or more from the previous FY funding level.

Overall Trend Analysis

Funding for natural and cultural resources activities increased overall between FY 2007 and FY 2011, with a significant spike in FY 2010. The 25-percent increase from FY 2009 to FY 2010 is the result of an increase in Army Integrated Natural Resource Management Plan costs, additional cultural resources efforts, additional threatened and endangered species costs, and Army Compatible Use Buffers.

Explanation of Significant Changes in Funding Amounts

- From FY 2011 to FY 2012, the decrease in Defense-wide account funding (-31.3 percent) is due to Congress returning the Readiness and Environmental Protection Initiative Program funding to pre-FY 2011 levels. The 56.5-percent increase in Navy funding is to address various natural resource requirements associated with Federal laws such as the Marine Mammal Protection Act and the Endangered Species Act.

- From FY 2012 to FY 2013, total funding decreases slightly with only minor variations in funding across most of the DoD Components. The significant decrease in Navy funding (-25.2 percent) is due to the anticipated completion of environmental surveys, modeling efforts, and assessments at San Clemente Island, California.

Pollution Prevention

DoD created the Pollution Prevention Program to reduce or eliminate waste generation, natural resources losses, and process emissions. DoD also implements energy, water, and fuel efficiency measures that further reduce pollution and better use existing resources. As a result, DoD pollution prevention investments have the potential to reduce costs Department-wide. The Program is built on a flexible framework that helps DoD prioritize cost-effective initiatives while maintaining safe, uninterrupted operations and sustaining military readiness.

Table 11 summarizes Pollution Prevention Program funding from FY 2007 through FY 2013 for Army, Navy, Air Force, Marine Corps, and the Defense-wide accounts.

Table 11: Pollution Prevention Funding (millions of dollars)

	FY07 Actual	FY08 Actual	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Estimated	FY13 Requested
Army	$30.7	$28.7	$23.2	$18.7	$18.6	$28.3	$37.2
Navy	$20.0	$14.6	$16.9	$12.8	$15.8	$11.0	$6.6
Air Force	$52.1	$59.4	$50.5	$36.0	$33.8	$33.6	$46.0
Marine Corps	$13.2	$15.5	$19.5	$19.9	$14.3	$20.9	$15.6
Defense-wide*	$14.1	$3.1	$4.3	$3.5	$3.1	$7.2	$5.2
DoD Total+	**$130.1**	**$121.3**	**$114.4**	**$90.9**	**$85.6**	**$101.0**	**$110.6**

* Defense-wide accounts include DLA and other defense agencies.

\+ Due to rounding, subtotals may not equal FY totals.

Overall Trend Analysis

Funding for the Pollution Prevention Program has steadily declined from FY 2007 through FY 2011, including a significant decrease (-20.5 percent) from FY 2009 to FY 2010. However, pollution prevention activities have not decreased but are now integrated into daily operations that are funded by other programs.

Explanation of Significant Changes in Funding Amounts

From FY 2012 to FY 2013, the Army anticipates increasing funding by 31.4 percent for programs that better address the handling of hazardous materials. Navy decreased requested funding by 40 percent because the Consolidated Hazardous Materials Reutilization and Management Program is no longer funded by the Pollution Prevention Program.

III. ENVIRONMENTAL TECHNOLOGY PROGRAMS

The Office of the Secretary of Defense (OSD) administers the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP). Environmental Technology is included in this report to satisfy the requirements of 10 U.S.C. 2711.

Table 12 summarizes Environmental Technology Program funding from FY 2007 through FY 2013 for Army, Navy (including Marine Corps), Air Force, and the Defense-wide accounts.

Table 12: Environmental Technology Funding (millions of dollars)

	FY07 Actual	FY08 Actual	FY09 Actual	FY10 Actual	FY11 Actual	FY12 Estimated	FY13 Requested
Army*							
Army Total	$69.2	$79.6	$76.0	$75.0	$53.1	$55.9	$50.5
DON+							
DON Total	$46.9	$48.7	$46.2	$46.6	$41.3	$42.8	$42.3
Air Force							
Air Force Total	$12.2	$25.8	$25.6	$26.1	$25.6	$20.0	$10.4
Defense-wide**							
SERDP	$62.2	$65.8	$63.1	$62.3	$64.0	$66.4	$65.3
ESTCP	$32.3	$38.8	$36.6	$41.0	$28.8	$33.6	$45.9
Defense Warfighter Protection	$5.0	$5.0	$5.0	$4.8	$5.1	$5.2	$5.4
Defense-wide Total	$99.5	$109.6	$104.7	$108.1	$97.9	$105.2	$116.6
DoD Total++	**$227.8**	**$263.7**	**$252.5**	**$255.8**	**$217.9**	**$223.9**	**$219.8**

* NDCEE Environment is included in the Army Program line.

\+ DON includes Navy and Marine Corps.

** Defense-wide accounts include DLA and other defense agencies.

++ Due to rounding, subtotals may not equal FY totals.

Explanation of Significant Changes in Funding Amounts

- In FY 2011, the 11.2 percent decrease from FY 2010 is mostly due to the 31.1-percent decrease in Army program costs

- Total funding from FY 2011 to FY 2013 varies slightly, while there is a substantial change in funding for some of the DoD Components between FY 2012 and FY 2013 (e.g., Air Force and ESTCP).

Progress in Achieving Objectives and Goals

OSD administers Defense-wide programs SERDP, ESTCP, and the National Defense Center for Energy and Environment (NDCEE). In addition, OSD oversees the Military Departments' environmental technology programs. The mission of the Defense-wide programs is to address high priority cross-Service environmental requirements and develop solutions for the Department's most critical environmental challenges. The DoD Components environmental technology investments focus on unique Service requirements and complement the Defense-wide investments. SERDP, ESTCP, NDCEE, and the Components work together to coordinate and leverage these investments.

The Department's technology research objectives are to reduce current and future environmental liability and sustain ranges and operations. Environmental Research and Development (R&D) has saved the Department billions of dollars in environmental cleanup costs, avoided liability costs, and reduced weapons system maintenance and life-cycle costs. For example, DoD Environmental Technology R&D will reduce cleanup liability by using technologies to discriminate between scrap metal and hazardous UXO. As a result, contractors avoid the labor-intensive and very expensive practice of digging up hundreds of thousands of metal objects to identify and remove a few UXO items. ESTCP is funding live-site demonstrations to validate, gain regulatory approval for, and transition these technologies into the field. Beginning in FY 2011, ESTCP accelerated these demonstrations so that the technology will be ready by 2015, when the DoD Components begin significant UXO cleanup efforts. The technology demonstrations on seven sites discriminated 70 to 90 percent of metallic scrap while identifying all of the UXO. Implementing these technologies will save the Department billions of dollars and accelerate cleanup with available resources.

One example of R&D for range sustainability is managing munitions constituents (MC), the energetic propellant and explosive compounds inside munitions, on ranges. OSD and DoD Components' research characterizing MCs on military ranges has led to technologies that manage or contain MCs in soil and groundwater. SERDP is compiling the results into Best Management Practices to sustain ranges for future use. DoD will also use the information in designing, siting, and constructing new military ranges.

Other examples of technology advances include eliminating hexavalent chromium in DoD weapon platforms, ecosystem-based management of DoD's natural resources, understanding air emissions from military sources, and developing tools to assess the impact of sea-level rise on coastal installations.