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# Closing the Circle News

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**President Bush has called on each  
of us in the Federal government...**

*Solid waste sorting*



**...to lead by  
example, to be  
good stewards of  
the resources  
with which we  
have been  
entrusted, and to  
be good  
neighbors in our  
communities.**

*Bobcat moving bales of recycled material*



**W**e have the opportunity – and responsibility – to leave this place in better shape than when we found it. And to do that takes commitment, effort, time, inspiration, change, innovation, and a lot of hard work. The White House Closing the Circle Awards program, now in its ninth year, recognizes the Federal individuals, partnerships, and teams who have committed themselves to this vision – and succeeded.

In this publication, we are pleased to showcase the 26 winners of the 2003 White House Closing the Circle Awards. This year, we received close to 250 nominations in eight categories from both military and civilian agencies. The winners have developed strong environmental management systems, prevented or reducing waste, expanded recycling, purchased a range of green products, and built sustainably. Their efforts are demonstrating significant conservation of natural resources, greater energy efficiency, and cost savings. They are stewards of distinction.

Two of our winners – the Beltsville Agricultural Research Center and Wright-Patterson Air Force Base – have won at least three Closing the Circle Awards. For 15 others, this is their first Award. Congratulations to all.

We also offered a new category this year, recognizing innovations in the development and use of biobased products. With the President's signing of the Farm Security and Rural Investment Act of 2002, the Federal government is committed to giving preference for procurement of products made from agricultural and other biobased materials. This new award category recognizes those Federal folks who have made notable advances in this rapidly expanding field.

The 2003 Award winners are models whose successes others in the Federal government can learn from, follow, and even improve on. Our office uses the success stories of each year's winners as case studies in our efforts to promote, broaden, and improve Federal environmental stewardship. We're working on identifying best management practices from our winners that we can then post on our website and share with others.

One of the best parts of this job is that every day we learn about great things going on throughout the Federal government. The challenging part is that many of those successes are unknown – within even that facility or agency, within other parts of the Federal government, and with the American public. Keep sending us your successes, and we'll keep sharing them.



John L. Howard, Jr.  
Federal Environmental Executive



# Environmental Management Systems

As part of Executive Order 13148, Federal agencies are required to implement facility-level environmental management systems (EMS), a systematic approach to ensuring that environmental interests and priorities are incorporated into management, operational, and planning decisions. A

standard EMS includes goals such as compliance with the law, implementation of green purchasing, increased sustainability, avoidance of potential liability, and a reduction in costs. Currently, more than 200 Federal facilities have implemented an EMS, and 19 are certified in accordance with ISO 14001.

## Military

7 Civil Engineering Squadron

Department of Defense,  
Dyess Air Force Base, Texas

### Environmental Management System for Compliance through Pollution Prevention

In an amazing success, Dyess Air Force Base not only exceeded the goals outlined in its EMS, but it also realized a cost savings of millions of dollars.

The west Texas installation completed and exceeded goals in natural resource conservation, energy and water conservation, and compliance through pollution prevention. These accomplishments included a 96 percent reduction in hazardous waste generation, a 2.7 giga-watt reduction in consumption of electricity, and a 120 million gallon reduction

in use of potable water. As a result, Dyess realized a cost savings of more than \$3 million in 2002.

A major initiative undertaken at the installation was the procurement of 100 percent green energy for the base's electrical requirements. On January 1, 2003, Dyess became the largest consumer of wind energy at a single site in the United States when it commenced a contract that will supply the base with 78.4 kilowatt-hours annually. The purchase represents more than 20 percent of Federal use of renewable power.

Other notable accomplishments by Dyess include participation in an insect inventory, the use of natural predator deterrents instead of pesticides to control pests on the base golf course, and an overall reduction in pesticide use on base by 80 percent. Overall, the installation has received a 96 percent compliance index rating and, more tellingly, has not received any notices of violation nor notices of enforcement during the past four and five years, respectively.

For more information about the Dyess Air Force Base environmental management system, contact Teresa Clouse at [teresa.clouse@dyess.af.mil](mailto:teresa.clouse@dyess.af.mil), (915) 696-5619.



*Converting to 100 percent renewable energy and building a new water delivery system were two of the significant accomplishments achieved through the EMS at Dyess Air Force Base.*

United States Coast Guard Yard

Department of Homeland Security, United States Coast Guard; Baltimore, Maryland

## United States Coast Guard Yard's EMS-ISO 14001 Certified for 3 Years

The U.S. Coast Guard Yard in Baltimore received the prestigious ISO 14001 certification for the third year in a row, due in large part to its commitment to fulfilling the environmental performance aspects of its EMS. ISO 14001 certification is issued to organizations that comply with environmental regulations and continually improve

environmental performance. In 2000—when it was still part of the Department of Transportation—the Baltimore yard was the first DOT facility to receive ISO 14001 certification and has passed two subsequent surveillance audits to maintain certification.

As part of EMS implementation, the yard's personnel successfully protected a nearby creek from chemicals used in the yard by improving containment, fueling and storage practices. In another instance, the yard worked with a hydroblasting subcontractor to improve debris and wastewater collection processes during paint removal to avoid releases to the environment.

ISO surveillance auditors have praised the yard for the wide awareness, strong communication, and comprehensive training associated with its EMS.

For more information about the U.S. Coast Guard Yard's ISO 14001 certification, contact Everett C. Warble at (410) 636-3775.

*Part of the EMS at the U.S. Coast Guard Yard in Baltimore, Maryland requires that runoff and debris from hydroblasting be captured and disposed of in an environmental safe manner.*



Gregory Allen

Environmental Protection Agency; Fort Meade, Maryland

## EMS Implementation and Outreach at EPA's Environmental Science Center

Under the leadership and direction of Gregory Allen, EPA's Fort Meade Environmental Science Center was the first non-industrial, civilian Federal facility to be formally registered to the ISO 14001 framework.

Commissioned in February 1999, the 25-acre analytical

chemistry laboratory received registration in 2002 and became the 18th Federal facility to achieve the notable distinction. The registration came after a two-year long process headed by Mr. Allen, undertaken to realize cost savings and also demonstrate the facility's willingness to be a good neighbor to its community.

The EMS at the 160-employee Maryland laboratory is considered a model for other efforts in the environmental management arena. The Fort Meade plan has elicited praise for its robust documentation and thoroughness, and Mr. Allen has offered his expertise in the field to assist other Federal facilities in drafting their own EMS. Mr. Allen has been widely commended for his leadership and unselfishness in heading the effort at both Fort Meade and elsewhere.

For more information about EPA's Fort Meade Environmental Science Center environmental management system, contact Pat Krantz at [Krantz.pat@epa.gov](mailto:Krantz.pat@epa.gov), (410) 305-2730.

# Sustainable Design/ Green Buildings

**S**ustainable design is an extension of Federal efforts to increase energy efficiency, recycle and use recycled content and other green products. Additionally, Federal sustainable building efforts address siting, indoor air quality, and water use, and also can address the security of Federal buildings. The U.S. Green Building Council has led the effort to design facilities that incorporate sustainable design and established the Leadership in Energy and

Environmental Design (LEED) rating system to measure the sustainability of new buildings. EPA, the General Services Administration (GSA), the Air Force, the Navy, and the National Park Service are now building in accordance with the LEED rating system while the Army uses an analogous system. As a result of sustainable design efforts, the Federal government has reduced energy usage per square foot by 23 percent since 1985.

## Military

Naval District Washington

**Department of Defense,  
Naval District Washington;  
Washington, DC**

### Sustainable Design/ Green Buildings in Adaptive Reuse

**W**hen the Navy set out to renovate a section of its oldest naval shipyard in the continental United States to provide a home for the Naval Sea Systems Command, it made a concerted effort to utilize sustainable building design in the project. The results at the Washington Navy Yard speak for themselves. Sustainable design features were installed in three of the four buildings that were part of the project, and one of the buildings—Building 33—underwent a dramatic transformation from an antiquated warehouse to a contemporary example of a green office building.

Building 33, also referred to as the Sanger Quadrangle, is a 150-year old, high bay masonry structure that was formerly used as a gun carriage shop. The building was renovated to provide 156,000 square feet of office space for 400 employees and incorporated numerous design features to preserve the historic appearance of the structure as well as to make it more sustainable. To preserve the historic facade, the Navy built an independent structure inside—in essence, a building within a building. This interior building incorporated design features such as dimmers and occupancy sensors to reduce lighting use, high-efficiency variable speed motors and double glazed insulating glass to improve the efficiency of the heating, ventilation and air conditioning system, and the use of recycled content building materials in the carpet, ceiling tiles, cement, and wallboard.

Though the sustainable design features added \$85,000 to the \$21 million renovation, the Navy projected that energy-savings would total \$130,000 in less than eight months after the renovated buildings opened.

For more information about the Naval District Washington's green buildings, contact Thomas P. Lewis at [thomas.lewis@navy.mil](mailto:thomas.lewis@navy.mil), (202) 433-7181.

*Building 33 at the Washington Navy Yard was transformed from a supply warehouse into a green building that features dimmers, occupancy sensors, and double glazed insulating glass to conserve energy.*



*As part of its water management plan, Fort Huachuca constructed basins to capture urban runoff before it reaches streams and allow it to infiltrate back into the aquifer.*



Fort Huachuca  
Water Management Team

**Department of Defense,  
U.S. Army Garrison;  
Fort Huachuca, Arizona**

## **Water Resources Management Process and System**

**I**n the arid Southwest, a dependable water supply is crucial. The lifecycle groundwater management system implemented at Fort Huachuca accomplishes this objective and sustainably balances the needs of man with those of nature.

The 126-year old Army installation is located on 114 square miles of some of the driest terrain in southern Arizona and serves 11,000 civilian and military personnel on a daily basis. For more than 50 years, Fort Huachuca used groundwater as its primary water supply, but concerns in

recent years about aquifer depletion have forced the installation to rethink its approach to groundwater management.

The Fort formalized a water management program in 2002 and set an ambitious goal of no net withdrawal by the installation itself from the aquifer by the end of 2007 and no net withdrawal from fort-related pumping activities by 2011. To meet these aggressive targets, the program plan uses a strategy of water conservation, wastewater reuse and recharge of treated wastewater, and urban runoff into the aquifer to offset withdrawals. Additionally, the Fort has also enhanced wellhead monitoring practices to better account for consumption and has also purchased pumping rights from surrounding farmers to reduce aquifer withdrawal by agriculture.

The results of the plan are already visible as pumping in 2002 was reduced by 8 percent from the previous year. In addition to the decrease in the amount of aquifer water drawn, short-term benefits also include a reduction in electricity and water treatment costs.

For more information about Fort Huachuca's water resources management system, contact John Ruble at [john.ruble@hua.army.mil](mailto:john.ruble@hua.army.mil), (520) 533-3141.

*Sandia National Laboratories' \$4.5 million Model Validation and Systems Certification Test Center is currently under consideration for LEED certification.*



## Civilian

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Sustainable Buildings Design Team

**Department of Energy,  
Sandia National Laboratories;  
Albuquerque, New Mexico**

## **Incorporating Sustainability for New Buildings**

**B**y incorporating sustainable design into a new test center at no added cost to the project, Sandia National Laboratory not only created a new design model for other buildings on site, but also one that creates significant cost-savings for the lab in the long run.

The \$4.5 million Model Validation and Systems Certification Test Center was the Albuquerque, New Mexico research facility's first attempt to include sustainability into a major construction project. Designers used a number of approaches based on the U.S. Green Building Council's LEED rating system

to include sustainability into the 18,600 square foot building that would provide office space and a specialized presentation area for viewing and analyzing remote testing.

The construction process minimized impacts by retaining 70 percent of the existing facility that would be the new test center and ensuring that demolition limited site disturbances. When the building opened in April 2002, the new structure included a building envelope that minimized heat gain and loss, energy efficient lighting fixtures, drought tolerant landscaping, and skylights to bring light into interior office spaces. The building also minimized parking spaces in favor of carpool spaces and bike racks to encourage employees to carpool or bike to work. The project has been considered a success and the facility is currently being submitted for LEED certification. Additionally, the design process used in this project has become a standard for eight other Sandia National Laboratory projects. Estimates predict that sustainable design will ultimately result in \$1-2 million annually in energy cost savings for these projects.

For more information about the Sandia National Laboratory's sustainable design program, contact Brett Locke at [bmlocke@sandia.gov](mailto:bmlocke@sandia.gov), (505) 844-6818.



Youngstown, Ohio Federal Building –  
U.S. Courthouse Project Team

**General Services  
Administration;  
Youngstown, Ohio**

## **New Youngstown, Ohio Federal Building—U.S. Courthouse Project Team**

Using the concepts of sustainable building design, a world-renowned architect designed a striking new Federal courthouse in Youngstown, Ohio that serves as a noteworthy example of applied green architecture accommodating the daily needs of the Federal government.

Opened in September, 2002, the new \$16.1 million courthouse was a complex building for architect Robert A.M. Stern and GSA to design. The facility, set on a former brownfield site in the central business district, needed to include aesthetic considerations, agency functionality requirements, and security

measures as well as the U.S. Green Building Council's LEED building guidelines.

Despite the number of project requirements, the 50,000 square foot courthouse was completed ahead of schedule and under budget. The new building incorporates water efficiency measures that are projected to reduce water consumption by 1.1 million gallons annually and the use of non-ozone depleting refrigerants in the cooling system. Environmentally preferable materials were used in construction including recycled content structural steel and the reuse of 100 percent of the soil excavated at the site.

As a result of the sustainable design, the new facility's electrical and energy cost savings are estimated to be 10 percent and 22 percent, respectively.

For more information about the Youngstown, Ohio U.S. Courthouse, contact Mary Walsh at [ary.walsh@gsa.gov](mailto:ary.walsh@gsa.gov), (312) 353-3704.

# Green Purchasing

**G**reen purchasing encompasses a range of products, including recycled content, biobased, and environmentally preferable goods and services. While there are distinct differences between each of the three categories, they all share the common characteristic of

creating markets for products that conserve resources and are less harmful to human health and the environment. Federal procurement of these products demonstrates their performance while reducing agencies' environmental footprint.

## Affirmative Procurement

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**E**stablished under the Resource Conservation and Recovery Act, affirmative procurement is the "buy-recycled" component of green purchasing. It is a market-based approach using the Federal government's purchasing power to stimulate

and create markets for Environmental Protection Agency-designated recycled content products. Under affirmative procurement practices, Federal agencies give preference to EPA-designated recycled content products in their purchases.

## Military

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Team Wright-Patt

**Department of Defense, Wright-Patterson Air Force Base, Ohio**

**Affirmative Procurement at Wright-Patterson AFB**

**T**hough its Affirmative Procurement Plan and Policy has been in place for less than two years, Wright-Patterson Air Force Base has managed to institute a successful affirmative procurement program that has already had a decided impact on the base's purchasing practices.

Located near Dayton in southwestern Ohio, Wright-Patterson is currently developing unmanned air vehicles and a joint strike fighter, developments that require a wide-ranging amount of materials and that generate a variety of wastes. At the same time,

*Behrmann also procured recycled content plastic shingles for a garage at LaCreek National Wildlife Refuge in South Dakota.*

Wright-Patterson employs 32,000 workers, has 1,400 facilities on site, and is home to the U.S. Air Force Museum. The 8,145-acre base also includes the habitat of five endangered species, 22 acres of wetlands, and 250 historic buildings.

When Wright-Patterson instituted its affirmative procurement program in November 2001, it set a goal to meet the Department of Defense and Air Forces' goal of 100 percent procurement of recycled content products and also to increase the purchase of biobased, less toxic, and energy- and water-efficient products. The base identified local suppliers that sold the EPA-designated products and began replacing virgin engine oil and paper with re-refined motor oil and 30 percent postconsumer recycled content paper.

The base medical center also changed its online ordering system so that only recycled content paper can be purchased.

The affirmative procurement program has already begun to show significant results. In fiscal year 2002, Wright-Patterson purchased more than 109,000 reams of recycled content paper. Additionally, the Wright-Patterson retail supply center was inventoried for recycled content products and 185 such items were found. Since, those items have been made more visible to customers.

For more information about Wright-Patterson Air Force Base's affirmative procurement program, contact Ronald Lester at [Ronald.Lester@wpafb.af.mil](mailto:Ronald.Lester@wpafb.af.mil), (937) 257-5627 ext. 220.

## Civilian

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James J. Behrmann

### Department of the Interior, U.S. Fish and Wildlife Service Region 6; Lakewood, Colorado Green Procurement

As a regional environmental compliance coordinator for the U.S. Fish and Wildlife Service, Jim Behrmann has been instrumental in developing a comprehensive affirmative procurement program for his region, which stretches from North Dakota to Utah.

Mr. Behrmann laid the groundwork for the Region 6 green procurement program in 2000 when he began coordinating monthly meetings with the Engineering and Contracting as well as General Services divisions. With both divisions at the table, Mr. Behrmann appointed recycling coordinators at each of the division's field stations.

Subsequently, he initiated the use of 100 percent postconsumer recycled content paper at the regional office and in 20 field stations.

Mr. Behrmann is also credited with providing funding to field stations toward financing the purchase of their first barrel of re-refined oil. Additionally, he fiscally supported the purchase of recycled plastic shingles for a residence at La Creek National Wildlife Refuge in South Dakota and encouraged the use of recycled plastic lumber at 20 other projects in the region.

Demonstrating his interest in devising innovative approaches to recycling, Mr. Behrmann conducted pilot programs to demonstrate the feasibility of engine coolant recycling equipment and also provided guidance to the field stations on recycling items such as fluorescent bulbs, batteries, and light ballasts.

For more information about the U.S. Fish and Wildlife Service's Region 6 green procurement program, contact Jim Behrmann at [jim\\_behrmann@fws.gov](mailto:jim_behrmann@fws.gov), (303) 236-8116 ext. 279.





# Biobased Products

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Federal purchasing of biobased products received a major boost from the passage of the Farm Security and Rural Investment Act of 2002. The act requires Federal agencies to give purchasing preference to products composed, in whole or in significant part, of biological products or renewable

agricultural or forestry materials. These biobased products range from lubricants to packaging materials. Buying biobased products helps to create new markets for agricultural crops such as corn and soybeans, generate new jobs, and reduce air and water pollution.

## Military

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DESC Product Technology  
Standard and Ground Fuels Division

Department of Defense,  
Defense Energy Support  
Center; Fort Belvoir, Virginia

### Promotion of the Use of Bio-based Fuels in the Federal Government

Leading the way in the area of biobased fuel, the Defense Energy Support Center (DESC) has developed two alternative fuels for Federal government fleets that have increased Federal consumption of biobased fuels from virtually nothing to close to 6 million gallons annually in a span of three years.

DESC partnered with the Department of Energy and the Navy to work through ASTM to develop a technical standard for B20 and establish quality requirements. These quality requirements ensure that the biofuels perform comparable diesel and cause no increase in vehicle maintenance. DESC

then developed a procurement clause that lists requirements that B20 fuel must meet until a commercial specification is available. State and local governments and diesel engine manufacturers are using this clause.

The E85 formula is a blend of 85 percent ethanol and 15 percent gasoline. Studies have shown that compared to reformulated gasoline, E85 emits 80 percent less benzene, 25 percent less nitrogen oxide and 7 percent less carbon dioxide.

B20, a blend of 20 percent vegetable oil-based diesel and 80 percent low sulfur diesel, has similar positive result. An EPA study found that B20 emitted 11 percent fewer particulates, 11 percent less carbon monoxide and 21 percent fewer hydrocarbons.

Currently, the Department of Agriculture, the Department of Energy, the National Park Service, and the U.S. Postal Service purchase B20 and E85 to use in their fleets. In 2001, they purchased 1.5 million gallons of B20 and 565,000 gallons of E85. With additional requirements from the military services, B20 consumption increased to more than 5 million gallons in 2002.

For more information about DESC's biobased fuel development program, contact Mark Iden at [miden@desc.dla.mil](mailto:miden@desc.dla.mil), (703) 767-9304.

***The Defense Energy Support Center developed quality requirements for the use of E85 and B20 biofuels, which are cleaner burning and are made in part from renewable sources.***



*Beltsville Agricultural Research Center demonstrated the viability of using B20 biodiesel to fuel its fleet of diesel vehicles and equipment.*



## Civilian

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Facilities Management &  
Operations Division

**Department of Agriculture,  
Beltsville Agricultural  
Research Center; Beltsville,  
Maryland**

## **Biobased Products Program at Beltsville Agricultural Research Center**

**D**uring the past four years, the Beltsville Agricultural Research Center (BARC) has consistently expanded the use of biobased products in a wide variety of its operations and has become a model for the implementation of biobased products use at a Federal facility.

BARC developed a partnership with DESC to supply and

fuel BARC's fleet with B20 biodiesel fuel. Since the 6,585-acre facility began using B20 in its vehicles in August 1999, it has continually expanded the use of biodiesel in additional types of equipment including heating plants and back-up generators. Moreover, facility officials note that the generators operated on biodiesel without any major disruptions during a large tornado in the fall of 2001.

In addition to biodiesel, the center utilizes a variety of biobased products on a regular basis. For instance, BARC uses biobased oils and lubricants in its maintenance operations and has installed 3,000 square feet of soy-backed carpet in several office areas.

BARC has also made efforts to ensure that its contractors use biobased products. When it was time to negotiate a new janitorial contract, the research center included in the statement of work a requirement that the contractor utilize environmentally preferable cleaning materials including biobased products. The contract was successfully awarded, and these products are being used on a daily basis in all buildings.

For more information about the Beltsville Agricultural Research Center's biobased products program, contact David A. Prevar at [prevard@ba.ars.usda.gov](mailto:prevard@ba.ars.usda.gov), (301) 504-5557.

# Environmental Preferability

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**E**xecutive Order 13101 encourages Federal agencies to purchase and use environmentally preferable products. These products are less hazardous to human health and the environment than other, more widely used products that serve the same purpose. Environmentally preferable products are often characterized as reducing health and disposal costs

and being energy, material, and water efficient. Use of these products often creates safer work environments as well as cost savings from fewer illnesses. One of the underlying goals of promoting environmentally preferable products is to generate demand for alternative products and in turn create new industries to supply these markets.



## Military

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NEFSEC In-Situ  
MTBE Biobarrier Team

**Department of Defense,  
Naval Facilities Engineering  
Service Center; Port Hueneme,  
California**

**In-Situ MTBE Biobarrier  
for Reduction of  
Environmental Impacts  
Associated with  
Leaking Underground  
Storage Tanks**

**A** five-year collaboration between academia, industry and the Department of Defense developed a low cost remediation technique that promises to protect groundwater sources from toxic leaks from underground storage containers.

The in-situ “biobarrier” is a passive flow-through treatment system, developed at the Naval Facilities Engineering Service Center in Port Hueneme, California, to treat groundwater impacted by fuel contaminants, including methyl tertiary-butyl ether (MTBE). MTBE, a known carcinogen, is a fuel additive added to gasoline in California in the mid- to late-1990s that leaked from numerous underground storage tanks throughout the state, including at Port Hueneme.

Within the in-situ process, dissolved contaminants are carried by groundwater to an engineered in-situ treatment zone under natural-gradient conditions. The target contaminants are then aerobically degraded. The groundwater leaving the treatment zone is free of these contaminants. The biobarrier removes 99.9 percent of the MTBE and is equally effective at removing benzene, hydrocarbons, and tertiary butyl alcohol from groundwater.

The biobarrier also reaps huge cost savings. The Ventura County naval base alone will realize long-term MTBE treatment cost savings of about \$30 million. In addition, the technology also significantly reduces the operating costs associated with groundwater pump and treatment systems. These costs are currently estimated to be about \$400,000 per year on average for Navy sites.

For more information about the In-Situ MTBE Biobarrier Team, contact Karen Miller at [millerkd@nfesc.navy.mil](mailto:millerkd@nfesc.navy.mil), (805) 982-1010.



## Committee for Purchase from People Who Are Blind or Severely Disabled; Arlington, Virginia

### Javits-Wagner-O'Day Partnership

**B**y changing a Federal janitorial contract to include the use of environmentally preferable cleaning materials, the Committee for Purchase from People Who Are Blind or Severely Disabled managed to improve indoor air quality for as many as 90,000 federal employees and put safer products in the hands of more than 1,300 disabled workers.

Using the provisions of the Javits-Wagner-O'Day Act that encourage the procurement of goods and services provided by the disabled, the committee began to push for greater use of environmentally preferable products in government contracts in 1999. The committee established partnerships—dubbed the JWOD Partnership—with Federal agencies to

oversee disabled employment, janitorial supply companies, and a community rehabilitation program that performs janitorial services employing many workers.

The partnership calls for the use of cleaning products that are safer for the environment, tenants, and employees. These environmentally preferable cleaning products reduce eye and skin irritations and also reduce the amount of toxic chemicals discharged into sewer systems. As part of the partnership, other Federal janitorial contractors received green cleaning training, which in particular focused on Green Seal janitorial products. Green Seal is a non-governmental certification organization that developed an internationally recognized life cycle environmental standard for cleaning products.

In 2001, the JWOD Partnership entered into a contract with the Department of the Interior and EPA to clean more than 20 million square feet of Federal office space in Washington, DC with environmentally preferable cleaning products.

For more information about the Javits-Wagner-O'Day Partnership, contact Heather Davies at [Heather\\_Davies@ios.doi.gov](mailto:Heather_Davies@ios.doi.gov), (202) 208-7884.

*An Enviro Care Portioner that allows cleaning solvents to be purchased in bulk to reduce waste packaging was installed at the Department of Interior Main Building in Washington, DC as part of the Javits-Wagner-O'Day Partnership's efforts to implement the use of environmentally preferable cleaning products in more than 20 million square feet of Federal office space.*



Methyl Bromide Alternatives  
Research Team

Department of Agriculture,  
Agricultural Research Service,  
Water Management Research  
Laboratory; Parlier, California

## Preservation of Stratospheric Ozone through New Technologies for Crop Fumigation

**A**fter the Federal government began phasing out the use of methyl bromide as a fumigant, scientists at the Agricultural Research Service's Water Management Research Laboratory in Parlier, California developed an environmentally preferable method to control pests and diseases.

For years, farmers had used an average of 50 million pounds of methyl bromide annually to control pests and diseases in soils before fruits and vegetables had been planted. However, methyl bromide is a source of stratospheric ozone depletion and as such, its use in the United States is scheduled to be phased out by 2005 under the terms of the Montreal Protocol.

Faced with this challenge, the Water Management Research Laboratory formed a research team to find alternatives to methyl bromide fumigation. Team scientists concentrated on developing innovative ways to apply alternative fumigants that minimized risks to workers and the environment, improved fumigant effectiveness, and minimized costs.

The team ultimately developed a closed application method of drip fumigation that allowed for methyl bromide to be delivered inside plastic mulch. This method has dramatically reduced emissions of methyl bromide and also creates a safer work environment for field workers. More promising, several manufacturers have received permission from Federal agencies to use alternative fumigants using the drip fumigation method developed by the researchers.

For more information about the Preservation of Stratospheric Ozone through New Technologies for Crop Fumigation, contact Robert Matteri at [rmatteri@pw.ars.usda.gov](mailto:rmatteri@pw.ars.usda.gov), (510) 559-6063.

*Scientists at the Water Management Resource Laboratory developed a closed application method of drip fumigation that allows for methyl bromide to be delivered inside plastic mulch to minimize risks to both the environment and field workers.*





Sonya J. Capek

**Department of the Interior,  
National Park Service,  
Pacific West Region;  
Seattle, Washington**

## **Tools to Promote Environmental Purchasing**

**I**nstituting new acquisition practices that incorporate environmental preferability can often be a difficult task in a bureaucracy, but the approach taken by Sonya J. Capek at the National Park Service office in Seattle, Washington serves as an excellent example of how this can be done successfully.

Ms. Capek developed an environmental purchasing handbook tailored to meet the needs of 40 Pacific West Region procurement officers and project managers. The

handbook serves as a comprehensive resource for green purchasing, including Federal requirements, principles, an affirmative procurement plan, and Federal Acquisition Regulation considerations. Distributed to 56 national parks in the region, the handbook also has been distributed to offices and parks outside the Pacific West Region and soon will be edited for service-wide official use and distribution.

Additionally, Ms. Capek prepared two guides that addressed two environmental preferability issues. The “Green Janitorial Products and Practices Guide” identifies non-toxic products, vendor sources, and Green Seal standards while the “100+ Best Management Practices Guide” recommends a variety of practices to improve the environmental practices in the region.

Ms. Capek also has presented environmental purchasing training sessions to outside agencies and maintains a help line to assist those both inside and outside of the National Park Service who have questions about environmental preferability practices.

For more information, contact Sonya Capek at [sonya\\_capek@nps.gov](mailto:sonya_capek@nps.gov), (206) 220-4271.

*Sonya J. Capek of the National Park Service's Pacific West Region prepared a guide that addressed procurement of environmental preferable janitorial products and a handbook that identified more than 100 best environmental management practices.*





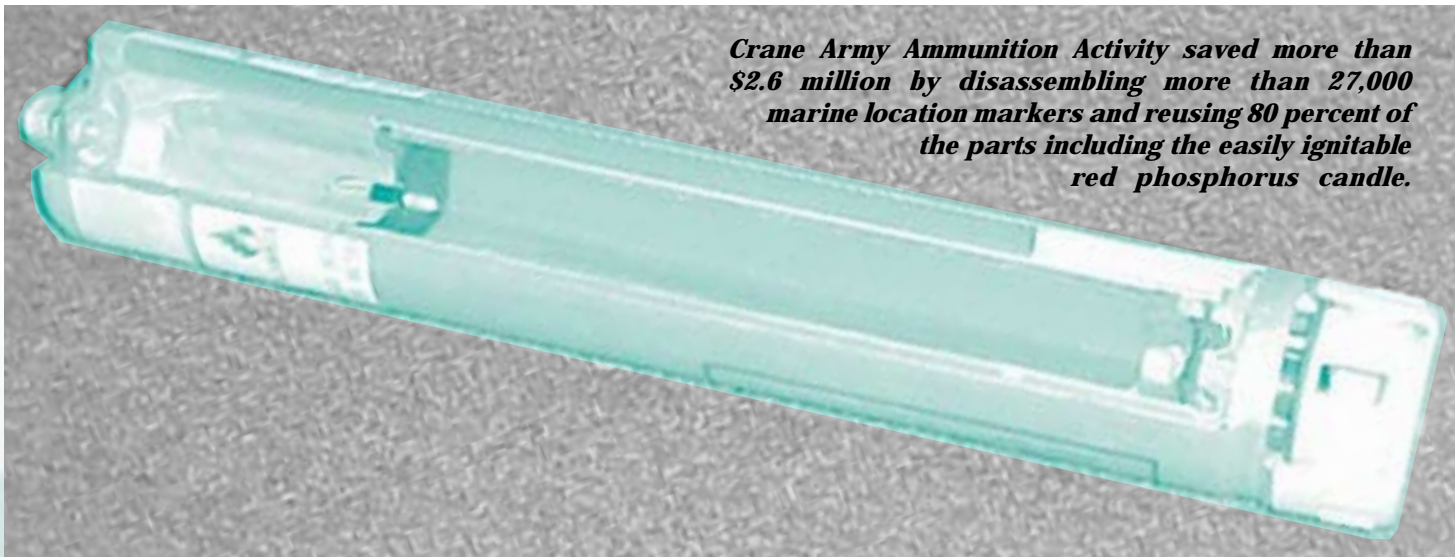
## Waste/Pollution Prevention

**P**ollution and waste can have profoundly negative effects on natural systems and compromise the health and well being of man, creature, and plant alike. The most fundamental way to prevent the degradation of natural resources is through source reduction—the reduction and reuse of waste. Adopting measures that alter the design,

manufacturing, purchasing, and use processes to minimize the amount and toxicity of the byproducts of producing goods and services, also minimizes overall waste volume. Reducing pollution and waste creates benefits including cost savings, energy efficiency, and a healthier environment for both man and nature.

### Military

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*Crane Army Ammunition Activity saved more than \$2.6 million by disassembling more than 27,000 marine location markers and reusing 80 percent of the parts including the easily ignitable red phosphorus candle.*

Marine Location Marker Team

**Department of Defense, Crane Army Ammunition Activity; Crane, Indiana**

### Reuse of Marine Location Markers

**O**ne wouldn't ordinarily expect a military munitions depot to be the site of a cutting edge waste prevention program, but the Crane Army Ammunition Activity successfully demonstrated that reducing and reusing munitions could be both economically and environmentally beneficial.

The Army Ammunition Activity, a tenant of Crane Division Naval Surface Warfare Center in southern Indiana, faced what appeared to be an expensive and frustrating

challenge in 2000 when it was assigned to dispose of 27,654 marine location markers that had failed an acceptance test. Marine markers are used for air, sea, and man overboard rescue missions and contain an easily ignitable red phosphorous candle. Because of the ignitability of the candles, the standard method for disposal was to incinerate them—a costly process that was estimated at \$637,000.

Crane formed a team tasked to find a more economically feasible process that could be conducted safely. The team disassembled the markers and reused many of the parts to create demilitarized versions of marine location markers. In total, Crane's marine location marker team was responsible for the reuse of more than 52,000 pounds of red phosphorus and significant disposals savings, resulting in a total cost savings of more than \$2.6 million and a project waste diversion rate of 80 percent.

For more information about the reuse of marine location markers, contact Doug Johnson at johnsond@crane.army.mil, (812) 854-1481.



*Randolph Air Force Base reduced hazardous waste generation by 25,000 pounds by treating wastewater with electrocoagulation.*

John A. Wildie

## Department of Defense, Randolph Air Force Base, Texas Reducing Hazardous Wastes and Protecting the Environment

**B**y recycling, reprocessing, and treating wastes instead of landfilling them, John Wildie dramatically reduced the amount of hazardous waste generated at Randolph Air Force Base in less than two years.

When Mr. Wildie assumed the title of hazardous waste program manager in January 2001, Randolph was classified as a large quantity generator of hazardous waste and generated more than 30,000 pounds of hazardous waste annually. By December 2002, Randolph had reduced hazardous waste

production to less than 5,000 pounds annually and was now classified as a small quantity generator. This 83 percent reduction was the result of innovative strategies employed by Mr. Wildie, who found alternative ways to reduce and reuse wastes at the Texas installation that would otherwise be disposed of at great expense. For instance, instead of disposing of contaminated gasoline, he sent it to a refinery to be reprocessed back into a usable fuel. In another instance, Mr. Wildie implemented a wastewater treatment system that utilized electro-coagulation to remove heavy metals, which allows the wastewater to be discharged into the base sewer system.

Mr. Wildie also developed programs to sell the hazardous materials generated by aircraft maintenance operations, created a new procedure for managing fuel and petroleum, oil, and lube spills, and expanded the scope of the aircraft tire disposal program to include vehicle tires.

For more information about the Randolph Air Force Base Hazardous Waste Prevention program, contact John Wildie at [john.wildie@randolph.af.mil](mailto:john.wildie@randolph.af.mil), (210) 652-3079.



## Civilian

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Chattahoochee Forest National  
Fish Hatchery

Department of the Interior,  
Chattahoochee Forest National  
Fish Hatchery; Suches, Georgia

### Hazardous Materials Pollution Prevention and Minimization Program

Recognizing the need to increase its pollution prevention efforts, the Chattahoochee Forest National Fish Hatchery reduced the amount of hazardous materials used in daily operations and significantly decreased the threat of contamination of nearby waterways. Hatchery personnel identified a non-hazardous alternative to the use of formaldehyde to disinfect eggs prior to hatching. Instead, hatchery personnel switched the growth medium from an incubator to egg hatching jars, which by design, prevented fungal growth. After the switch, the use of formaldehyde went from 50 gallons a year to zero, a notable accomplishment for a hatchery that stocks northern Georgia lakes and streams with 1 million trout annually.

Hatchery personnel also conducted an inventory of all the chemicals stored on site. Personnel itemized 200 distinct substances ranging from toxic chemicals to common cleansers and disposed of outdated and unused products. As a result, the hatchery reduced the storage of chemicals by 60 percent and reduced waste by 50 percent.

For more information about Chattahoochee Forest National Fish Hatchery's Hazardous Materials Pollution Prevention and Minimization Program, contact Deborah Burger at [deborah\\_burger@fws.gov](mailto:deborah_burger@fws.gov), (706) 838-4723.

*Chattahoochee National Fish Hatchery uses hatching jars to prevent fungus growth on fish eggs rather than using formaldehyde.*







Linda Collins,  
Louis Lozito and  
Brian K. Magden

**General Services  
Administration;  
New York State**

## **Environmentally Friendly Wind Power**

**A**lternative energy sources received a major boost last year when GSA awarded the Federal government's first 100 percent wind energy contract. The historic agreement with Select Energy will provide wind power for two New York Federal buildings: the Binghamton Federal building in Binghamton and the Alexander Pirnie Federal building in Utica. Both buildings were constructed prior to 1950 and have undergone significant energy enhancements to improve energy efficiency. The wind energy will be generated at a wind farm in Fenner, New York.

A major benefit from the contract is the low rate GSA secured from Select Energy. The contractual rate is 1.75 cents (\$.0175) per kilowatt/hour compared to the going rate of 3 cents (\$.03) per kilowatt/hour on the New York Independent System Operator grid.

Additionally, the environmental benefits of procuring 100 percent wind power for both buildings are expected to be notable. Emissions of sulfur dioxide (SO<sub>2</sub>) are projected to decrease by more than 8,000 pounds a year; nitrogen oxides (NOX) are expected to decrease by 3,000 pounds a year; and carbon dioxide (CO<sub>2</sub>) are predicted to decrease by more than 1.6 million pounds a year.

For more information about GSA's Environmentally Friendly Wind Power project, contact Brian K. Magden at [brian.magden@gsa.gov](mailto:brian.magden@gsa.gov), (212) 264-0591.

***GSA awarded the Federal government's first 100 percent wind energy contract to power two Federal buildings in New York.***

# Recycling

The Federal government's commitment to recycling and waste prevention practices was significantly expanded and strengthened with the issuance of Executive Order 13101 in September, 1998. The directive set forth stricter guidelines and greater responsibilities for the Federal agencies and promoted cost effective waste prevention and recycling of

reusable materials in all of its facilities. Since the late 1980s, it has been Federal policy to prefer pollution prevention, whenever feasible. Pollution that cannot be prevented should be recycled; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should be employed only as a last resort.

## Military

### 45 CES, Environmental Flight Department of Defense, 45th Space Wing; Patrick Air Force Base, Florida 45th Space Wing Recycling Program

Located 20 miles south of the Cape Canaveral launching pad on Florida's space coast, Patrick Air Force Base is home not only to the backbone of the space program, but also an innovative recycling program that serves six different locations extending in excess of 10,000 miles downrange.

The installation's recycling program began in 1993 with the collection of aluminum cans and white office paper. Two years later, the program contracted with a local disabled employment organization to take over the recycling responsibilities. The program quickly expanded to 195 buildings at Cape Canaveral Air Force Station and more items were collected, including corrugated boxes, colored paper, ink-jet printer cartridges, magazines, motor oil, newspapers, oil filters, and steel cans.

The base boasts its own materials recycling facility and has obtained direct sales authority to allow it to get top dollar for its recyclables. Currently, the program collects recyclable material from installations in the Bahamas and the South Atlantic Ocean. In the past year, more than 1,900 tons of material were recycled and the base has received an average of \$150,000 in revenues during the past two years from the sale of recovered materials.

Patrick has also made major strides in recycling

construction material. In one project, 6,000 tons of concrete were crushed to provide a sub-base for a new on-site development. The reuse saved \$285,000 in tipping fees and \$210,000 in new raw materials.

Overall, the recycling program has reduced the amount of solid waste going to landfills by 67 percent, nearly twice as much as the Air Force's diversion goal of 35 percent.

For more information about the Patrick Air Force Base 45th Space Wing Recycling Program, contact Alexander Stokes at [alexander.stokes@patrick.af.mil](mailto:alexander.stokes@patrick.af.mil), (321) 494-7288.



***Patrick Air Force Base recycled more than 23,000 bales of aluminum, cardboard and paper in 2002, which reduced the amount of solid waste landfilled by 67 percent.***

eCycling Team

## Environmental Protection Agency Region 3; Philadelphia, Pennsylvania

### EPA Region 3 eCycling Pilot

In a novel public-private partnership, EPA Region 3 teamed up with electronics manufacturers to recycle residential electronics as part of a pilot program in the Mid-Atlantic states. The project, dubbed eCycling, began in October 2000 when Region 3 began collaborating with state environmental agencies and the electronics industry to devise a program to encourage consumers to recycle end-of-life computers and televisions. Old electronics are the fastest growing segment of municipal waste and contain large

amounts of lead, mercury, and other materials that can harm human health.

Region 3 launched eCycling in October 2001; 46 collection events were sponsored in 35 jurisdictions. The pilot program diverted 2,500 tons of electronics from landfills, including 22,000 cathode ray tubes—the single largest source of contaminants in electronics.

Aside from recycling electronics, the program also collected empirical data about electronics management costs and consumer preference to help develop recycling markets. The data from the project suggest the feasibility for government and industry to operate a residential end-of-life electronics recycling program across multiple states.

EPA plans to operate the eCycling pilot for one more year and is seeking to add additional industrial partners.

For more information about the Environmental Protection Agency's Region 3 eCycling Pilot Program, contact Claudette Reed at [reed.claudette@epa.gov](mailto:reed.claudette@epa.gov), (215) 814-3114.

***EPA Region 3's innovative eCycling Pilot program diverted 2,500 tons of electronics from landfills, including 22,000 cathode ray tubes.***





***Buenos Aires National Wildlife Refuge recycles 50 abandoned bicycles as part of an extensive metals recycling program.***



Buenos Aires  
National Wildlife Refuge

**Department of the Interior,  
Buenos Aires National Wildlife  
Refuge; Sasabe, Arizona**

## **Standard Operation Procedure for Refuge Procurement and Waste Management**

**T**he Buenos Aires National Wildlife Refuge in southwestern Arizona implemented several unique recycling approaches in its efforts to rid the park of waste left by visitors and to reduce the overall amount of waste generated by park operations.

Over the last several years, the refuge's recycling and pollution prevention program has grown from a one person detail to one that involves all refuge personnel. The recycling

operation began modestly collecting office materials such as paper, soda cans, glass, and plastics but now has expanded to include batteries, oil, solvents, used tires, and oil and fuel filters. In the eight-month span between April 2000 and December 2000, the refuge went from recycling 17 percent of its generated waste to recycling 40 percent.

A unique challenge facing the wildlife refuge—one of the few locations in the United States that features African savannah-type habitat—has been coping with the impact of thousands of undocumented aliens crossing through the park annually. Refuge officials estimate that more than 500 undocumented aliens pass through the refuge on a monthly basis near its border with Mexico, and tons of debris and solid waste are left behind in the pristine preserve.

To address this problem and its recycling objectives as a whole, the refuge has partnered with local volunteer groups to keep the park clean and also assist with the park's recycling initiatives. Since 2000, the refuge has removed and recycled 11 tons of scrap metal, five tons of office materials, 1,200 pounds of aluminum, 700 pounds of plastic, 50 bicycles, and 30 tires.

For more information about the Buenos Aires National Wildlife Refuge's recycling efforts, contact Bernard Freeman at [bernie\\_freeman@fws.gov](mailto:bernie_freeman@fws.gov), (505) 248-7956.

# Education and Outreach

Using awareness and educational campaigns to inform Federal agencies and employees about environmental initiatives underpins the effort to expand the Federal government's stewardship of the environment. To promote such activities, Executive Order 13101 mandated that such information awareness programs be implemented to raise awareness about Federal waste prevention and recycling

efforts. These outreach efforts are designed to bring exposure to green purchasing and other activities that incorporate the use of biobased, energy efficient, environmentally preferable, and recycled content products to a broader audience, and to ultimately provide consumers with better information about affirmative procurement and green practices.

## Military

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U.S. Army Forces Command  
Installation Sustainability Program

Department of Defense,  
U.S. Army Forces Command;  
Fort McPherson, Georgia

## Installation Sustainability Program

After the U.S. Army leadership raised concerns about the environment at the Senior Environmental Leadership Conference in March 2000, a mandate was issued to develop an integrated strategy that comprehensively dealt with the issues surrounding sustainability. Once the orders were issued, the U.S. Army Command at Fort McPherson, Georgia saw an opportunity to adapt its approach to the environment to include installation sustainability programs in its long range planning processes.

The Command recognized the necessity to set its

environmental goals and then provide the education and technical assistance needed to fulfill them. The first step was to build a consensus about what objectives each base was trying to meet. To do this, the staff sponsored workshops, seminars, and even book clubs to encourage input from its personnel.

The next step was to examine the environmental impacts of each installation as a whole. This was accomplished through conferences and seminars that brought hundreds of civil servants, community members, regulators, and soldiers together to hammer out a baseline document that would serve as a framework for the installation sustainability program. The resulting baseline document set forth 10 priorities and established a five-year timeline that outlines specific projects and the required resources.

Based on the success of the installation sustainability programs within the Army Forces Command, the program will be rolled out across the entire Army beginning in fiscal year 2004.

For more information about U.S. Army Forces Command installation sustainability program, contact Manette Messenger at [messengerm@forscom.army.mil](mailto:messengerm@forscom.army.mil), (404) 464-0786.



Michael "Recycle" Redfern  
Department of Defense,  
Randolph Air Force Base, Texas  
The Adventures  
of Michael Recycle

**W**hile numerous superheroes fight the forces of evil to ensure the safety of the planet, "Michael Recycle" is believed to be the first superhero that advocates improved recycling awareness among young children.

"Michael Recycle" is the brainchild of Michael Redfern, a program manager in Headquarters Air Education and Training Command Civil Engineering Directorate at Randolph Air Force Base, Texas. Mr. Redfern, who oversees 13 recycling programs at Air Force bases across the southern United States, brought "Michael Recycle" to life to meet the E.O. 13101 directive that agencies promote cost-effective waste prevention and recycling.

Mr. Redfern created a free 12-page coloring book entitled "Recycle Texas," which follows "Michael Recycle" as he cleans-up beaches and visits famous locations including the Alamo. Mr. Redfern has also written 23 episodes of "The Adventures of Michael Recycle," a one-page email newsletter. Mr. Redfern has also brought "Michael Recycle" to 15,000 elementary school students in cities ranging from San Antonio, Texas to Columbus, Mississippi, has been featured in numerous newspapers and periodicals, and appeared on the ABC and FOX television networks.

Aside from "Michael Recycle," Mr. Redfern has been instrumental in taking the Air Education and Training Command from a perennial money loser to a profitable venture. When he took charge of the recycling program in 1996, it was losing \$250,000 annually and was diverting less than 20 percent of waste. By 2002, the program generated a financial benefit of \$2.4 million and diverted 38 percent of waste.

For more information about The Adventures of Michael Recycle, contact Michael Redfern at michael.redfern@randolph.af.mil, (210) 652-3240.

*Michael "Recycle" Redfern prepares to issue special flying goggles to Kaleida Lee as part of his efforts to promote recycling.*





*The Federal Network for Sustainability is a collaborative effort between 14 West Coast Federal agencies and 27 signatories to address alternative energy, electronics stewardship, EMS, and green purchasing.*



Welcome to  
[federalsustainability.org](http://federalsustainability.org)

Civilian

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Federal Network for Sustainability

**Department of Defense,  
Naval Facilities Engineering  
Command – Southwest D;  
San Diego, California**

## **Achieving Sustainable Environmental Stewardship**

**S**purred by two General Accounting Office reports that noted widespread mission fragmentation, program overlap, and the lack of coordination of related activities by Federal agencies, the Federal Network for Sustainability was established on Earth Day 2000 to address the lack of interagency cooperation.

The San Diego-based network began as a collaboration between 6 agencies and 13 signatories to address the greening the government executive orders and has since

expanded to include offices of 14 Federal agencies and 27 signatories. In total, more than 160,000 Federal employees participate in the network, which targets four areas: alternative energy, electronics products stewardship, environmental management system implementation, and green purchasing.

The network targeted copier paper use and worked closely with the EPA's Environmentally Preferable Purchasing Program to institute an awareness campaign. The effort is designed to draw attention to three areas: reducing copier paper use, purchasing "greener" copier paper, and recycling/reusing copier paper.

The network also pushed for the placement of solar photovoltaic systems at remote entrance stations in Lake Meade National Park, thereby avoiding constructing grid-connected power lines and ensuring the protection of natural habitats. Additionally, the network is credited with stimulating the development of renewable energy sources—including geothermal solar and wind—on Federal land.

For more information about the Federal Network for Sustainability, contact Alan C. Hurt at [hurt.alan.c@asw.cnrsw.navy.mil](mailto:hurt.alan.c@asw.cnrsw.navy.mil), (619) 524-6253.

National Capital Region  
Sustainable Practices Team

Department of the Interior,  
National Park Service,  
National Capital Region;  
Washington, DC

## National Park Service, National Capital Region Sustainability Fair

Seeking to cultivate community based interest in environmental stewardship, the National Park Service's National Capital Region hosted the first sustainability fair on the National Mall on May 3-4, 2002. "Sustaining America's Special Places: Your Parks, Your Communities," focused on

fostering partnerships between businesses, community groups, and government as a means to develop leadership on environmental issues.

The Park Service's Sustainable Practices Team envisioned the fair in the summer of 2001 when it realized that there was a distinct lack of understanding about sustainability among the general public. The fair featured hands-on exhibits for school-aged children that were designed to introduce the concepts of sustainability in a learning-by-doing format. Adults were invited to participate in leadership forums designed to dispel the notion that sustainability is an "institutional activity" too difficult for the average citizen to undertake.

Exhibits at the fair emphasized alternative fuels, ecosystem protection, energy efficiency, green building principles, recycling, and watershed restoration. In one event, participants built a "green pavilion" using green architectural concepts.

For more information about the National Park Service's National Capital Region Sustainability Fair, contact Donald F. Filsoof at [Don\\_Filsoof@nps.gov](mailto:Don_Filsoof@nps.gov), (202) 619-7076.

*The Sustainability Fair invited attendees to participate in forums designed to dispel the notion that sustainability is an "institutional activity" too difficult for the average citizen to undertake.*

