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# POLLUTION PREVENTION

## INTRODUCTION

Pollution can adversely affect the Department of Defense's (DoD's) mission by harming DoD personnel and surrounding communities, property DoD holds in the public trust, and the facilities required to maintain military readiness. Because controlling existing pollution and reversing the effects of pollution is costly, DoD strives to prevent pollution at the source. DoD remains committed to protecting human health and the environment by making pollution prevention a routine part of day-to-day mission activities.

DoD's pollution prevention approach includes recycling, reducing the use of hazardous materials and developing safer alternatives, reducing all sources of pollution (air, water, and waste), eliminating the use of ozone-depleting substances (ODSs), purchasing environmentally preferable products, and ensuring that DoD activities do not adversely impact the nation's air, water, and land resources.

## HIGHLIGHTS OF ACTIVITIES IN FISCAL YEAR 2003

DoD continually strives to employ pollution prevention as the primary means of achieving and maintaining compliance at all DoD installations. In Fiscal Year (FY) 2003, DoD continued to meet and surpass its pollution prevention goals and objectives.

### Green Procurement

In FY 2003, DoD began coordination of a new Green Procurement Program (GPP) to include a policy, metrics, and a strategy for Department-wide implementation. The GPP incorporates Resource Conservation and Recovery Act (RCRA) Section 6002 and other Federally mandated procurement program requirements. The purpose of the GPP is to enhance and sustain mission readiness through cost effective acquisition that achieves compliance and reduces resource consumption and solid and hazardous waste generation. Green Procurement is the purchase of environmentally preferable products and services in accordance with one or more of the Federally-mandated "green" procurement preference programs. The GPP applies to all acquisitions from major systems programs to individual unit supply and service requisitions.

Across the government, environmentally sound purchasing practices are known under a variety of names such as Affirmative Procurement (AP) and Environmentally Preferable Purchasing (EPP). As the titles suggest, the focus of these programs has been on environmental and procurement organizations. DoD's proposed GPP also focuses on procurement and environmental organizations, but more importantly, it emphasizes the role of the individuals and organizations that originate purchase requests and make purchasing decisions. This is a key point, because it is the organization or individual requesting a procurement action who has the greatest influence over procurement of environmentally preferable products. This approach, as well as incorporating green procurement into facility-level environmental management systems, will help DoD organizations comply with Federal procurement preference requirements as a routine part of day-to-day purchasing activities.

### **Affirmative Procurement - Resource Conservation and Recovery Act Section 6002**

DoD is establishing itself as a leader in developing programs to implement RCRA Section 6002 and Executive Order (E.O.) 13101, "Greening the Government through Waste Prevention, Recycling, and Federal Acquisition," by purchasing products that are recyclable, renewable, and reusable and are made from recycled materials. DoD's Affirmative Procurement Program (APP) focuses on purchasing these types of products, to ensure that personnel at all levels are committed to and trained in procuring and using these products.

DoD evaluates its progress on compliance with RCRA Section 6002 using the reporting process established by the Office of Federal Procurement Policy (OFPP), in conjunction with the Office of the Federal Environmental Executive. For the 2002/2003 biennial report, OFPP directed changes to the RCRA report format for that substantially altered the reporting baseline. The individual DoD Components have substantively incorporated the new data elements into their respective green procurement management processes, resulting in the most accurate and comprehensive DoD RCRA 6002 report to date.

### ***FY 2003 National Defense Authorization Act, Section 314 "Procurement of Environmentally Preferable Procurement Items"***

Section 314 of the FY 2003 NDAA required the Secretary of Defense to develop and implement a system for tracking Defense Logistics Agency (DLA) procurements of environmentally preferable items, and to report on the results from the tracking system annually from 2004 to 2007. This report addresses the requirements of the FY 2003 NDAA, Sections 314(a) and (c), by providing background on the development, capabilities and limitations of the tracking system along with data on purchase

requests (requisitions) made by customers through the DLA supply system for environmentally preferable products managed by DLA.

### **Development of the Tracking System (FY 2003 NDAA Section 314(a))**

In November 2003, DLA enhanced an existing system, the Environmental Reporting Logistics System (ERLS), with a web-based Green Procurement Reporting capability, to meet the requirements of FY 2003 NDAA, Section 314.

### **Background Information on DLA-managed Environmentally Preferable (Green) Products**

The national stock number (NSN) or “stock” items in the Federal Catalog System (FCS) that are considered environmentally preferable, or “green,” have been designated as such on the basis of environmental attributes defined by the *Joint Group on Environmental Attributes* (Joint Group). DLA chairs the Joint Group, and Army, Navy, Air Force, Marine Corps, DLA, and GSA are voting members. The U.S. Department of Agriculture (USDA), the Department of Energy, and the Environmental Protection Agency (EPA) act as advisors to the Joint Group. The Joint Group is responsible for selecting, evaluating and approving proposed attributes for inclusion in the FCS. The Joint Group evaluates proposed attributes on the basis of regulatory or policy priority, availability of a technical definition, and evidence of a cost benefit. The Joint Group does not create its own attribute descriptions; rather, it uses specific definitions and criteria provided by governing bodies and/or recognized standards-setting organizations. The current list of environmental attributes includes –

- Comprehensive Procurement Guidelines (CPG), for items with recycled content
- Energy efficient
- Water conserving
- Low Volatile Organic Compounds (VOC)
- Asbestos alternative
- Low standby power

This set of attributes reflects Federal procurement preference mandates established in statutes, regulations, and executive orders. Each stock item determined to conform with one of the environmental attributes is identified in the FCS with an alphanumeric code known as an Environmental Attribute Code (ENAC). Figure 7 summarizes the DLA-managed items that conform to one of the approved environmental attributes and are identified with an ENAC in the Federal Catalog System as of January 2004.

**Figure 7 Number of Green NSNs Managed by DLA, by Environmental Attribute**

ENVIRONMENTAL ATTRIBUTE	ENVIRONMENTAL ATTRIBUTE CODE (ENAC)		NUMBER OF NSNs
	Code	Name	
Comprehensive Procurement Guideline (CPG)	E9	Pallets	1
	E4	Remanufactured Toner Cartridges	36
	EA	Paper Products	7
	EB	Lubricating Oil Containing Re-refined Oil	99
	EE	Reclaimed Engine Coolant	20
Energy Efficient (EEF)	GC	Ice Cube Machines	50
	GD	Exit Signs	50
	GF	Fluorescent Ballasts	98
	GE	Fluorescent Tube Lamps	73
	FG	Room Air Conditioners	21
Low Volatile Organic Compound (VOC)	GQ	Household Consumer Products	3
	HP	Cleaning Compounds	5
Water Conserving (WCP)	FV	Urinals	12
<b>TOTAL</b>			<b>475</b>

**Procurement Data Resulting from the Tracking System (FY03 NDAA Section 314(c))**

ERLS captures DLA requisitions daily from a variety of ordering systems and compiles the requisition records together with the NSNs identified as “green” in the Federal Catalog System, and their non-green counterparts, to calculate the dollar value of green and non-green requisitions. Figure 8 provides FY 2003 dollar totals for DoD requisitions of DLA-managed green products. The products are organized by environmental attribute.

The “Percent Green” column in Figure 8 reflects overall green procurement performance for the identified DLA-managed products. Accurate interpretation of this data requires several points of clarification:

- All percentage values are based on DLA’s compilation of green and non-green counterpart products as of February 2004. The counterpart identification is a continuing effort.
- Percentage values less than 100% do not necessarily indicate customers are *choosing* not to purchase a green product. In some cases, use of green products is precluded by mission requirements or lack of reasonable availability of green products.
- ERLS data does not reflect the products DLA purchases to meet customer demand, nor what customers purchase through sources of supply other than DLA.
- ERLS tracks requisition data rather than actual sales for most DLA-managed items, since requisitions reflect the customers’ intent to purchase green versus non-green products.

**Figure 8 DLA Managed Environmentally Preferable Products, FY 2003 Requisitions**

ATTRIBUTE AND PRODUCT TYPE	TOTALS & SUBTOTALS			PERCENT GREEN
	\$ GREEN	\$ NON GREEN	TOTAL \$	
Comprehensive Procurement Guideline	\$ 16,285,011	\$ 6,350,933	\$ 22,635,944	71.94%
Pallets	\$ 15,939	\$ -	\$ 15,939	100.00%
Remanufactured Toner Cartridges*	\$ 445,682	\$ -	\$ 445,682	100.00%
Paper and Paper Products	\$ 94,134	\$ -	\$ 94,134	100.00%
Lubricating Oil Containing Re-refined Oil*	\$ 9,242,879	\$ 6,015,345	\$ 15,258,224	60.58%
Reclaimed Engine Coolant*	\$ 6,486,376	\$ 335,589	\$ 6,821,965	95.08%
Energy Efficient	\$ 636,710	\$ -	\$ 636,710	100.00%
Ice Cube Machines	\$ 54,356	**	\$ 54,356	**
Exit Signs	\$ 142	**	\$ 142	**
Fluorescent Ballasts	\$ 179,457	\$ -	\$ 179,457	100.00%
Fluorescent Tube Lamps	\$ 247,510	\$ -	\$ 247,510	100.00%
Room Air Conditioners	\$ 155,245	\$ -	\$ 155,245	100.00%
Low Volatile Organic Compound (VOC) Products	\$ 5,629	\$ -	\$ 5,629	100.00%
Household Consumer Products	\$ 150	\$ -	\$ 150	100.00%
Cleaning Compound	\$ 5,479	\$ -	\$ 5,479	100.00%
Water Conserving Compound	\$ 58,553	\$ -	\$ 58,553	**
Urinals	\$ 58,553	**	\$ 58,553	**
<b>GRAND TOTALS</b>	<b>\$ 16,985,902</b>	<b>\$ 6,350,933</b>	<b>\$ 23,336,835</b>	<b>72.79%</b>

\* ERLS figures for these green products were adjusted downward for duplicate requisitions

\*\* indicates no non-green substitutes have been recorded in ERLS

### Summary

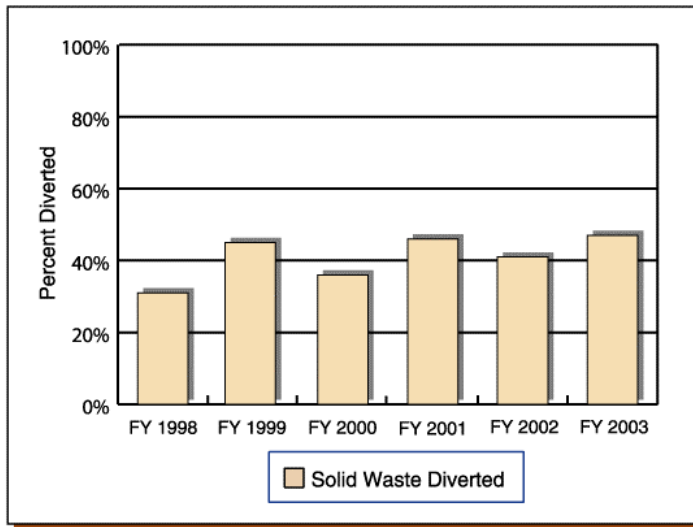
DLA developed and implemented the ERLS Green Procurement tracking system for requisitions of environmentally preferable products procured through the Federal Catalog System. The web-based system became operational in November 2003. This report summarizes data taken from ERLS through the Green Procurement tracking system. The FY 2003 report is the first of four annual reports required under Section 314 of the FY 2003 NDAA.

## SOLID WASTE DIVERSION AND RECYCLING

DoD diverts materials from the waste stream through recycling whenever it is cost-effective and feasible. In 1998, DoD established a solid waste diversion rate measure of merit to calculate the rate at which installations divert nonhazardous solid waste from entering a disposal facility. DoD's goal is to attain a 40 percent diversion rate by the end of 2005.

In calendar year (CY) 2003, DoD diverted 47 percent of its solid waste (Figure 9). The percentage of solid waste diverted in a year varies depending on the amount and types of solid waste generated as well as location, because recycling markets vary around the country. DoD's solid waste diversion also depends on the Department's schedule for demolishing buildings, which produces large

**Figure 9  
Solid Waste Diversion**



quantities of solid waste. In FY 2003, DoD avoided spending over \$120 million by employing integrated solid waste management practices, including reducing the amount of solid waste entering landfills or incinerators and their associated costs.

The total volume of solid waste increased each year between 1998 and 2001, reaching a peak of 6.34 million tons.

**COMPLIANCE WITH ANNEX V TO THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS**

The Act to Prevent Pollution from Ships (APPS) implements Annex V to the International Convention for Prevention of Pollution from Ships (MARPOL 73/78). APPS permits the use of pulpers and shredders on Navy surface ships to discharge non-plastic solid waste, such as paper, cardboard, food waste, metal, and glass, in MARPOL Annex V Special Areas. The three currently designated Special Areas are the Baltic Sea, the North Sea, and the Antarctic Area.

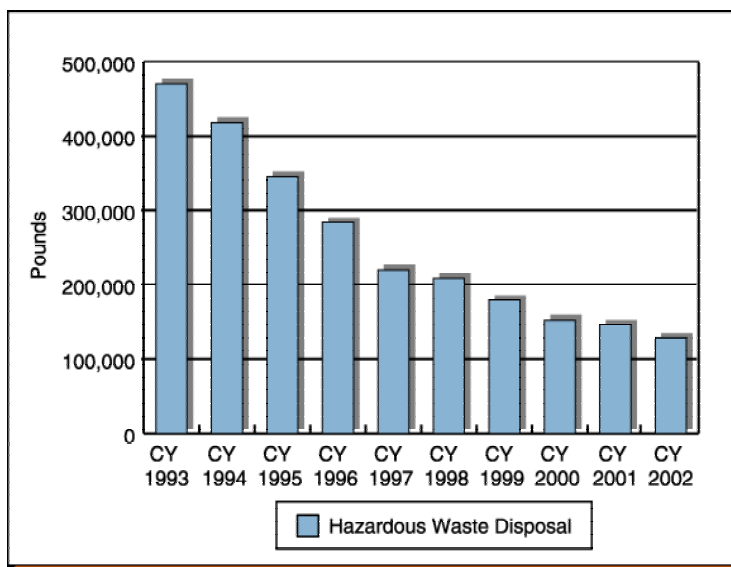
The Navy has completed the installation of pulpers and shredders on all ships required to have this equipment to ensure compliance with APPS. Two ships decommissioning in FY 2006 will not receive pulpers or shredders. These ships operate under published standards which prohibit the discharge of solid waste in MARPOL Annex V Special Areas.

During the past year, all discharges from U.S. Navy ships operating within MARPOL Annex V Special Areas complied with APPS.

## Hazardous Waste Reduction and Disposal

DoD is committed to reducing hazardous waste. From CY 1993 to CY 2002, (the last year for which data are available), the total amount of hazardous waste disposed of declined by 69 percent (Figure 10). DoD personnel continue to identify opportunities for reducing hazardous waste generation.

**Figure 10  
Hazardous Waste Disposal**



## Ozone Depleting Substances

Section 505 of E.O. 13148 establishes actions that Federal agencies, including DoD must take to reduce and manage the use of ozone depleting substances (ODSs) at Federal facilities, including the development of a plan to phase out acquisition of Class I ODSs by December 31, 2010. The DoD Components work hard to reduce their reliance on ODSs.

Recent configuration changes to ground combat vehicles have reduced Army’s long-term Halon 1301 needs. Halon contained in fire suppression systems at fixed sites on installations is no longer needed for weapon systems support. A 1999 Army Acquisition Pollution Prevention Support Office document required Garrison Commanders to eliminate their dependency on commercially available Class I ODSs by the end of FY 2003, eliminating the procurement of new Class I ODSs. Installations may use air conditioning and refrigeration equipment using chlorofluorocarbons (CFCs), which requires periodic recharging, as long as it is supported by CFC refrigerant from recovered on-base activities. Installations can use sealed CFC equipment that does not requiring recharging until retirement, including fixed fire suppression systems utilizing Halon 1301.

The Army works to develop alternative technologies and has published several guidance documents to assist installations with reducing their dependence on ODSs. All Army installations now have ODS Elimination Plans. Since 1992, the Army has eliminated 67 percent of Halon 1301 and 73 percent of Freon R-12 used in legacy weapon systems. The Army has also eliminated 78 percent of halon used for fire suppression, 89 percent of CFC refrigerants, and 99 percent of ODS solvents used for maintenance and industrial operations on installations.



Navy policy required shore facilities to retrofit or replace air-conditioning and refrigeration equipment that contained CFC refrigerants no later than December 2000 unless a waiver was in place. Since 1996, the Navy reduced the total number of CFC-containing pieces from approximately 3000 units to fewer than 500 units. The majority of the remaining units are operating under waivers and are scheduled for replacement over the next several years. The Navy anticipates meeting the phase out goal as established in E.O. 13148.

The Marine Corps, at the installation level, completed implementation of ODS elimination. With the exception of Marine Corps Base (MCB) Camp Butler, Okinawa, Japan; MCB Hawaii, Kaneohe Bay, HI; and Marine Corps Air Station (MCAS) Cherry Point, NC, all other Marine Corps installations transitioned to non-ODS substitutes or non-ODS technology. Waivers for MCB Hawaii and MCAS Cherry Point do not extend beyond December 31, 2006. The waiver for MCB Camp Butler does not extend beyond December 31, 2010. The Defense Reserve of ODS maintained by DLA continues to support mission-critical applications of ODS use for specified Marine Corps weapon systems such as the Amphibious Assault Vehicle (AAV), Light Armored Vehicle (LAV) and M1A1 Main Battle Tank.

In 1993, the Air Force adopted a centralized management policy for ODS to provide an effective, responsible program for ODS use that would ensure both mission capability and environmental protection. Since 1993, the Air Force has invested approximately \$500 million to reduce its annual consumption of Class I ODS by more than 96 percent. Most of the remaining uses of Class I ODS are in existing weapon and facility systems that included Class I ODS in the original equipment designs. The Air Force has not retrofitted these systems with non-ODS alternatives because it has been unable to find alternatives that are technically and economically feasible replacements. The Air Force includes the requirement that alternatives must not increase environment, safety, and occupational health risks in its technical feasibility criteria.

For the remaining Air Force Class I ODS applications, the primary method of reduction will be through attrition – the retirement of these facility and weapon systems at the end of their useful lives and replacement by new design systems that do not use ODSs. For example, in the next two decades, the Air Force will replace over 2,000 F-15 and F-16 fighter aircraft, which use ODSs in integrated fire and explosion suppression systems, with the F-22 and F-35 aircraft, which have no ODS requirements. This approach is in accordance with the E.O. 13148 direction to "target cost-effective reduction of environmental risk by phasing out Class I ODS applications as the equipment using those substances reaches its expected service life."

Since October 1999, the Air Force has not approved any purchases of ODS. Instead, the Air Force relies entirely on its existing stocks of Class I ODSs to support its remaining needs. The Air Force



ensures that all personnel are acutely aware of the need to avoid unnecessary losses of the Class I ODS and to recover, reclaim, and reuse the Class I ODSs in stock. The Air Force maintains these strict controls in both peacetime and in combat situations, where Class I ODS consumption can increase dramatically.

DLA manages the DoD ODS Reserve, providing the DoD Components with mission-critical ODSs. Establishment of this Reserve is an essential part of DoD's plan for phasing out the use of ODSs. DLA provides central management of ODSs and provides DoD with the capability to receive, reclaim, and issue Class I CFCs and halons. Storing and handling the ODSs properly protects the environment and makes it possible for DoD to conserve and recycle ODSs, reducing the overall quantities required. The ODS Reserve has initiated agreements with other Federal agencies for the recovery and reclamation of excess ODS stocks. Transfers of ODSs from other Federal agencies has saved millions of dollars designated for purchase requirements and prevented poor handling and storage practices. The Reserve has become a model for both foreign governments and commercial activities interested in ODS recovery and recycling.

## Pollution Prevention Partnering

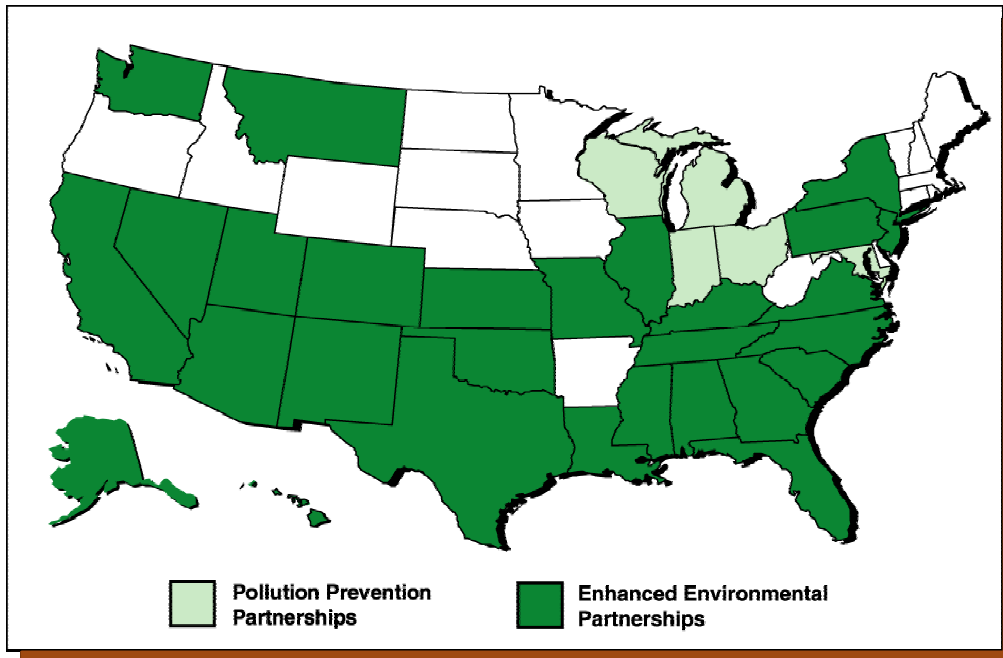
Building pollution prevention partnerships with the states has become the standard way of doing business. Partnering creates opportunities for sharing experiences and solutions to environmental problems. By working with the states and other entities, DoD can improve the environment and enhance military readiness. Figure 11 illustrates DoD's commitment to developing pollution prevention partnerships with the states.

DoD establishes and maintains partnerships between state agencies and DoD facilities. Each partnership is different, designing a program that meets its unique requirements.

In December 2003, DoD, the Pennsylvania Department of Environmental Protection, and the U.S. Environmental Protection Agency (EPA) formalized a cooperative environmental partnership. The partnership promotes the use of pollution prevention and other environmental techniques at military installations.

Pollution prevention partnerships have been so successful that state agencies and DoD installations are expanding them to cover other areas in Environmental Quality. These enhanced partnerships emphasize developing environmental management systems and state environmental performance programs.

**Figure 11  
Pollution Prevention Partnerships**



## 2003 Closing the Circle Award Winners

The White House presents the Closing the Circle awards annually to recognize Federal facilities and employees for efforts that result in significant contributions to protecting the environment. E.O. 13101, "Greening the Government through Waste Prevention, Recycling, and Federal Acquisition," sets the criteria for the awards. The award categories include Affirmative Procurement, Education and Outreach, Environmental Management Systems, Environmental Preferability, Waste/Pollution Prevention, Recycling, Sustainable Design/Green Buildings, and Biobased Products. DoD received a total of 12 out of 26 awards in FY 2003 (Figure 12). At least one award in each of the eight categories was presented to a DoD employee or facility.

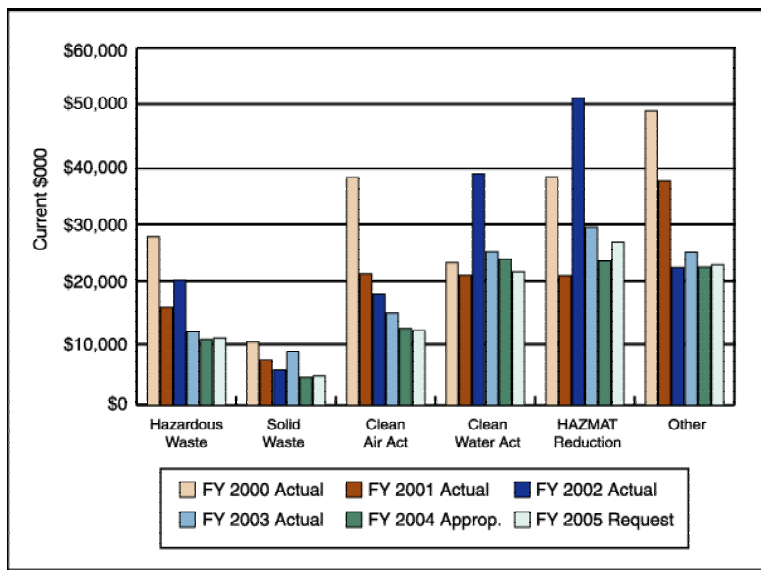
**Figure 12**  
**FY 2003 Closing the Circle Award Winners**

<b>Award Category</b>	<b>Recipient</b>	<b>Title of Nomination</b>
<b>Affirmative Procurement</b>	Wright-Patterson AFB (U.S. Air Force)	“Affirmative Procurement at Wright-Patterson AFB”
<b>Education and Outreach</b>	Fort McPherson (U.S. Army)	“U.S. Army Forces Command Installation Sustainability Program”
	Naval Facilities Engineering Command, Southwest Division (U.S. Navy)	“Federal Network for Sustainability (FNS), Achieving Sustainable Environmental Stewardship”
	HQ AETC/CEV, Randolph AFB (U.S. Air Force)	Michael ‘Recycle’ Redfern
<b>Environmental Management Systems</b>	Dyess Air Force Base, 7 Civil Engineer Environmental Flight (U.S. Air Force)	“Environmental Management System for Compliance through Pollution Prevention”
<b>Environmental Preferability</b>	Naval Facilities Engineering Service Center, Port Hueneme (U.S. Navy)	“NFESC’s In-Situ Methyl Tertiary Butyl Ether Biobarrier Team, Design to Commercial Application of an In-Situ MTBE Biobarrier for Reduction of Environmental Impacts Associated with Leaking Underground Storage Tanks”
<b>Waste/Pollution Prevention</b>	Crane Army Ammunition Activity (U.S. Army)	“Marine Location Marker Team, Reuse of Marine Location Markers at Crane Army Ammunition Activity”
	Randolph Air Force Base (U.S. Air Force)	John A. Wildie, “Reducing Hazardous Wastes and Protecting the Environment”
<b>Sustainable Design/Green Buildings</b>	Naval District Washington (U.S. Navy)	“Washington Navy Yard, Sustainable Design/Green Buildings in Adaptive Reuse”
	U.S. Army Garrison, Fort Huachuca (U.S. Army)	“Fort Huachuca Water Management Team, Water Resources Management Process and System”
<b>Biobased Products</b>	Defense Energy Support Center, Fort Belvoir (DoD)	“DESC Product Technology Standard and Ground Fuels Divisions, Promotion of the Use of Bio-based Fuels in the Federal Government”
<b>Recycling</b>	45 <sup>th</sup> Space Wing, Patrick Air Force Base (U.S. Air Force)	“45 <sup>th</sup> CES, Environmental Flight, 45 <sup>th</sup> Space Wing Recycling Program”

## FY 2003 BUDGET EXECUTION

During FY 2003, DoD invested \$188 million in pollution prevention activities. DoD invested about \$70 million, or 37 percent, of its pollution prevention budget in recurring costs, including managing recycling programs and Toxic Release Inventory (TRI) reporting. DoD invested the remaining \$118 million, or 63 percent, in one-time, nonrecurring projects, such as purchasing new pollution prevention equipment (Figure 13).

**Figure 13**  
**DoD Budget Summary**  
**Pollution Prevention Nonrecurring**



During FY 2003, DoD invested 25 percent of pollution prevention nonrecurring funds in reducing the use of hazardous materials, including releases reported under the TRI program; 10 percent in managing hazardous waste; 13 percent in reducing Clean Air Act pollutants, including the use of ODSs; 8 percent in managing municipal solid wastes and establishing recycling and composting programs; and 22 percent in reducing CWA pollutants. DoD invested the remaining 22

percent in other efforts, including preparing pollution prevention and source protection plans for drinking water resources.

DoD's FY 2003 Pollution Prevention Program execution was 18 percent less than pollution prevention investments in FY 2002, allowing for inflation. Much of the decrease is due to the completion of many one-time projects. DoD's Pollution Prevention Program continues to focus on hazardous waste material reduction, Clean Water Act (CWA) provisions, and hazardous waste requirements.

## FY 2005 BUDGET REQUEST

DoD is requesting \$170 million to fund the Pollution Prevention Program in FY 2005. The Pollution Prevention Program budget has leveled out after the decline caused by the completion of the Navy's shipboard pollution prevention program. Investments in pollution prevention over the long term reduce compliance costs and threats to DoD resources (Figure 14).

**Figure 14**  
**DoD Budget Summary**  
**Pollution Prevention vs. Compliance**

