



Pollution Prevention | Appendix W: Solid and Hazardous Waste

Hazardous Waste Reduction and Disposal

DoD has sustained a strong dedication to reducing hazardous waste with a 50 percent decrease in the total amount of hazardous waste disposed since CY1996. The hazardous waste reduction rate is calculated as a calendar year metric and includes hazardous waste that is shipped off site, treated on site, and shipped off-site overseas. DoD has a waste management approach where pollution prevention is the first choice in achieving compliance. Pollution prevention is also incorporated into all phases of the weapons system lifecycle development. DoD emphasizes the environmental hierarchy of source reduction of pollutants, reuse and recycling, treatment, and then disposal.

The Department of Defense (DoD) consistently places a strong emphasis on pollution prevention and source reduction. Recent efforts have been focused on taking additional steps to reduce the amount of solid and hazardous waste entering the waste stream. DoD is committed to accomplishing waste reduction goals through integrated solutions including reducing generation of wastes and increasing the diversion of materials. Improved management and promotion of additional recycling opportunities will support these reduction goals, and lessen future cleanup costs related to processing items from an installation or facility's waste stream.

Integrated Solid Waste Management

Integrated solid waste management programs have been employed throughout DoD to enable managers to make more effective waste diversion or disposal decisions based on improved environmental management practices. These practices promote waste diversion success at installations through a comprehensive approach encompassing waste prevention, recycling, composting, and disposal programs.

DoD demonstrated commitment to increasing diversion of non-hazardous solid wastes in 1998, with a solid waste diversion rate goal of 40 percent or greater by the end of Calendar Year (CY) 2005. DoD established the total solid waste diversion rate metric to support goals for diversion and to calculate the rate at which installations prevent non-hazardous municipal solid waste from entering a disposal facility. This goal was met in Fiscal Year (FY) 2001 when DoD's solid waste diversion rate reached 45 percent. In FY2005, DoD revised the solid waste reporting metric to separately identify construction and demolition (C&D) debris and municipal solid waste diversion rates.

DoD continues to integrate solid waste management practices to enhance and sustain mission readiness, comply with requirements, and reduce resource consumption. DoD is currently developing strong initiatives in response to the requirements in Executive Order 13423, entitled "Strengthening Federal Environmental, Energy, and Transportation Management." These new requirements will help ensure that the Department sets proper goals to reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of; increase diversion of solid waste; and maintain cost-effective waste prevention and recycling programs in its facilities.

DoD

The Department demonstrates a strong commitment to protecting human health and the environment, through a sustained focus on diverting non-hazardous solid waste from entering disposal facilities and reducing disposal of hazardous waste.

Each year, the percentage of solid waste diverted varies depending on the amount, location, and types of solid waste generated. DoD's C&D solid waste diversion rate is also dependent on the schedule for construction, demolition, and renovation projects which produce large quantities of C&D debris. DoD generated a total of 5.9 million tons of solid waste, consisting of 3.4 million tons of C&D debris and 2.5 million tons of non-hazardous municipal solid waste in FY2007. The generation of municipal solid waste equates to 3.5 pounds per person per day. As shown in Figure W-1, the Department had an overall diversion rate of 60 percent in FY2007. This includes diversion rates of 76 percent for C&D debris and 39 percent for non-hazardous municipal solid waste. Through efforts to divert solid waste, DoD has not only met but exceeded agency goals of land resource management by reducing the flow of waste, therefore extending the lives of the landfills. Achievement of solid waste program goals through integrated solid waste management practices has also led to a cost avoidance of \$180 million through a reduction in the amount of solid waste and C&D debris received by landfills or incinerators and the associated costs.

In CY2006, DoD reduced hazardous waste disposal to just over 142 million pounds of hazardous waste, as illustrated in Figure W-2. This reduction is largely due to continual efforts throughout the Department to identify opportunities for reducing hazardous waste generation. Reduction and elimination of the use of hazardous materials will decrease health risks to personnel and reduce the number of accidents that can occur when using these materials and any associated cleanup costs.

Figure W-1 DoD Solid Waste Diversion Rate

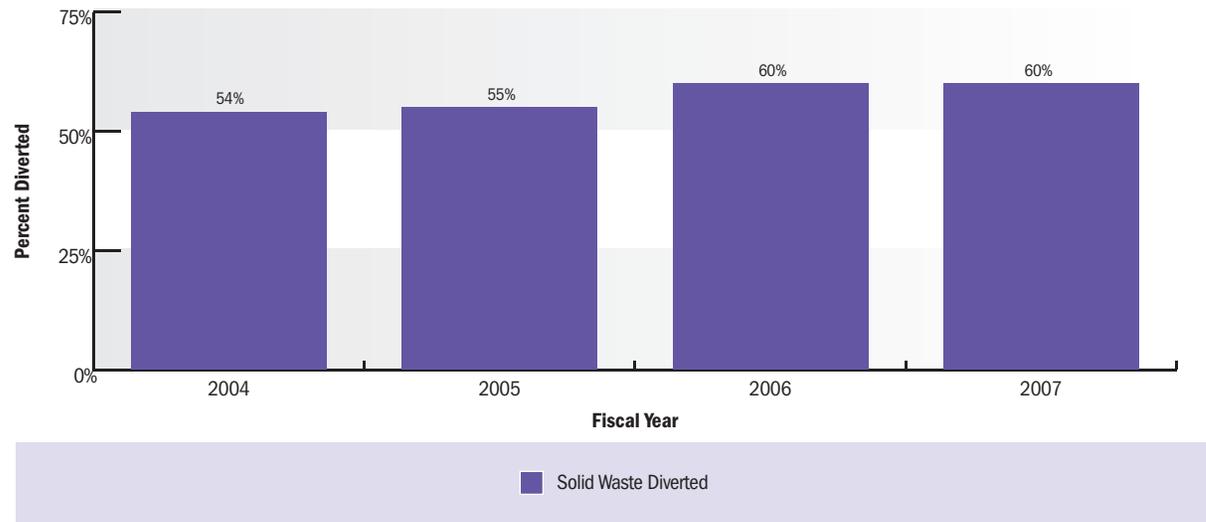
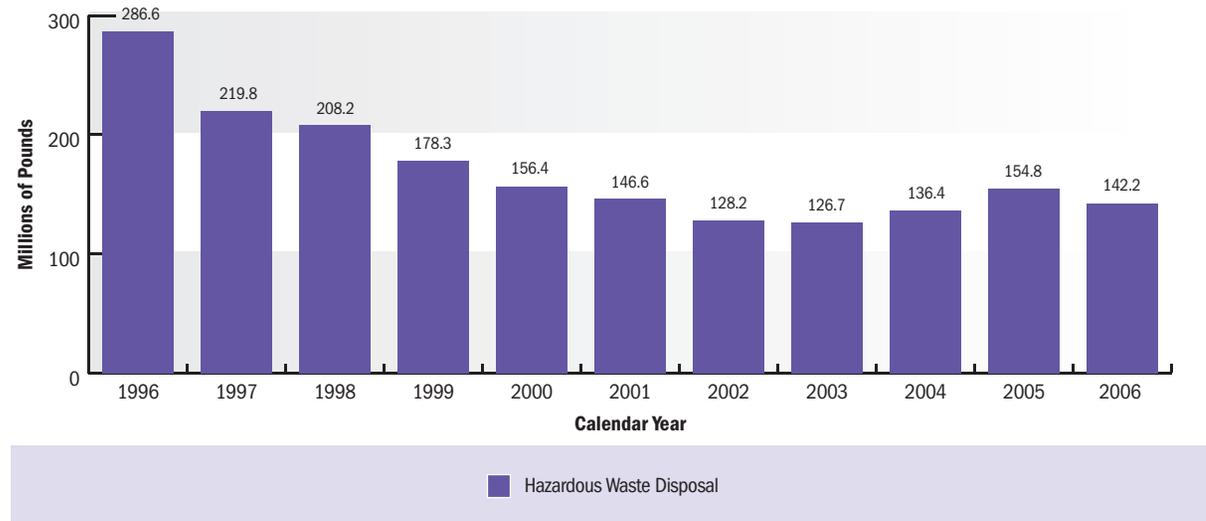


Figure W-2 DoD Hazardous Waste Disposal



Army

To face the many challenges associated with waste management, the Army has effectively maintained its solid and hazardous waste reduction programs, realizing successes through regulatory compliance and economic benefit.

According to Figure W-3, diversion accounted for 65 percent of all Army solid waste disposal in FY2007. The Army effectively demonstrated commitment to solid waste reduction in C&D processes, with 79 percent of this debris from landfills diverted into productive reuse. In addition, the Army diverted 40 percent of non-hazardous municipal solid waste from entering the waste stream. The Army's efforts to divert waste from landfills and incinerators have resulted in an avoidance of \$105 million in solid waste disposal costs. The qualified recycling program posted gross revenues of \$24 million. Most of these proceeds went toward operation and improvement of the program.

The Army disposed of over 45 million pounds of hazardous waste in CY2006, as shown in Figure W-4. This amount represents an increase in hazardous waste disposal for the Army compared to CY1996. The Army achieved a 29 percent reduction in overall hazardous waste disposal since CY2005, indicating a strong commitment to protecting human health and the environment through hazardous waste program initiatives.

Figure W-3 Army Solid Waste Diversion Rate

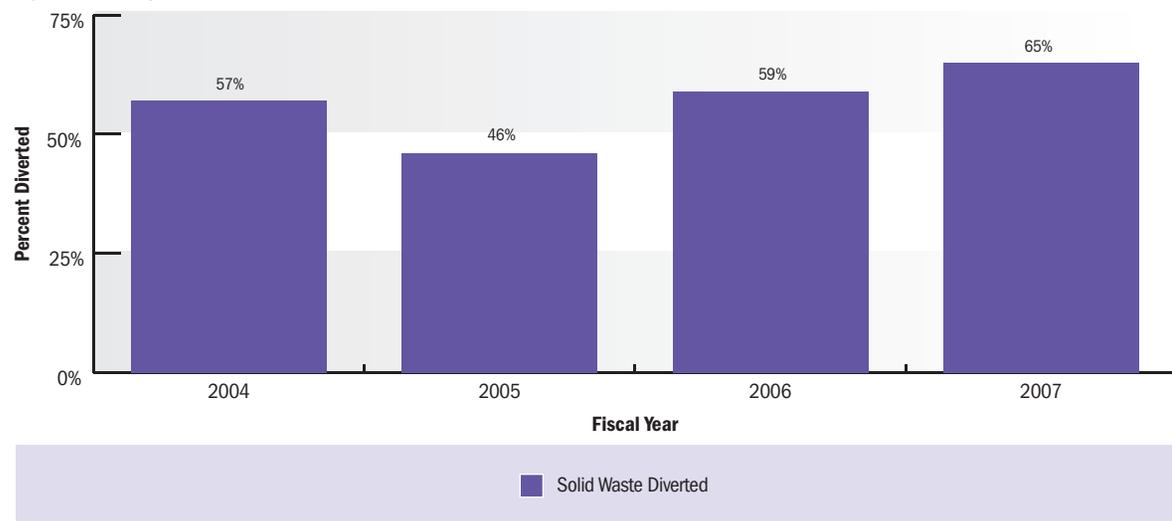
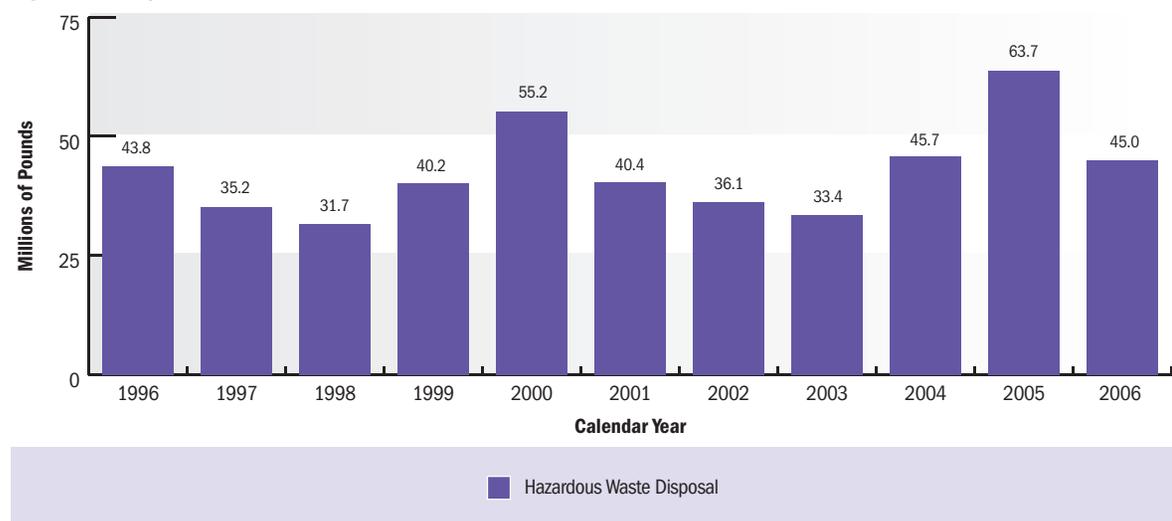


Figure W-4 Army Hazardous Waste Disposal



Navy

The Navy has made very strong efforts to promote human health and the environment through initiatives that strictly comply with DoD and Navy policies regarding solid and hazardous waste management.

In FY2007, the Navy achieved an overall diversion rate of 51 percent through integrated solid waste management practices, illustrated in Figure W-5. The Navy effectively accomplished this reduction through a 71 percent diversion of C&D debris and a 31 percent diversion of non-hazardous municipal solid waste. Effective solid waste diversion practices resulted in a cost savings for the Navy of over \$24 million in FY2007.

The Navy's progress in reducing hazardous waste disposal is demonstrated through a reduction rate of 57 percent since CY1996. In CY2006, the Navy disposed of 60.5 million pounds of hazardous waste, as shown in Figure W-6. This total is comprised of over 49.1 million pounds of hazardous wastes shipped off and on site in the U.S., and over 11.4 million pounds of hazardous wastes shipped offsite to overseas installations.

Figure W-5 Navy Solid Waste Diversion Rate

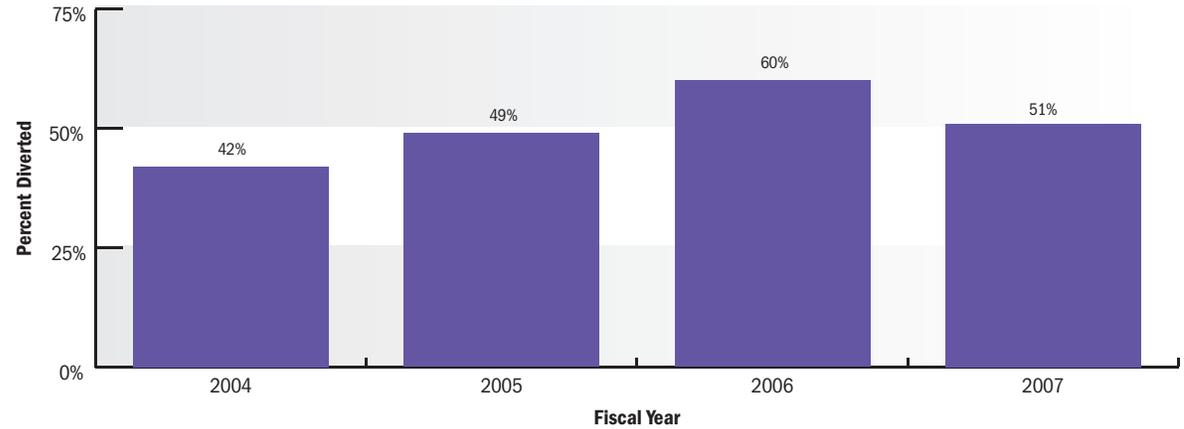
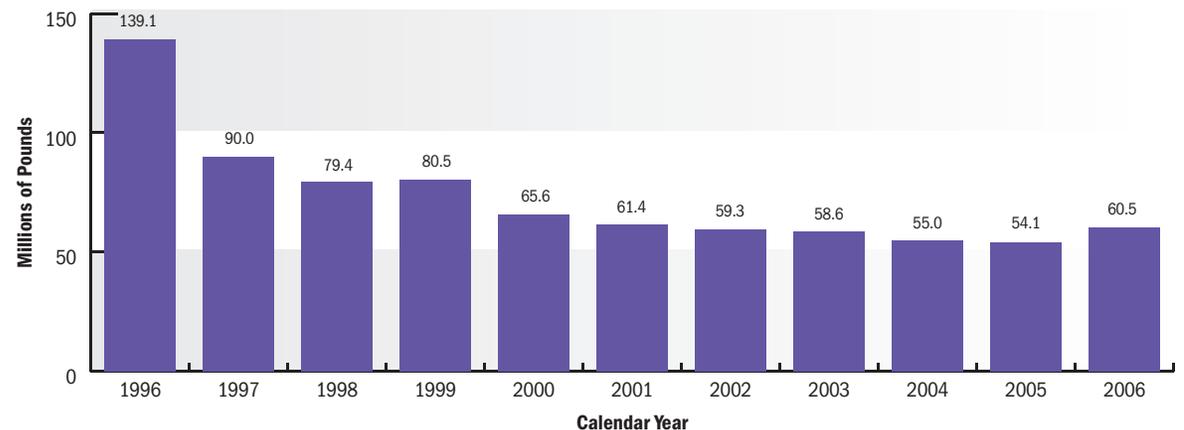


Figure W-6 Navy Hazardous Waste Disposal



Marine Corps

The Marine Corps consistently demonstrates excellence in achievement of DoD's solid and hazardous waste reduction goals and a strong commitment to diversion and reduction of materials from the waste stream.

The Marine Corps achieved a 40 percent diversion rate of all solid waste, as shown in Figure W-7. In FY2007, the Marine Corps diverted 50 percent of C&D debris and 36 percent of non-hazardous municipal solid waste from entering the waste stream. Changes in the FY2006 diversion rate are due to data reporting corrections of C&D debris at Marine Corps Base Camp Pendleton.

The Marine Corps demonstrated further achievement in hazardous waste reduction with a 75 percent decrease in the total amount of hazardous waste disposal since CY1996. As shown in Figure W-8, the Marine Corps disposed of 18.6 million pounds of hazardous waste in CY2006.

Figure W-7 Marine Corps Solid Waste Diversion Rate

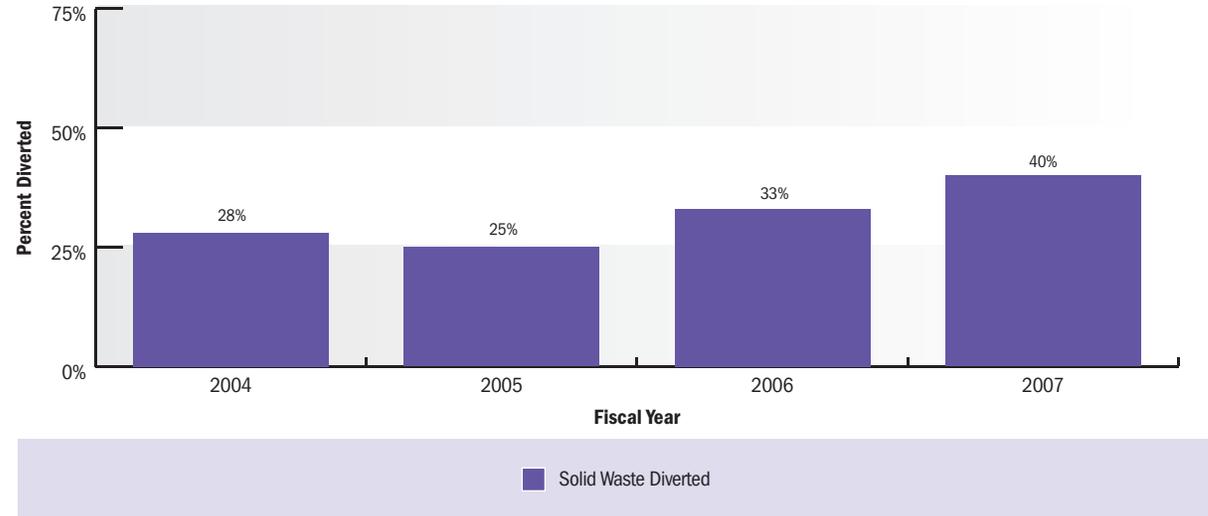
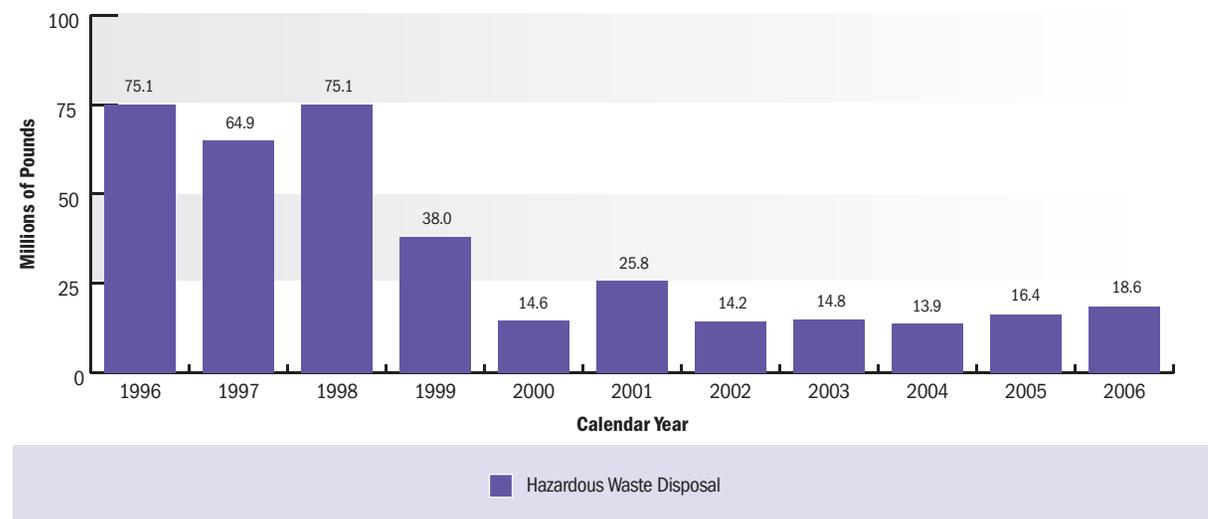


Figure W-8 Marine Corps Hazardous Waste Disposal



Air Force

The Air Force continues to promote solid and hazardous waste management by diverting large amounts of non-hazardous municipal solid waste from landfills, recycling wastes that could potentially be hazardous, and preventing waste at its source through the implementation of broad acquisition and supply programs to procure more environmentally preferable products.

Effective diversion of waste from landfills and incinerators has allowed the Air Force to avoid over \$45 million in solid waste disposal costs in FY2007. This savings is a result of 74 percent of C&D debris and 45 percent of non-hazardous municipal solid waste that was diverted from all disposal facilities in FY2007. As shown in Figure W-9, the Air Force had an overall diversion rate of 62 percent.

Since CY1996, the Air Force has engaged in many successful initiatives which have resulted in a 33 percent reduction of hazardous waste disposal. Effective implementation of shelf-life management and “leaning” of processes have reduced the amount of hazardous waste disposed of, leading to improved operations and a decrease in occupational and environmental risks. Figure W-10 illustrates progress with regard to hazardous solid waste diversion and cost avoidance, with a total disposal in CY2006 of 16.8 million pounds of hazardous waste.

Figure W-9 Air Force Solid Waste Diversion Rate

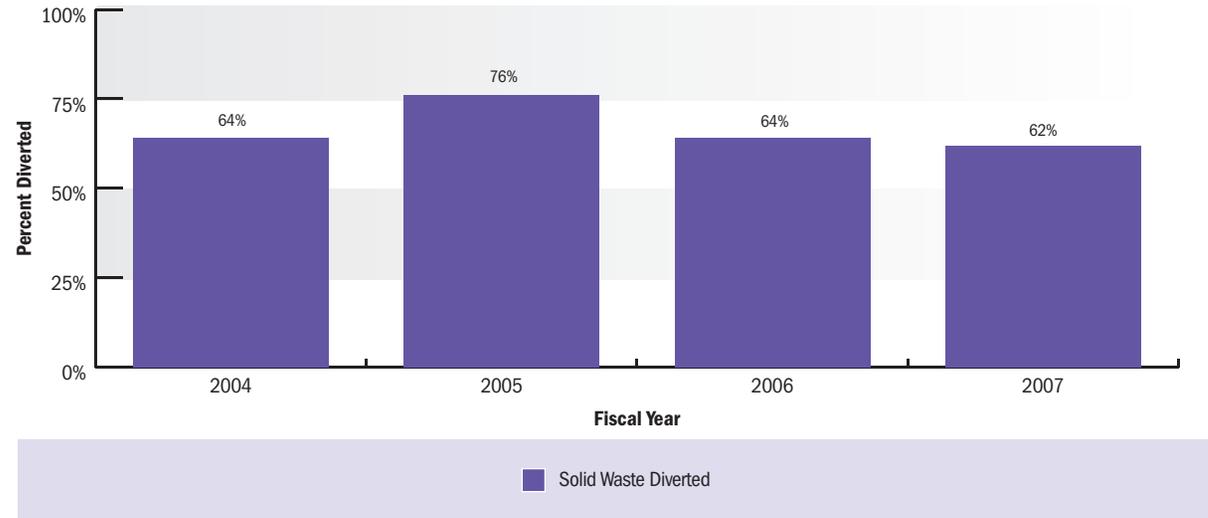
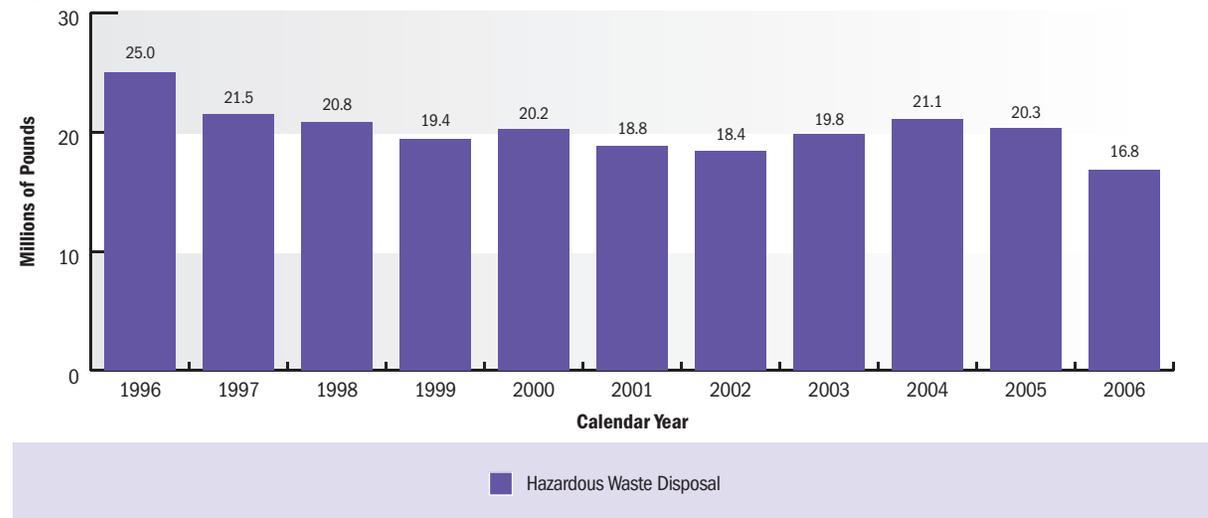


Figure W-10 Air Force Hazardous Waste Disposal



DLA

DLA is a champion of DoD's solid and hazardous waste reduction and diversion through consistent efforts and accomplishment of goals, resulting in greater protection of human health and the environment.

In FY2007, DLA achieved DoD's 40 percent solid waste reduction goal, with a 56 percent reduction rate, as shown in Figure W-11. Diversion decreased compared to FY2006 because a large demolition project allowed DLA to divert a significant quantity of C&D. DLA also reduced the amount of C&D wastes disposed of, with a 67 percent diversion rate in FY2007, and a 55 percent diversion rate for municipal solid waste.

Figure W-12 demonstrates DLA's tremendous hazardous waste program achievement, reducing hazardous waste disposal by 68 percent since CY1996—including waste disposed of by the Defense Reutilization and Marketing Service with 1.2 million pounds disposed of in CY2006. DLA's reduction rates not only demonstrate a strong compliance with federal and DoD hazardous waste standards, but a reduction in occupational and environmental risk among all DLA installations.

Figure W-11 DLA Solid Waste Diversion Rate

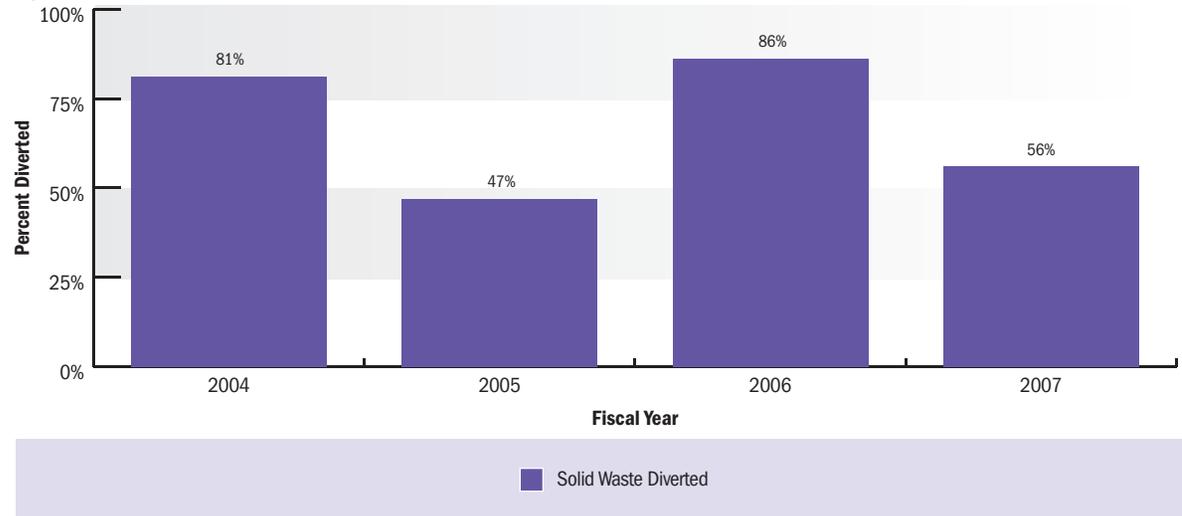


Figure W-12 DLA Hazardous Waste Disposal

