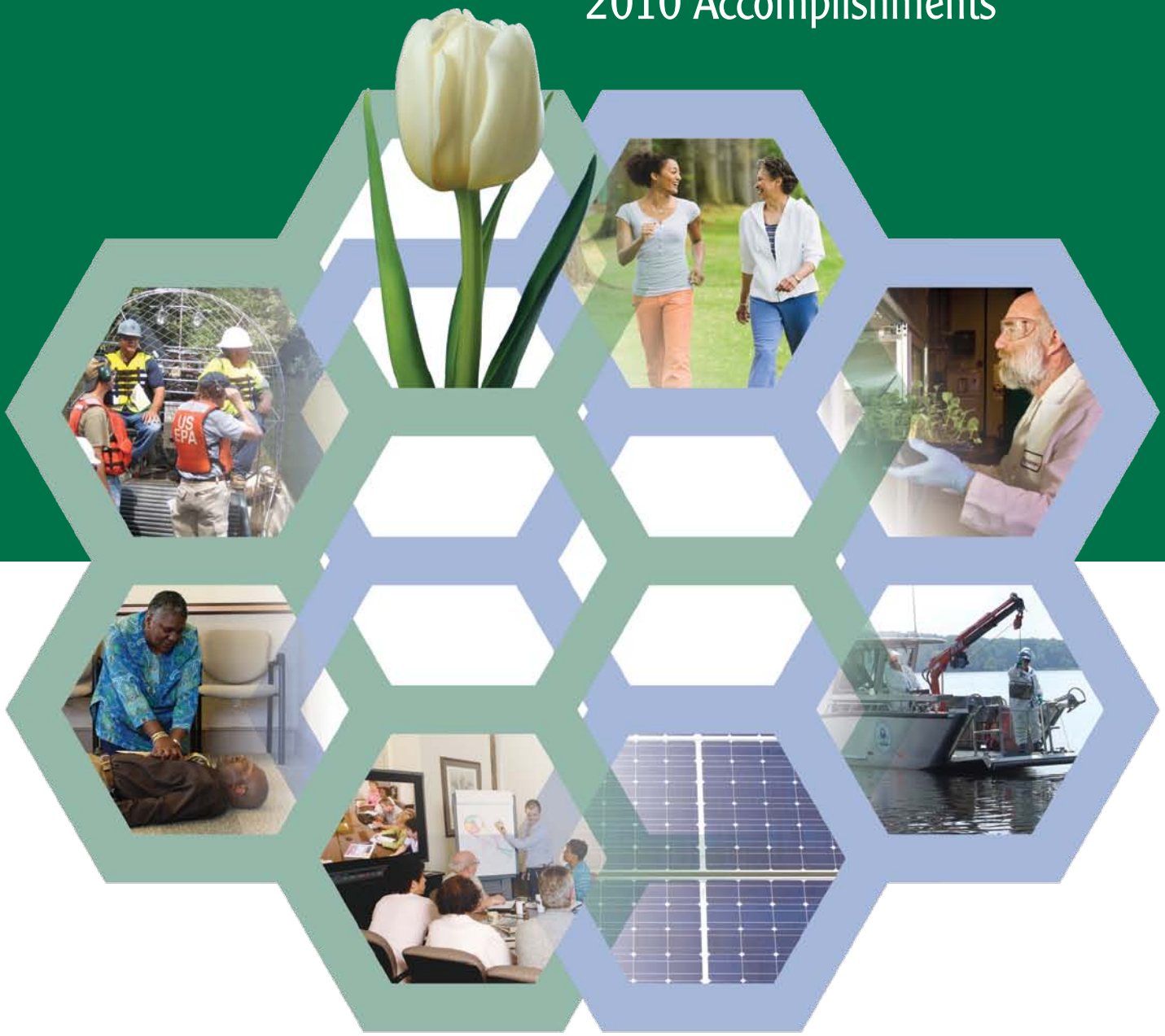
United States
Environmental Protection
Agency

Protecting Our Employees and the Environment

2010 Accomplishments



Office of Administration and Resources Management


Qwest

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Green roof, Region 8 Office, Denver, Colorado

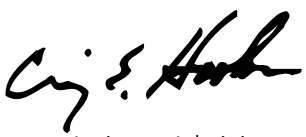
Introduction

The U.S. Environmental Protection Agency (EPA) manages a diverse portfolio of offices, laboratories and research vessels and employs more than 17,000 employees across the country. Its mission is to protect human health and the environment — an objective that the Agency expects its staff and managers to support wholeheartedly, starting with the manner in which they operate their own facilities. Determined to lead by example, EPA has worked diligently to promote employee well-being and implement environmentally sustainable practices at its facilities. EPA will accept nothing less; our mission and our President demand it.

As EPA's Designated Agency Safety and Health Official and Senior Sustainability Officer, I am happy to present this report, which highlights some of the internal safety, health and environmental accomplishments that EPA achieved in calendar year 2010. It was a good year. EPA placed enhanced focus on employee health and wellness and continued to maintain a strong safety record, even as its employees were called upon to handle new types of hazardous materials and respond to challenging disasters within and outside the United States (e.g., Haiti's earthquake, the Deepwater Horizon and Enbridge oil spills). Also, EPA announced aggressive greenhouse gas emissions reduction targets, developed a *Strategic Sustainability Performance Plan*, and implemented numerous projects that will help the Agency reduce the amount of resources it uses and the waste it generates. EPA's actions earned it a green score (the highest rating) on the Office of Management and Budget's (OMB's) Sustainability/Energy Scorecard.

I hope this report will inspire readers to continue implementing progressive safety, health and environmental management (SHEM) practices within their own communities and organizations. Additionally, I expect it will shed light on the interconnections that exist between green choices, cost savings, employee health and enhanced productivity.

Craig E. Hooks



Assistant Administrator
Office of Administration and Resources Management

Keeping Employees Safe at Work

In an age of heightened media awareness, the public is bombarded with stories of accidents that cause injuries, illnesses or death. Regrettably, in many cases, post-event analyses reveal that many accidents could have been avoided through enhanced awareness or better hazard controls. Human error, poor planning and managerial mishaps too frequently lie at the heart of unfortunate events. At EPA, we strive to ensure that such mistakes do not occur. EPA employees confront a variety of hazards at work: handling toxic and hazardous materials, collecting samples from contaminated sites, responding to incidents of national significance (e.g., natural and manmade disasters), and engaging in physically demanding activities. Hazards are constantly present, but accidents are not inevitable. To minimize their occurrence, EPA identifies potential hazards, implements controls to remove or minimize them, and equips employees with the information and tools they need to protect themselves. The Agency's strategy works; EPA continued to maintain one of the lowest injury and illness rates across the federal government in fiscal year (FY) 2010, and no work-related fatalities occurred.

Strengthening the Agency's Safety and Health Training Program

For decades, EPA has been providing safety and health training to ensure that employees know how to protect themselves against the hazards associated with their job tasks. Nonetheless, in the spirit of continual improvement, EPA convened a workgroup in August 2009 to strengthen and expand the Agency's safety and health training program. As a first step, workgroup members updated and improved EPA Order 1440.2 (which outlines the Agency's safety and health training policy and requirements) and SHEM Guideline 51 (which explains how to implement the require-

In April 2010, the Agency released an updated and improved version of EPA Order 1460.1, which defines EPA's occupational medical surveillance program. Later in the year, a workgroup convened to begin developing a guideline to accompany the new policy order.

ments). In the process, EPA broadened the scope of its safety and health training program to cover all EPA employees, provided clarity on training requirements, and created better interpretative tools to help local managers and supervisors determine which courses specific employees must take. By the end of 2010, EPA Order 1440.2 and SHEM Guideline 51 had both been revised, reviewed and approved and were awaiting final distribution. The workgroup also began laying the groundwork to 1) improve EPA's online safety and health training capabilities and 2) standardize EPA's procedures for tracking the completion of training requirements.

EPA personnel assisted with air monitoring and a variety of other activities during the Deepwater Horizon oil spill response. EPA safety officers were also deployed, and they voluntarily offered their expertise to BP and the U.S. Coast Guard, helping them review safety and health documents and assess field operations across miles of impacted shoreline.

Emergency Response and Preparedness Remain Front and Center

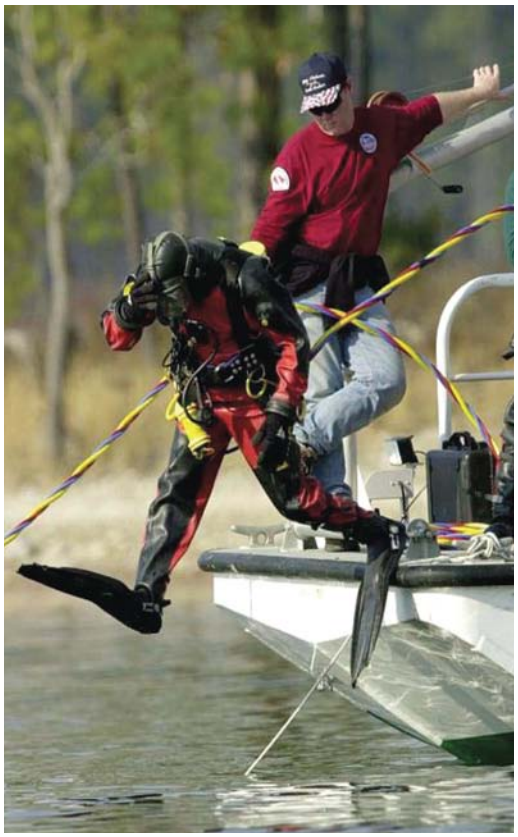
EPA's emergency response personnel respond to chemical, oil, biological and radiological releases and large-scale national emergencies. For example, in 2010, some of them assisted with post-earthquake recovery efforts in Haiti, and many of them were deployed to the Gulf of Mexico (see photos above) and the Kalamazoo River in the aftermaths of the Deepwater Horizon and Enbridge oil spills, respectively.

Throughout the year, EPA continued to take action to ensure that emergency responders are adequately prepared to confront the myriad safety and health hazards they might encounter in the field. For example, EPA continued developing *EPA's Emergency Responder Health and Safety Manual* and an Agencywide fatigue management program; working on a standardized respirator fit testing protocol; and securing new respirators for use in chemical, biological, radiological, and nuclear environments. Additionally, EPA tested its safety and health protocols in April 2010 during the Liberty Radiation Exercise, a full-scale five-day homeland security exercise that EPA sponsored in Philadelphia, Pennsylvania (see photos on next page).

Focusing on the broader EPA community, the Agency also took action to prepare its employees for emergency events (e.g., fires, storms, terrorist activities) that could occur at its facilities. The Research Triangle Park (RTP) facility in North Carolina developed an emergency preparedness flip book for employees that explains what to do during different emergency scenarios. In addition, some EPA locations offered general disaster training as part of their annual safety refresher courses, and other locations provided training that addressed specific regional hazards. For example, some facilities (e.g., the Office of Chemical Safety and Pollution Prevention's Environmental Chemistry Laboratory in Bay St. Louis, Mississippi) offered hurricane preparedness training, and some West Coast locations made earthquake preparedness a priority and/or offered tsunami awareness training.

EPA Hosts the Liberty Radiation Exercise

More than 1,500 government and private-sector personnel participated in the Liberty Radiation Exercise. The event was designed to test protocols, procedures, capabilities and responsibilities during the post-emergency phase of a radiological dispersion device or dirty bomb release. EPA's on-scene coordinators and radiation emergency response teams participated, simulating activities that they might perform during such an event. EPA's safety and health professionals also played prominent roles in the exercise. A representative from Region 3 served as the lead safety officer, one from Region 5 served as an incident command safety officer, and several others participated as assistant safety officers.



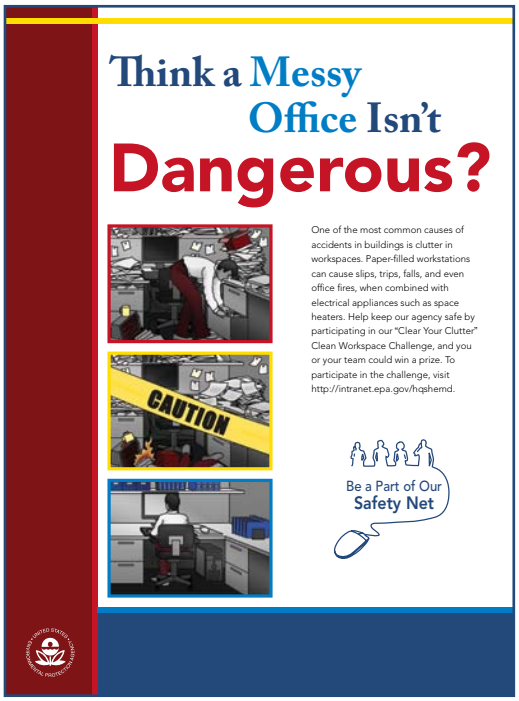
Protecting EPA's Divers

EPA maintains nine diving units that perform operations in rivers, lakes, harbors and oceans. The Agency's divers collect fish, monitor seagrass, perform near-shore coral reef surveys, study benthos habitat conditions and assist with search and recovery operations. In April 2010, EPA's Safety, Health and Environmental Management Division signed a memorandum of agreement with EPA's Diving Safety Board to clarify roles and responsibilities for the Diving Safety Program and identify actions that must be taken to ensure that safety and health considerations are adequately addressed. EPA also performed dive safety evaluations for three of its nine diving units to ensure that each unit is adhering to current industry safety best practices in diving equipment, training and procedures.

General Office Safety

Constant diligence is the key to preventing accidents. This is true not only in the field and laboratory, but also in general office settings. In fact, in June 2010, upon completing a trend analysis of 16 quarters of injury and illness data, EPA verified that most (60 percent) of its injuries occur in office settings and that the slips, trips and falls category is still the leading cause of injury. Given these findings, EPA released a safety bulletin in November 2010, titled *Avoiding Office Workplace Hazards*, to remind employees of the importance of remaining alert for common, but frequently overlooked, office-related hazards (e.g., general office clutter, tangled wires, open cabinets and drawers, uneven surfaces, slippery surfaces, improperly stored sharp objects).

To reduce tripping hazards, headquarters supported the fifth annual "Clear Your Clutter" Clean Workspace Challenge (see photos below) to encourage employees to remove their clutter and detangle their cords. The Radiation and Indoor Environments National Laboratory in Las Vegas, Nevada — part of EPA's Office of Air and Radiation (OAR) — also performed a comprehensive clutter-reduction initiative, cleaning up work areas, facility storage areas and laboratory spaces. This event helped the facility reduce its tripping hazards and also unearthed unneeded products and materials containing chemicals. Facility representatives removed the latter from employee workspaces and donated the unwanted materials to organizations that could use them.



Through its injury and illness prevention program, EPA uses a variety of communication venues (such as the poster shown above) to remind employees about common office hazards.

These photos show what one employee's office looked like before and after participating in the "Clear Your Clutter" Clean Workspace Challenge.

Planting the Seeds for a Healthier Lifestyle

In addition to keeping employees safe at work, EPA is also answering President Obama's call for federal agencies to help employees lead healthier, more balanced lives. EPA recognizes the potential that such efforts have to increase staff productivity, attract and retain high-quality employees, and ensure that EPA is a premier place to work. In 2010, EPA placed emphasis on health and wellness services, an area that demands attention as the nation struggles to address rising obesity rates, excessive sedentary behavior and poor nutritional habits. Working to counteract these negative trends, EPA is trying to plant the seeds for a healthier lifestyle and inspire employees to integrate healthier behaviors into all aspects of their lives, both in and out of the office.

Headquarters Leads the Way

In 2010, headquarters offered a broad array of health and wellness services to the 7,000-plus employees who work in the Washington, D.C., metropolitan area. To get employees moving, headquarters hosted an annual Walk to Wellness, encouraged employees to participate in lunchtime walking groups and offered incentives (e.g., temporary free membership) to join onsite fitness centers. Additionally, headquarters encouraged employees to strengthen their core and improve their posture by providing online instructional videos that explain how to perform Pilates at their desks.

In May 2010, headquarters held its annual Injury and Illness Prevention Awareness Day in conjunction with its 1.5-mile Walk to Wellness event. Fitness demonstrations and sports competitions were included as part of the event, and 20 health and wellness vendors were present.

In summer 2010, headquarters started producing a quarterly wellness newsletter that provides tips for healthy living and identifies upcoming health and wellness events and fitness classes. As for other educational venues, headquarters hosted two health and wellness fairs, continued to offer maternal wellness classes nearly monthly, and produced two safety bulletins — one that provided strategies for preventing the spread of germs and another that addressed sun safety. Headquarters also hosted a lunchtime educational event in May 2010 to share information about actions that can be taken to prevent skin cancer.

Headquarters provided access to mammography screenings in June 2010 to female employees (in partnership with the George Washington University Hospital) and offered blood pressure, cholesterol and glaucoma screenings and influenza vaccines in fall 2010. Headquarters also promoted a smoking cessation program, launched the *Yellow Tag for a Healthier Bag* initiative to help employees identify healthier snacks in vending machines, and began laying the groundwork for an Agencywide fitness challenge called *EPA Race Around the Regions*. Additionally, headquarters placed significant emphasis on ergonomics, responding promptly to employees who requested workstation assessments. Over the course of the year, EPA assessed 78 employee workstations to determine whether adjustments needed to be made to prevent musculoskeletal disorders, repetitive motion injuries or eye strain.

Agencywide Health and Wellness Program

In summer 2010, EPA performed an assessment to determine which types of health and wellness services are currently offered at each of its locations. The results were enlightening, as they showed that many health and wellness services (e.g., access to onsite or nearby fitness centers, health education, blood pressure screenings) are already broadly implemented across the Agency. However, disparities do exist regarding the extent of services that locations provide.

To address this issue, EPA is developing an Agencywide health and wellness program that defines a set of minimum health and wellness services that all EPA locations will be expected to implement. As a first step, EPA identified a broad range of potential program components (or best practices) to consider for inclusion and assessed each component based on several criteria, such as potential to attract participants, cost, impact on health, and current implementation status across the Agency. In 2011, EPA will form a Health and Wellness Workgroup (represented by multiple EPA regions and program offices) to assist with program development and implementation.

Burning Calories, Building Friendships

EPA employees have a variety of interests. Some love to go to the gym, others enjoy competitive sports, some like to dance and others like to walk with friends. EPA supports a variety of exercise venues to tap into these different interests. For example, about 70 employees from EPA's Region 4 Office in Atlanta, Georgia, congregate in the tunnels of the Sam Nunn Atlanta Federal Center twice a week to line dance, and more than one-third of EPA locations have established walking, running or exercise groups that meet regularly. Headquarters hosts lunchtime walking groups on Tuesdays and Thursdays, and the Region 4 Office encourages employees to use its underground tunnel system as an indoor walking track. As another example, employees at the Environmental Science Center in Fort Meade, Maryland, have formed an exercise group, and they pay a personal trainer to lead them. At the Region 10 Manchester Laboratory — located next to a picturesque state park on Puget Sound — nearly all employees walk daily during lunchtime. These activities provide an opportunity to burn calories and build camaraderie.

EPA Targets Greenhouse Gas Emissions

In October 2009, President Obama issued Executive Order (EO) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*. The executive order reaffirmed environmental goals that have been put forth for federal agencies over the last decade and introduced some new ones. As an example of the latter, the executive order challenges federal agencies to inventory their greenhouse gas (GHG) emissions, establish GHG reduction targets and outline a strategy for achieving those targets. Fortunately, EPA was already poised to meet the President's expectations, as the Agency proactively began tracking its GHG emissions in 2007 and formally joined the Climate Leaders Program in May 2009. Moreover, EPA already had much of the framework for a GHG emissions reduction strategy in place, as its efforts to conserve energy, minimize waste and mitigate transportation-related impacts have been underway for many years.

Setting Targets

EO 13514 instructs federal agencies to identify a reduction target for their combined Scope 1 and Scope 2 GHG emissions and a separate target for their Scope 3 emissions (see next page for definitions). In 2010, EPA submitted the requested targets (as well as the associated estimated GHG baseline inventories) to OMB and the Council on Environmental Quality (CEQ). Compared to an FY 2008 baseline, EPA agreed to reduce its combined Scope 1 and 2 GHG emissions by 25 percent and its Scope 3 emissions by 8 percent by the end of FY 2020.

What Are Scope 1, 2 and 3 GHG Emissions?

Scope 1 represents direct GHG emissions released from sources that EPA owns or directly controls. For example, these may include emissions from fossil fuels burned in onsite boilers or emissions from the Agency's vehicle fleet.

Scope 2 represents EPA's indirect GHG emissions that result from consumption of purchased electricity, chilled water, hot water and steam.

Scope 3 represents other indirect GHG emissions associated with a variety of different sources. EPA accounted for the following sources when developing its baseline FY 2008 Scope 3 emissions inventory:

- Air and ground business travel
- Employee commuting
- Contracted municipal solid waste disposal
- Contracted wastewater treatment
- Transmission and distribution losses from purchased electricity
- Energy consumption in EPA's leased spaces

In the future, as GHG quantification methodologies evolve, EPA will expand its inventory to capture additional Scope 3 emissions, such as those associated with EPA's supply chain, vendors and contractors.

Developing a GHG Reduction Strategy

In June 2010, EPA submitted its first annual *Strategic Sustainability Performance Plan* to OMB and CEQ. This document outlined the Agency's strategy for meeting EO 13514's requirements and explained how it intends to meet its GHG emissions reduction targets. In summary, the plan explains how EPA's GHG emissions will decrease as the Agency continues to expand its existing (and already mature) efforts to:

- Reduce energy use at EPA facilities
- Install onsite renewable energy projects and support green power markets
- "Green" the Agency's vehicle fleet
- Reduce business travel
- Support alternative commuting options
- Reduce the Agency's waste generation

EPA made advancements on all of these fronts over the course of the year, as discussed in the remainder of this report.

All of EPA's offices and laboratories will work aggressively over the next decade to reduce their GHG emissions. In March 2010, the Region 9 Office in San Francisco, California, demonstrated its eagerness to tackle this issue when it announced that it intends to achieve carbon neutrality and become a zero waste facility by January 2012. The Regional Administrator has committed to reduce the amount of energy used at the Region 9 Office, reduce and prioritize business travel, and promote tools and policies (e.g., flexiplace) that will reduce employee commuting.

Expanding EPA's Inventory of Sustainable Buildings

Over the past decade, EPA has expanded its inventory of sustainable buildings. It has done so by ensuring that its new construction and renovation projects and leasing acquisitions meet the *Guiding Principles for High Performance and Sustainable Buildings*, and by taking actions to convert EPA's existing facilities into more sustainable workspaces. EPA remained committed to these objectives throughout 2010. Over the course of the year, the Agency pursued green building certification, performed sustainability assessments and offered better sustainable building guidance and tools. By the end of FY 2010, more than 8 percent of the buildings in EPA's current Federal Real Property Profile inventory met the *Guiding Principles*. This number must grow to 15 percent by the end of FY 2015 in order to meet federal requirements. EPA is confident that it will reach this target, as several of its existing facilities are already well on their way to meeting the *Guiding Principles*.

Green Building Certification

Leadership in Energy and Environmental Design (LEED®) is an internationally recognized green building certification program. In June 2010, the Region 1 Office in Boston, Massachusetts, was certified at the Gold level under the LEED for New Construction & Major Renovations™ rating system, a designation that acknowledges the work that EPA and the U.S. General Services Administration (GSA) jointly performed to incorporate state-of-the-art sustainable features into a building of historical significance. With this addition, EPA now occupies 10 buildings that have earned LEED Silver or Gold certification for New Construction & Major Renovations.

EPA's Region 1 Office is housed in the John W. McCormack Post Office and Courthouse, a LEED Gold certified historic building located in the heart of downtown Boston, Massachusetts.

EPA also currently occupies four buildings that have achieved LEED for Existing Buildings: Operations & Maintenance™ at the Silver, Gold or Platinum level. Hoping to add to this number, EPA initiated discussions with GSA in 2010 to explore the possibility of obtaining certification for buildings located at the Federal Triangle Complex in Washington, D.C.

Additionally, EPA initiated efforts to obtain LEED for Commercial Interiors™ certification for its Region 10 Office in Seattle, Washington (which will soon undergo renovation), and its Region 2 Caribbean Field Office in Guaynabo, Puerto Rico (which will soon be constructed). By doing so, these two locations have signaled their commitment to provide interior spaces for their employees that incorporate sustainable features and serve as healthy, productive and efficient workspaces.

Sustainability Assessments

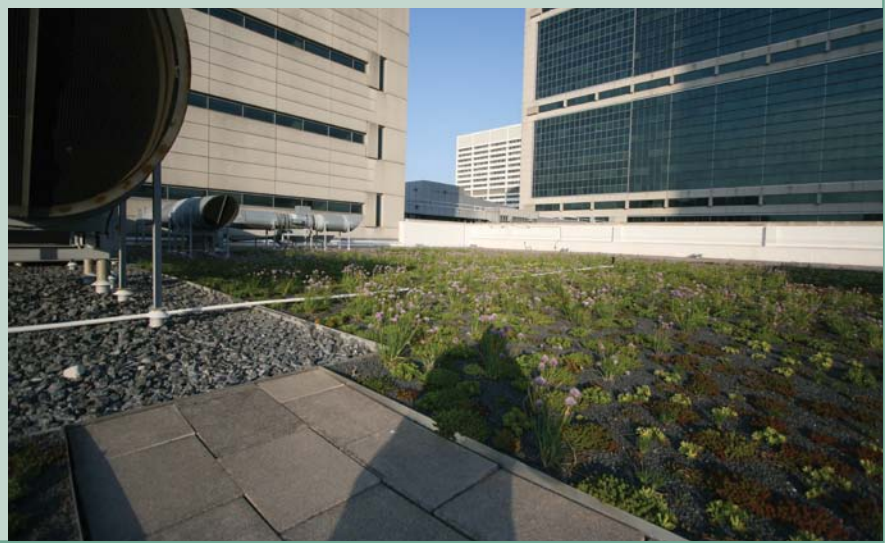
EPA completed sustainability assessments at seven existing facilities in 2010, evaluating them against the *Guiding Principles* to determine how fully they are integrating sustainable operations and maintenance principles, optimizing energy performance, protecting and conserving water, enhancing indoor environmental quality and reducing the environmental impact of materials. The assessment team was pleased to find that the facilities have been quite proactive in pursuing sustainable practices, but they did identify opportunities for improvement, particularly with regard to building operations and maintenance plans, moisture control strategies and sustainable acquisition policies. The findings were communicated to facility representatives, who, in turn, will take action to improve their performance and achieve the standards listed in the *Guiding Principles*. As the facilities make the necessary improvements, the Agency's inventory of sustainable buildings will continue to grow.

Better Guidance and Tools

In 2010, EPA developed *Building Management Plan Guidelines (BMPG)* to help ensure that facility-level plans incorporate a comprehensive set of sustainable building management practices. Before the end of the year, three EPA facilities started piloting the *BMPG*: the Environmental Science Center in Fort Meade, Maryland; the Office of Research and Development's (ORD's) Large Lakes and Rivers Research Station in Grosse Ile, Michigan; and OAR's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. EPA also updated its GreenCheck process, a tool that the Agency uses to ensure that new construction and renovation projects and/or leasing actions adequately account for sustainable building requirements listed in the *Guiding Principles*; EO 13514; EO 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*); the Energy Independence and Security Act of 2007 (EISA); the Energy Policy Act of 2005; and internal EPA documents (e.g., *Architecture and Engineering Guidelines, Best Practice Lease Provisions*).

The Region 4 Office's Green Roof Offers Many Benefits

The Region 4 Office in Atlanta, Georgia, is the biggest tenant at the Sam Nunn Atlanta Federal Center, a complex consisting of four buildings. Several years ago, EPA started talking to the facility leasing agent (GSA) about the possibility of installing a green roof. In 2010, GSA installed a 66,700-square-foot green roof across two of the complex's four buildings. GSA used an engineered soil for the green roof, which in most instances, is able to absorb all of the rainwater that falls on the roof, thereby eliminating stormwater runoff. Groundcover plants, mostly succulents, have been planted on the roof, and they will reach maturity in three years. The plants will convert carbon dioxide to sugars and oxygen (via photosynthesis), and they will reduce GHGs even further by decreasing facility energy demand (via their ability to provide insulation, deflect solar radiation, and cool roof areas through evapotranspiration). The green roof will create wildlife habitat and combat urban heat island effects. It is also expected to enjoy four to five times greater longevity than a traditional roof, as the plants will protect roof membranes from the wear-and-tear associated with ultraviolet radiation, extreme temperature fluctuations and wind abrasion. Reduced energy demands and a longer roof-replacement cycle offer obvious cost-saving benefits.

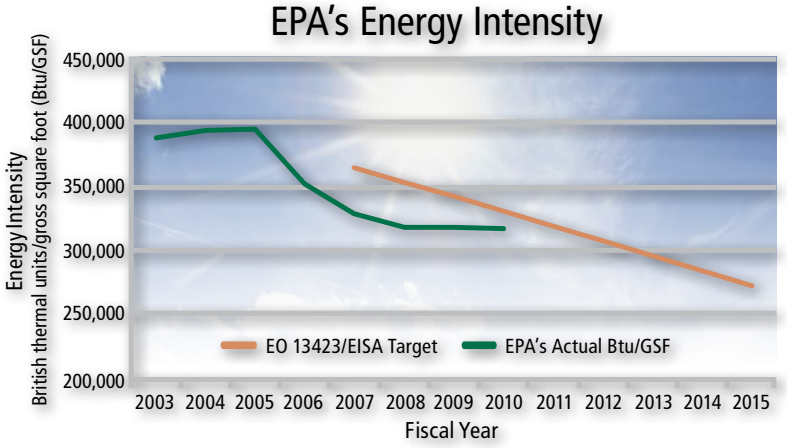


Conserving Energy and Supporting Innovation

EPA continued taking action to reduce the amount of energy it uses to operate its buildings. EPA's efforts in this regard are hardly new, but the importance of achieving success in this area has become even more pronounced now that EPA has set an aggressive GHG emissions reduction target. With more than 94 percent of the Agency's combined Scope 1 and 2 GHG emissions attributed to building-related energy consumption, it is clear that EPA's ability to achieve its GHG reduction target hinges on the success of its energy conservation program. In 2010, EPA completed or initiated energy-saving projects at multiple EPA facilities and identified additional projects to pursue in the coming years. EPA also championed renewable energy technology, as it continued to purchase green power and install renewable energy projects at its facilities.

Setting the Stage for Additional Energy Reductions

EPA's energy intensity was relatively flat between FY 2009 and FY 2010; it decreased by only 0.2 percent. Extreme summertime and wintertime temperatures may have played a role in preventing the Agency from achieving better performance. Nevertheless, EPA is still ahead of schedule with regard to meeting the FY 2015 energy intensity reduction goal that EO 13423 and EISA have established for federal agencies (see figure below).



EO 13423 and EISA require federal agencies to achieve a 30-percent reduction in energy intensity by FY 2015 (compared to an FY 2003 baseline). EPA's FY 2010 energy intensity is already 18.3 percent lower than its FY 2003 baseline, which surpasses the 15-percent reduction goal that federal agencies were expected to meet by this time.

EPA is taking action to reduce the energy it uses to light its workspaces and parking lots. Focusing on human behavior, some EPA facilities, such as the National Enforcement Investigations Center in Denver, Colorado, post signs and stickers (like the one above) to remind employees to turn off lights when not in use. Other facilities, including ORD's Environmental Sciences Division in Las Vegas, Nevada, have installed motion sensors to ensure that unoccupied spaces do not remain lit. ORD's Ecosystems Research Division in Athens, Georgia, has conducted illumination measurements to identify overly lit spaces and has "delamped" such areas accordingly. EPA facilities are also steadily replacing their conventional bulbs with compact fluorescent bulbs and/or light-emitting diode bulbs. In December 2010, OAR's National Air and Radiation Environmental Laboratory in Montgomery, Alabama, installed eight solar-powered lighting fixtures in its parking lot. The lights, which are motion- and light-sensitive, are expected to produce 8,760 kilowatt-hours (kWh) per year.

Energy-Efficient Vending Machines

In July 2010, the Region 9 Office in San Francisco, California, installed energy-saving devices on two chilled vending machines. The devices are expected to reduce each machine's energy use by 46 percent and yield an annual cost savings of $150 per machine. The devices were essentially free, as EPA's energy provider issued a rebate to the local company who provided the devices to EPA at no cost.

Additional energy savings will be achieved in the future as a result of actions that EPA completed and/or set into motion at the following facilities in 2010:

- **The Region 7 Laboratory in Kansas City, Kansas.** In June 2010, this location conducted recommissioning and implemented operations and maintenance improvements. For example, new boiler sequencing software was installed on the facility's building automation system, which resulted in a 70-percent decrease in natural gas use during the fourth quarter of FY 2010 (compared to the fourth quarter of FY 2009).
- **The Andrew W. Breidenbach Environmental Research Center (AWBERC) in Cincinnati, Ohio.** This facility is engaged in a multiyear, multiphase Infrastructure Replacement Project (IRP). EPA completed the second phase of the project in 2010, initiated construction on the third phase and awarded a contract for subsequent work. EPA is upgrading the facility's mechanical equipment, installing high-performance variable air volume fume hoods, manifolding laboratory exhaust systems, improving the facility air distribution system, eliminating unnecessary one-pass air and implementing a heat recovery system. Once these improvements are completed, the facility's energy use is expected to be 20 percent lower than its pre-renovation baseline.
- **ORD's Atlantic Ecology Division in Narragansett, Rhode Island.** In August 2010, EPA initiated construction on a multiphase IRP, which has the potential to reduce the facility's energy use by 30 percent. The facility's air handlers and mechanical and boiler systems will be replaced in the process, and a new ground source heat pump will be installed.
- **RTP facility in North Carolina.** In September 2010, EPA initiated construction of a heat recovery system at this facility and awarded contracts for fume hood and laboratory control upgrades.

EPA also performed a second round of EISA-mandated assessments to identify additional energy-saving opportunities at its facilities. The assessment results were submitted to the Federal Energy Management Program in June 2010. In addition, EPA continued building its advanced metering network, awarding construction contracts for hardware installation at the Environmental Science Center in Fort Meade, Maryland, as well as multiple buildings located in Cincinnati, Ohio, and RTP, North Carolina. The advanced metering network will provide detailed energy and water use data, which will help EPA better target and mitigate high energy and water use in the future.

Green Power and Renewable Energy

For the fifth year in a row, EPA continued to offset 100 percent of its estimated annual electricity use with delivered green power and renewable energy certificates. Composed of two Agencywide blanket contracts and five individual facility-level contracts, the Agency's green power purchases supported renewable energy generation from wind, landfill gas and biomass resources in 15 states.

EPA also generated renewable energy at its RTP facility in North Carolina. In April 2010, RTP installed a photovoltaic system on the roof of its New Main laboratory building. The system, which generated 38,652 kWh in FY 2010, helped offset the building's demand for grid-delivered electricity. Cost savings achieved from previously implemented energy conservation projects paid for RTP's new photovoltaic system.

RTP also demonstrated its willingness to support North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard by leasing the rooftop of its onsite daycare center to Duke Energy, which subsequently installed and began operating a 476-panel photovoltaic system (see photo below). In FY 2010, this system generated 80,388 kWh. As an added bonus, the panels have attracted the curiosity of the children inside the daycare, prompting them to ask questions about the solar energy cycle and learn about sustainable energy sources.

In 2009, ORD's Ecosystems Research Division in Athens, Georgia, installed a photovoltaic system to offset the facility's use of conventional electricity. In FY 2010, the system generated 12,786 kWh of electricity, which was used to power the facility's guard shack.

The First Environments Early Learning Center at EPA's RTP facility in North Carolina

Electronics Stewardship Remains a Top Priority

While the information technology (IT) revolution has undoubtedly improved the way the nation does business, such advancements have an environmental price tag. First, increased energy demands must be considered, as organizations add more computers, monitors, printers, servers and data centers to their operating systems. Second, due to rapid technological improvements, equipment becomes obsolete in a relatively short timeframe, creating a disposal issue. To minimize these impacts, EO 13423 and EO 13514 challenge federal agencies to promote green electronics acquisition, efficient operational practices, responsible end-of-life management, and energy-efficient management of servers and federal data centers. In 2010, EPA made progress on all these fronts, satisfying the White House's expectations. Additionally, several EPA entities received awards (see next page for a list) in recognition of their electronics stewardship accomplishments.

Green Acquisition and Efficient Operations

In October 2010, EPA's Chief Information Officer (CIO) issued the *Personal Computer Configuration and Management Standard*, which includes a section on green IT operations. The document states that EPA's computer acquisitions should be certified by ENERGY STAR® and registered as an Electronic Product Environmental Assessment Tool (EPEAT) product (defined on next page), preferably with an EPEAT Silver rating or higher. EPA is demonstrating solid performance in this area. In FY 2010, nearly all (99.9 percent) of the personal computers and laptops that EPA acquired were EPEAT products, and 85 percent of them were rated Silver or Gold. As for monitors, 98 percent of the Agency's acquisitions were EPEAT products, and more than 75 percent of them were rated Silver or Gold.

The CIO's standard also outlined numerous operational best practices that must be implemented to reduce the amount of energy that EPA uses to

operate electronics. For example, it requires employees to power down their systems at the end of the day and indicates that ENERGY STAR settings must be enabled so that computers, monitors and printers will go into sleep or standby modes after a designated amount of inactivity. To ensure compliance, EPA installed the BigFix® power management solution Agencywide in 2010. This tool allows EPA to monitor and control power usage settings. If users try to deviate from energy-efficient default settings, the tool detects the change and automatically re-establishes the preferred settings.

Data Center Consolidation

As the federal government's reliance on IT has expanded, a large number of servers and data centers have been needed to meet the demand. The White House recognizes the environmental and cost implications, as servers and data centers require significant energy and incur operational costs. To reduce the government's carbon footprint, OMB launched the Federal Data Center Consolidation Initiative in February 2010. In response, EPA completed a *Data Center Consolidation Plan* in August 2010 that describes EPA's strategy for reducing the number of servers it uses, as well as the square footage of the Agency's data centers.

Some EPA locations have already made headway. The Region 8 Office in Denver, Colorado, has updated and optimized its data center, implementing virtualization solutions. Prior to project initiation, Region 8 was using 20 servers to support business operations. Now, the region is meeting its needs using just two high-performance servers, saving energy and money in the process. Calculations suggest that the project will yield annual energy savings of 86,000 kWh and that it will allow the region to save $91,000 in physical equipment replacements and $19,500 on server maintenance over a three-year period.

Responsible End-of-Life Management

All of the electronic equipment that EPA retired from service in 2010 was donated, reused or recycled in an environmentally responsible manner. The equipment went to UNICOR; the Computers for Learning Program; and Responsible Recycling (R2)-certified companies that adhere to 13 specific environmental, worker safety, and public health best practices.

Winners of the 2010 Federal Electronics Challenge (FEC) Awards

Each year, FEC awards are issued to recognize outstanding electronics stewardship performance. In 2010, Gold Level Awards were issued to EPA's:

- Office of Administration and Resources Management in Washington, D.C.
- Region 5 in Chicago, Illinois
- Region 8 in Denver, Colorado

In addition, a Bronze Level Award was issued to ORD's Environmental Sciences Division in Las Vegas, Nevada.

What Is EPEAT?

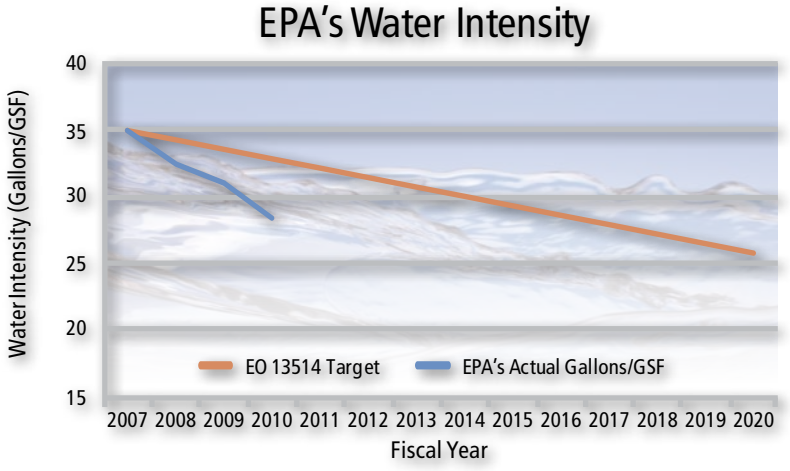
EPEAT rates computers and monitors based on 51 environmental performance criteria, addressing material selection, energy efficiency, packaging, product longevity and end-of-life considerations. To earn EPEAT registration, products must meet 23 required criteria, one of which is ENERGY STAR certification. Products are then rated Gold, Silver or Bronze based on the percentage of 28 optional criteria that they meet.

EPA's Water Conservation Strategy Continues To Be a Winner

In October 2010, the U.S. Department of Energy gave EPA a Federal Energy and Water Management Award to acknowledge the Agency's comprehensive water conservation program and its impressive FY 2009 water-use reductions. EPA's performance in this area is only improving, as the Agency reported even higher water intensity reductions in FY 2010 and continued to outpace potable water conservation goals that the White House and Congress have established for federal agencies. Over the course of the year, EPA continued implementing water-saving projects at individual facilities and worked to optimize the efficiency of its water-delivery systems.

Water-Use Reduction Targets

Building upon EO 13423's requirements, EO 13514 instructs federal agencies to reduce their potable water intensity by 2 percent annually starting in FY 2008 and continuing through FY 2020, which translates to a 26-percent overall reduction compared to an FY 2007 baseline. Surpassing the annual target, EPA's potable water intensity decreased by 8.5 percent over the past year. Such performance, combined with the successes of the previous two years, has allowed EPA to reduce its potable water intensity by 18.7 percent below its FY 2007 baseline, placing it well ahead of expectations and more than two-thirds of the way to meeting EO 13514's FY 2020 goal (see figure below).



Based on existing federal water conservation goals, federal agencies should have reduced their water intensity by 6 percent by the end of FY 2010 (using FY 2007 as a baseline). EPA beat that target handily, reporting a reduction of 18.7 percent over the specified time period.

EO 13514 also instructs federal agencies to expand their water conservation strategies to account for water that is used for industrial, landscaping and agricultural (ILA) purposes, challenging them to reduce it by 20 percent between FY 2010 and FY 2020. Although CEQ has not yet released final guidance on how to implement this goal, EPA did calculate an FY 2010 baseline of ILA water uses that are currently being considered as targets for reduction. EPA also began taking action to reduce its ILA water use and will continue doing so in the future.

Water-Saving Technologies Installed Coast to Coast

EPA's *Water Conservation Strategic Plan* prioritizes the Agency's water-saving initiatives and provides a timeline for completing projects at specific facilities. EPA continued to implement new water-saving technologies across the country throughout the year.

Focusing on its two largest laboratories, EPA achieved impressive water consumption reductions at the RTP facility in North Carolina and AWBERC in Cincinnati, Ohio. At the RTP facility, water consumption decreased by 14.8 percent over the past year, an outcome made possible by the facility's efforts to eliminate the use of single-pass cooling in a laboratory electron microscope (estimated to save 530,000 gallons per year); adjust and reduce tempering water flow to the boiler blowdown drain (estimated to save 400,000 gallons per year); and retrofit steam sterilizers to control tempering water flow when units are in standby mode (estimated to save 240,000 gallons per year). At AWBERC, efforts to install a dry vacuum pump seal (estimated to save 200,000 gallons per year) and high-efficiency restroom fixtures (estimated to save 210,000 gallons per year) allowed the facility to reduce its water use by 16.6 percent over the course of the year.

Other EPA facilities also completed water-saving projects. The Region 2 Laboratory in Edison, New Jersey, replaced and retrofitted lavatory faucets (estimated to save 133,000 gallons per year); installed three 1,500 gallon cisterns to collect rainwater for use as make-up water for cooling towers (estimated to save 100,000 gallons per year); and installed a temperature sensor in a steam sterilizer discharge line (estimated to save 450,000 gallons per year). Furthermore, OAR's National Air and Radiation Environmental Laboratory in Montgomery, Alabama, installed high-efficiency restroom fixtures (estimated to save 95,000 gallons of water per year); adjusted its cooling tower blowdown line and basin overflow drain to improve efficiency (estimated to save 1 million gallons per year); completed

Rain chain, Environmental Science Center, Fort Meade, Maryland

an air handler condensate recovery project (estimated to save 740,000 gallons per year); improved float-operated switches associated with a vacuum pump (estimated to save 140,000 gallons per year); and modified its reverse osmosis system so that it only runs when there is demand for purified water (estimated to save 200,000 gallons per year).

Additionally, acting on recommendations that WaterSense® irrigation partners provided in 2008, ORD facilities in Oklahoma and Oregon improved their irrigation systems in 2010. The former completed an irrigation optimization project that is anticipated to save 400,000 gallons of water per year (see adjacent sidebar). The latter (i.e., ORD's Western Ecology Division in Corvallis, Oregon) succeeded in reducing its water use by 37.7 percent between FY 2009 and FY 2010, as it decreased its demand for supplemental irrigation, replaced broken sprinkler heads and adjusted sprinkler head delivery. Further reductions will likely be reported in the future, as additional irrigation improvement projects are in the queue for this facility.

Fixing Leaks, Optimizing Performance

Water-efficient technologies, products and designs are the cornerstone of EPA's water conservation strategy. However, to achieve the best results, the Agency must ensure that its state-of-the-art technologies are operating optimally. In 2010, upon discovering leaking showers at an onsite fitness center, EPA's Safety, Health and Environmental Management Division worked with the Security Management Division to have summer interns perform a comprehensive leak detection study at headquarters' Federal Triangle Complex in Washington, D.C. The interns identified 18 leaking faucets, three leaking showers and one leaking urinal, all of which were reported to maintenance staff for correction. EPA estimates that the resulting fixes will save the Agency at least 60,500 gallons of water. Other EPA facilities also supported leak detection efforts throughout the year. For example, OAR's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan, instructed its operations and maintenance contractor to check for drips and reminded staff to report water-related inefficiencies to the Facility Help Desk. Additionally, EPA performed EISA-mandated water assessments at six facilities in 2010, and the assessment team looked for leaks during the evaluations.

More Efficient Irrigation

In May 2010, ORD's Ground Water and Ecosystems Restoration Division in Ada, Oklahoma, installed a new lawn irrigation system with a state-of-the-art evapotranspiration (ET) controller. The new system will deliver water efficiently and reliably and prevent overwatering. The ET controller will be used to calculate an ET factor and identify optimal irrigation schedules and water application rates. Plant and soil types, plant coefficients, weather conditions (e.g., temperature, wind, humidity, precipitation, sunlight intensity), soil infiltration rates, and soil-holding capacity will be accounted for when determining the ET factor.

Weather Sensor

ET Controller

Eliminating Waste Through Source Reduction, Reuse and Recycling

EPA continued to implement new waste reduction strategies, taking action to reduce its solid waste generation, reuse construction and demolition debris, and decrease chemical use in its laboratories. Such efforts are proving to be beneficial in many ways. On the environmental side, waste reduction relieves the burden on local landfills; reduces Scope 3 GHG emissions associated with the transport, disposal, and decomposition of municipal solid waste; and allows the Agency to cut back on its waste hauling services. Additionally, as the examples described in this section will show, EPA's efforts to donate or salvage unwanted materials create social and economic benefits, proving again the truth in the old adage that one man's trash is another man's treasure.

Solid Waste Diversion

EO 13514 challenges federal agencies to achieve a solid waste diversion rate of 50 percent by FY 2015, and EPA has already surpassed that goal. In fact, the Agency's estimated waste diversion rate was 55 percent in FY 2010. EPA intends to maintain (or exceed) that rate in the future, which is why it has established 55 percent as its internal Agencywide goal. Fortunately, many of EPA's individual facilities have already demonstrated even more impressive performance. For example, ORD's Atlantic Ecology Division in Narragansett, Rhode Island, reported an 89-percent waste diversion rate in FY 2010.

In August 2010, EPA launched its *Think Beyond the Bin* campaign to challenge employees to reach beyond recycling and prevent waste from being generated in the first place. Building on the success of the 2009 *Strive for 45* campaign, EPA provided additional outreach materials and new tools and guidance to help facilities track and report waste diversion data. For example, headquarters distributed guidance and offered webinar training on how to use the Waste-Wise Program's Re-TRAC system for data collection and reporting.

THINK Beyond the BIN
REDUCING WASTE AT EPA FACILITIES

EPA encourages employees to donate unwanted (but still usable) materials to organizations that can use them, rather than sending the materials to landfills. Heeding this advice, in October 2010, EPA representatives from the Region 3 Office in Philadelphia, Pennsylvania, started contacting schools in Empowerment Zones and other nonprofit organizations to find homes for 2,100 vinyl three-ring binders that had accumulated in the office supply room during an ongoing building cleanout effort. More than a dozen schools and organizations agreed to take the binders and give them a second life. By the end of 2010, Region 3 had donated 2,880 pounds of binders, and an additional 2,201 pounds were slated to be donated in 2011. As more binders are identified, EPA will continue to find homes for them.

EPA locations also continued to expand the materials covered in their recycling programs. For example, the Environmental Science Center in Fort Meade, Maryland, expanded its program to cover a broader range of plastic resins, and ORD's Mid-Continent Ecology Division in Duluth, Minnesota, started recycling plastic bags (e.g., grocery bags, stretch/shrink wraps, zippered storage bags). Other locations (e.g., the Region 8 Laboratory in Golden, Colorado) shifted to single-stream recycling to make recycling easier for employees.

Recycling Up, Costs Down

As demonstrated by ORD's Western Ecology Division in Corvallis, Oregon, reducing waste benefits the pocketbook. This location has achieved a 52-percent waste diversion rate, which has allowed it to eliminate one of its large refuse containers and save $2,700 per year in waste collection, hauling and disposal costs.

Also, six EPA locations (see adjacent sidebar) implemented new compostable waste collection programs, bringing the total number of EPA locations that operate such programs to 16. Collectively, these 16 locations diverted at least 198 tons of organic material from landfills in FY 2010. In addition to creating new programs, EPA took action to improve its existing composting programs. For example, both the Region 9 Office in San Francisco, California, and the Region 10 Office in Seattle, Washington, increased the number of composting bins available throughout their facilities. Additionally, the RTP facility in North Carolina performed a waste assessment in February 2010 to determine how much food waste is erroneously tossed into landfill-bound trash cans. After literally picking through the trash, RTP learned that food waste still represents a significant portion of its landfill waste stream, which prompted staff to improve composting signage at RTP's onsite cafeteria and conduct three coaching sessions at tray drop-off areas.

New Compostable Waste Collection Programs

Between April and July 2010, EPA's Potomac Yard facility in Arlington, Virginia, piloted a compostable waste collection program on two floors of the facility's North Building and three floors of the South Building. The program quickly proved its merit, which prompted EPA to pursue facilitywide implementation in September 2010. Employees are encouraged to collect all types of food waste (e.g., meat, bones, eggshells) and a variety of other compostable material (e.g., plants, waxed cardboard, pizza boxes, napkins, paper towels, plates, biodegradable utensils, coffee grounds). Compostable waste is collected from the pantries, and paper towels are collected from the restrooms. Between May and December, the facility composted more than 9 tons of material — impressive results for a fledgling program.

Other EPA locations that launched compostable waste collection programs in 2010 include the Region 6 Laboratory (Houston, Texas); the Region 8 Office (Denver, Colorado); the Region 8 Laboratory (Golden, Colorado); the Region 9 Laboratory (Richmond, California); and ORD's Gulf Ecology Division (Gulf Breeze, Florida).

Construction and Demolition Debris Can Be an Asset

EO 13514 indicates that federal agencies should be diverting at least 50 percent of their construction and demolition debris by the end of FY 2015. EPA intends to meet (and hopefully surpass) that goal. The following are examples of salvage and recycling efforts that EPA locations pursued in 2010.

ORD's Gulf Ecology Division in Gulf Breeze, Florida, recently collaborated with the Escambia County Marine Resources Division to convert "trash" into a valuable community resource. Over the span of a few years, this EPA facility dismantled an old building slab and a pier, accumulating more than 40 tons of concrete debris in the process. EPA chose to use the material to construct an artificial marine reef rather than depositing it in a landfill. The new reef provides habitat for thousands of fish, crabs and other marine life, and it also benefits the community by offering a destination for recreational fishermen, snorkelers and divers. Honoring one of the Agency's best and brightest, the reef has been named after Captain Robert L. Quarles, an aquatic biologist and nature enthusiast who passed away in December 2010 after battling a long illness.

As another example, the Region 10 Manchester Laboratory in Port Orchard, Washington, recently demonstrated that construction and demolition debris can be an asset rather than a liability when it renovated its biology wing. Before work started, EPA instructed its contractor to salvage and recycle debris to the maximum extent possible. Demolition activities began in June 2010, construction was completed in early 2011, and 70.5 tons of construction and demolition debris (e.g., concrete, scrap metal, drywall) were generated in the process. Of that total, 27.06 tons were salvaged (at a profit of $4,845), 11.09 tons were recycled (at a cost of only $325), and the remaining 32.34 tons were landfilled (at a cost of $3,327). As the numbers show, responsible waste management can be lucrative, as a $1,193 profit remained after recycling and landfill costs were paid. In contrast, estimates suggest that a net cost of $4,372 would have resulted if all 70.5 tons of debris had been sent to the landfill.

Responsible reuse and recycling practices are also being implemented at OAR's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan, which is conducting a multiyear construction project. During an early phase of the project, a 30-year old structure was dismantled using heavy construction equipment that left huge ruts in the lawn and damaged the facility's access road. Concrete, dirt and asphalt debris were generated

In 2010, an artificial reef (constructed in part with EPA-donated concrete debris) was named in honor of the late Captain Robert L. Quarles. Bob is pictured here doing what he loved best — surveying, protecting and interacting with the great outdoors. He will be remembered for his commitment to EPA's mission, his love of nature, and the camaraderie and enthusiasm he shared with his EPA teammates.

in the process. EPA reused the dirt to fill ruts and soften the transition between the lawn and access road and used the asphalt debris to repave parts of the access road and parking lot. The concrete was collected, ground up and put to use for projects involving other customers. In total, 728 cubic yards of dirt, 140 cubic yards of asphalt and 168 cubic yards of concrete were reused or recycled in FY 2010.

The Region 1 Laboratory in Chelmsford, Massachusetts, continued expanding its use of solid phase extraction (SPE) in high-performance liquid chromatography (HPLC) analysis in 2010. (While SPE uses 12 milliliters of methanol to extract samples, more traditional extraction methods use about 180 milliliters of methylene chloride.) Also, the laboratory started using a cyanide microdistillation system (resulting in a 90-percent reduction in the amount of sample and reagent used for cyanide analyses) and initiated efforts to replace an HPLC with a new ultra-high performance liquid chromatography (another development that will lead to substantial reductions in solvent use).

Reductions in Chemical Use

EO 13514 also speaks of the importance of reducing chemical use, an objective that EPA laboratories have been pursuing for many years. In 2010, the Region 1 Laboratory in Chelmsford, Massachusetts, continued to make progress in this regard (as detailed in the adjacent sidebar), as did the Region 8 Laboratory in Golden, Colorado, which implemented new analytical methods that use less solvent and reagent. Also, the Region 4 Laboratory in Athens, Georgia, awarded one of its employees for her efforts to establish a chemical adoption program. With this addition, EPA now has 12 laboratories that have established a mechanism to donate unwanted chemicals to educational institutions, government agencies or businesses before the chemicals expire and become hazardous waste. Chemical adoption programs help reduce the Agency's waste disposal costs and foster good relations with local community organizations, which appreciate EPA's willingness to donate the chemicals. As EPA's chemical use and waste generation decreases, so does the potential for employees to be exposed to toxic chemicals. Thus, as is so often the case, actions that benefit the environment translate directly to human health benefits, too.

Curbing the Negative Impact of Transportation

EPA continued taking action to reduce transportation-related environmental and safety concerns. To reduce pollutants and GHG emissions, EPA supported more environmentally sustainable commuting options, laid the groundwork to reduce business travel, and continued greening the Agency's fleet. As for safety, EPA raised awareness about the dangers of texting while driving and offered motor vehicle safety training to minimize employees' risk behind the wheel.

Responsible Commuting

EO 13514's focus on Scope 3 GHG emissions has reinvigorated interest across the federal government in identifying low-carbon employee commuting options. Thankfully, EPA's commitment to this topic predates the executive order, as the Agency has long recognized the connection that exists between commuting, environmental impacts and quality of life. Nevertheless, the Agency understands that more aggressive actions will need to be taken in the future, as employee commuting accounts for a significant portion of the Agency's Scope 3 GHG emissions.

The Region 10 Office in Seattle, Washington, encourages employees to bike to work. For the past seven years, it has participated in National Bike Month, which occurs every May. In 2010, 90 Region 10 employees committed to ride their bikes to work for at least five days in May. Collectively, they made 832 bike trips and covered 8,860 miles over the course of the month.

Leading by example, on May 17, 2010 (National Bike-to-Work Day), Region 10 Administrator Dennis McLerran and his cycling colleagues (pictured above) convened at a central location, formed an EPA peloton and cycled to City Hall for a Bike-to-Work Rally. Mr. McLerran delivered remarks on EPA's behalf at the rally.

In 2010, more than half of EPA's employees used alternative transportation to at least some extent. EPA encouraged the use of public transportation via transit subsidy programs — providing discounted rates or free passes to those who used mass transit options — and continued to explore opportunities to expand flexiplace and telework programs. EPA also encouraged employees to carpool. For example, the Region 4 Office in Atlanta, Georgia, offered free parking to carpoolers, and the Region 6 Office in Dallas, Texas, which offers free transit passes to employees, provided reimbursements for organized carpools. Region 7 in Kansas City, Kansas, provided covered parking spaces for carpools and posted an online mapping tool that helps employees identify colleagues who wish to join carpools.

Several EPA locations also continued to encourage employees to bike to work, an activity that benefits the environment and contributes to employee well-being and health. As many as 125 employees from the Region 5 Office and Region 5 Laboratory biked to work in Chicago, Illinois, in 2010, and 90 employees from EPA's Region 10 Office in Seattle, Washington, participated in a bike-to-work campaign (see adjacent sidebar). The success of biking programs depends heavily on the availability of bike-friendly infrastructure within the larger community, but EPA does strive to support interested employees. EPA's National Enforcement Investigations Center in Denver, Colorado, gives out small prizes (e.g., water bottles, gift cards to Whole Foods) to those who bike to work. Additionally, the RTP facility in North Carolina offers covered bike racks and overnight lockers to registered bike commuters and provides access to a bicycle coordinator who helps identify safe bike routes.

Shuttle buses help transport employees between buildings at the Agency's larger facilities, such as the RTP facility in North Carolina. In 2010, RTP replaced the diesel shuttle buses that it had been leasing from GSA with biodiesel-electric hybrid shuttle buses. RTP estimates that the new shuttle buses offer increased fuel efficiency and produce 80 percent fewer emissions.

Travel Less, Travel Greener

EPA employees drive and fly thousands of miles a year on the Agency's behalf, traveling to and from field and emergency response sites, attending training, and participating in meetings. Emissions from EPA's vehicle fleet accounted for 3 percent of the Agency's combined Scope 1 and 2 GHGs in FY 2008, and non-fleet employee business travel (e.g., air transport, rental cars) accounted for a significant portion of EPA's total Scope 3 GHG emissions. To reduce these impacts, EPA is striving to travel less and support greener traveling options.

Although EPA experienced an unexpected increase in air travel in 2010, the Agency positioned itself to reverse that trend by increasing the number and use of videoconferencing, teleconferencing and/or Internet-based tools (e.g., webinars). The Region 6 Office in Dallas, Texas, purchased two videoconferencing units; the Region 7 Office in Kansas City, Kansas, purchased three; the Region 8 Field Office in Helena, Montana, upgraded its existing videoconferencing capabilities; and the Region 2 Office in New York City set up more videoconferencing rooms to reduce traveling needs. EPA managers also took action to reduce air travel. For example, in July 2010, the Region 10 Administrator issued a policy letter asking staff to reduce air travel, inspiring a 6-percent reduction in FY 2010.

EPA also continued to green its vehicle fleet, an effort that involved right-sizing the fleet, decommissioning old vehicles and replacing them with alternative fuel vehicles (AFVs) and/or models that offer superior gas mileage (e.g., hybrid-electrics), and increasing the use of alternative fuel in flex-fuel AFVs. The adjacent sidebar provides an example of one region's efforts in this regard. As for EPA as a whole, the Agency continued to exceed requirements put forth for:

- **AFV acquisitions.** The Energy Policy Act of 1992 requires federal agencies to ensure that at least 75 percent of their nonexempt vehicle acquisitions are AFVs. After factoring in credits, EPA reported a 107 percent compliance rate for this metric in FY 2010.
- **Petroleum use reductions.** EO 13423 and EO 13514 require federal agencies to reduce their petroleum consumption by 2 percent each year, using FY 2005 as a baseline. EO 13514 states that reductions must be achieved through FY 2020, which translates to a 30-percent reduction over a 15-year period. EPA is ahead of the curve in meeting this goal. Although EPA was only required to be at the 10-percent reduction mark by the end of FY 2010, its petroleum fuel use was 24.9 percent lower than its 2005 baseline.

Region 7's Green Fleet

In 2010, Region 7 analyzed its fleet operations to determine where its vehicles were going and the relative split between city and highway miles. The analysis helped Region 7:

- Identify its most common driving "corridors"
- Make better decisions about which type of vehicle to assign for specific trips
- Optimize the regional fleet to achieve a better balance between E85 flex-fuel vehicles and hybrid-electric vehicles

Also in 2010, the region moved forward to fully implement its E85 Gallon Club, a group of about 30 employees who have formally committed to use E85 whenever it is practical to do so. Flex-fuel vehicles are preferentially assigned to Gallon Club members, who are sent into the field with GPS equipment that is preprogrammed to identify E85 fueling stations. In return, Gallon Club members receive nonmonetary awards (e.g., signed certificates, corn-based plastic travel mugs and fleece jackets made from recycled plastic bottles) as they pass specific E85 purchase goals.

The region also maintained a kiosk throughout 2010 to help drivers with pre-trip planning. The kiosk is stocked with maps that identify E85 fueling stations along the region's most commonly driven corridors, and it features a large wall map that shows the approximate location of every E85 fueling station in the region. The kiosk is also equipped with a dedicated computer that develops custom route maps using the Department of Energy's Alternative Fueling Station Locator website.

The region's collective efforts to green its fleet have been successful. E85 purchases increased by 16 percent between FY 2009 and FY 2010, even as the region decreased the number of E85-capable vehicles in its fleet. Additionally, the increased use of hybrid-electrics (with their higher miles per gallon), coupled with the increased use of E85, allowed Region 7 to reduce its fleet-related GHG emissions by 4 percent between FY 2009 and FY 2010, even though the number of miles driven was nearly identical between the two years.

EO 13423 also requires federal agencies to increase their use of alternative fuel by 10 percent annually. EPA fell short of this goal in 2010, primarily due to a lack of adequate alternative fuel infrastructure. To improve performance, the Agency launched the Alternative Fuel Compliance Emphasis Program in August 2010, which calls for better pre-trip planning, communication and tracking procedures. The program emphasizes the importance of communicating with drivers before they leave EPA's premises to help them identify alternative fuel stations along their projected travel routes.

Staying Safe Behind the Wheel

EPA continued to offer online National Safety Council driver safety training, which 431 employees completed in FY 2010. The Agency also continued to reinforce EO 13513, *Federal Leadership on Reducing Text Messaging While Driving*. Early in the year, EPA reminded senior managers of their obligation to support the executive order and to ensure that employees are not texting behind the wheel. The Agency also incorporated information about EO 13513 into its *Motor Vehicle Operator Responsibilities Form*, a document that employees sign to verify that they understand what is expected of them when they drive on EPA's behalf. Individual EPA facilities continued to promote seat belt use, either by including seat belt reminders in their vehicle checkout process, delivering reminders via email, mentioning the importance of seat belts during annual field safety refresher training, or asking onsite security guards to track and enforce seat belt use.

Management Systems Pave the Way for Progressive Performance

We live in challenging times, which makes it more important than ever for organizations — public and private alike — to find ways to operate more efficiently, productively and responsibly. At EPA, we aim to meet these objectives by operating as sustainably and safely as possible. Over the long term, EPA's environmental stewardship efforts will help reduce water, energy and waste hauling costs, while simultaneously allowing the Agency to achieve environmental goals that the White House and Congress have put forth for federal agencies. Similarly, efforts to prevent job-related injuries and illnesses and promote health and wellness will help EPA reduce workers' compensation costs, enhance employee productivity and retain its talented workforce. Quite simply, EPA becomes stronger and more efficient as its workforce continues to integrate safety, health and environmental considerations more fully into daily operations. Continual improvement is the objective, and EPA believes that safety and health management systems (SHMSs), environmental management systems (EMSs) and annual self-assessments will propel the Agency forward on a progressive course.

SHMS Moves to Center Stage

A SHMS is a management approach that integrates safety and health considerations into all levels of operational, planning and management decisions. It provides a framework for identifying, minimizing and controlling hazards and risks and has the potential to improve an organization's safety and health record, raise employee morale and foster a "safety ethic" by making employees more fully aware of the responsibility they have to find and eliminate hazards and prevent accidents.

"I am committed to Environmental Management Systems as the integrating framework for sustainable management of EPA's operations and compliance with environmental and energy statutes, regulations, and executive orders. Environmental Management Systems will serve as the structure for charting our course to improve environmental performance at all levels."

— Lisa P. Jackson, EPA Administrator

EPA has instructed its major offices and laboratories to implement a SHMS that is consistent with the Occupational Health and Safety Assessment Series (OHSAS) 18001 standard. To reinvigorate dialogue on this initiative, EPA established an intranet site in 2010 that serves as a central repository for sharing SHMS tools. Additionally, a SHMS Workgroup (with representatives from most EPA program offices, regional offices and laboratories) met regularly throughout the year via conference call and convened in May 2010 for a face-to-face workshop at OAR's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. This facility holds the distinction of being the first EPA location to complete the SHMS implementation process and demonstrate compliance with the OHSAS 18001 standard.

EPA performed a gap analysis in 2010 to determine the extent to which its locations have already implemented the OHSAS 18001 standard and to identify areas where they require support to meet the standard. Also, EPA sent auditors to its major offices and laboratories to identify existing safety and health hazards and risks. In addition, EPA started developing SHMS implementation guidance and training materials, both of which will be finalized and distributed in 2011.

EMS — Reorganization Leads to Enhanced Efficiency

An EMS applies the same principles as a SHMS does, but it focuses on environmental impacts rather than safety and health impacts. EMSs have been in place at all of EPA's major offices and laboratories for several years. On February 19, 2010, Administrator Lisa P. Jackson issued *EPA's Commitment to Environmental Management Systems* to reaffirm EPA's confidence in EMS and acknowledge the role it will play in helping the Agency meet its top environmental priorities. In that document, Administrator Jackson also laid the groundwork for reorganizing the Agency's EMS structure, calling for the development of an overarching Higher-Tier EMS and Multi-Site EMSs — advancements that will allow EPA to better align its environmental policies and goals and reduce EMS-related administrative burdens.

In June 2010, EPA launched its Higher-Tier EMS, which is directed by the Administrator and supported by the Senior Sustainability Officer and a Senior Executive Steering Committee. The Higher-Tier EMS is responsible for those elements of an EMS that can be managed efficiently at the headquarters level, such as maintaining an EMS policy; providing procedural and technical guidance; establishing Agencywide EMS objectives, targets, and metrics; collecting, analyzing, and reporting Agencywide performance information; and promoting Agencywide environmental stewardship initiatives.

In September 2010, ORD established a Multi-Site EMS that covers seven of its laboratories, all of which have had facility-level EMSs in place since 2005. ORD has retained local EMS coordinators at each of the laboratories, but many of the administrative tasks that these individuals previously performed (e.g., legal reviews, development of training curricula) have been streamlined under the Multi-Site EMS and/or will now be handled centrally by ORD's lead EMS coordinator. Shifting the administrative burden away from individual facilities will allow local EMS coordinators to focus their energy on what truly matters: supporting and implementing sustainable technologies and focusing on further reductions to environmental footprints at EPA facilities.

EMS Empowers Employees

EMS has empowered employees to become better environmental stewards. Managers from several locations credit EMS with inspiring beneficial behavioral changes. For example, the EMS coordinator from the Region 6 Laboratory in Houston, Texas, said that employees are now more likely to turn off water, lights, and computers; print less; and use double-sided printing options.

Additionally, EMS aims to help employees recognize the power they have to make their workplaces more sustainable. The message is resonating, and employees are coming forward with ideas on how to improve environmental performance at their own facilities. For example, staff members at the Region 1 Laboratory in Chelmsford, Massachusetts, recently asked management to consider replacing existing parking lot lights with energy-efficient light-emitting diode products.

Also, EMS has inspired employees to seek more training, tools and information about how they can incorporate sustainable practices into their own homes and communities. To nurture this interest, the Region 9 Office in San Francisco, California, launched a *Sustainable Film Series* in 2010, and the Research Triangle Park facility in North Carolina initiated a *Greener Living Speaker Series*. The latter, a brown-bag lunchtime forum, has attracted standing-room-only crowds.

Photovoltaic window shades at the LEED Gold certified Region 1 Laboratory in Chelmsford, Massachusetts

EPA Representatives Convene in the Lone Star State

In September 2010, EPA held a SHEM Workshop in Austin, Texas, to give its safety, health, and environmental management program managers; EMS coordinators; and emergency response personnel an opportunity to share their collective experiences, identify opportunities for improvement and energize one another to achieve even stronger SHEM performance in 2011.

Self-Assessment Fosters Continual Improvement

EPA performs internal audits to identify opportunities to improve its internal SHEM performance. For example, headquarters sends auditors to each of the Agency's offices and laboratories on a three- to five-year cycle and uses the results to recommend improvements. Additionally, starting in 2010, all EPA locations were required to participate in EPA's Self-Assessment Program, which offers a standardized set of SHEM auditing tools. Although most EPA locations were already performing internal self-assessments, EPA felt it was necessary to create a comprehensive, standardized self-assessment protocol that covers occupational safety and health issues, environmental concerns, and fire and life safety issues. As instructed, each EPA location performed a self-assessment by the end of the year, had their senior manager certify its completion, and took action to correct any identified weaknesses. EPA locations will repeat this process annually.

In the quest for continual improvement, EPA monitors its facilities to ensure that they are meeting all applicable safety, health, environmental, and fire and life safety regulations, as well as EPA's internal SHEM policies.

Sharing Our Principles With the Leaders of Today and Tomorrow

Thus far, this report has focused on EPA's internal activities, highlighting the Agency's efforts to improve its own safety, health and environmental performance. While we are proud of these accomplishments, we understand that our success as an Agency hinges on our ability to share what we have learned with the public. We have an obligation to reach out to the neighbors, community leaders, business executives and school children who live and work near EPA facilities; encourage them to adopt a safety and health ethic; and inspire them to become environmental stewards. As demonstrated through the examples presented below, EPA is reaching out to the decision-makers of today (e.g., elected officials, business executives), as well as the youth who will shoulder the responsibility for our nation tomorrow.

Reaching Out to Building Co-Tenants

Many of EPA's offices are located in large buildings that house numerous tenants. In such instances, EPA strives to exhibit leadership for the whole building, educating co-tenants about sustainable principles and establishing buildingwide environmental stewardship programs. For example, at ORD's Large Lakes and Rivers Research Station in Grosse Ile, Michigan, EPA provides environmental stewardship awareness training to all of the building occupants in this multiagency facility. At the Region 8 Field Office in Helena, Montana, EPA maintains responsibility for the building's recycling program, sending emails regularly to co-tenants to educate them about the program. At the Region 4 Office in Atlanta, Georgia, EPA played a pivotal role in earning a 2010 ENERGY STAR label for the 22-tenant Sam Nunn Atlanta Federal Center, and the Agency continued to promote a buildingwide automated external defibrillator program.

On April 22, 2010, EPA headquarters set up an exhibit on the National Mall to celebrate America's 40th Earth Day. During this event, EPA communicated with the public, shared information about a variety of environmental stewardship topics, answered questions, and used games (like the Carbon Wheel pictured here) to improve the public's knowledge of environmental issues.

Serving as a Resource for Communities, Businesses and Other Agencies

EPA locations are accumulating a wealth of knowledge as they continue to make their facilities greener, safer and more healthful. The Agency is sharing what it has learned with others who are interested in following the same path. For example, the LEED Gold certified Region 1 Laboratory in Chelmsford, Massachusetts, met with the Massachusetts Department of Environmental Protection (DEP) on several occasions in 2010 to help DEP pursue its goal of achieving LEED certification for its newly constructed laboratory. Also, EPA's Region 6 Office in Dallas, Texas, formed a partnership with the local *Susan G. Komen for the Cure*® chapter to help the organization implement recycling at large events and pursue its zero-waste goal.

The RTP facility in North Carolina was pleased to learn that one of its previous student interns has been encouraging Chatham County officials to implement an EMS. In support, RTP invited county staff and elected officials to participate in an EMS presentation, a discussion session and a guided facility tour. RTP offered the same outreach services (i.e., presentation, discussion and tour) to representatives from a nearby private business that also expressed interest in greening its operations.

Educating (and Entertaining) Our Youth

Young people make excellent environmental stewards, as their energy, open-mindedness and instinctive love of nature often make them receptive to environmental causes. The nation's youth have already proven themselves to be valuable champions for a sustainable future as they strive to educate their parents about sustainable practices and serve as catalysts for change within their own homes and communities. Moreover, because today's children will be tomorrow's leaders, their influence will only increase as they progress to adulthood. EPA respects the power of youngsters and aims to equip them with the knowledge they need to become environmental ambassadors.

In April 2010, ORD's Western Ecology Division in Corvallis, Oregon, used a unique approach to communicate with middle-school students, paying heed to the well-known fact that messages resonate better with this audience when delivered in an entertaining fashion. Students from five local schools were invited to EPA's facility to participate in EPA's Earth Day Challenge, which was tailored after *Jeopardy! America's Favorite Quiz Show.*® EPA set up an electronic game board, provided buzzers and listed questions under the following categories: Climate Change, Sustainable Communities, Clean Air and Water, People and Places, Reduce-Reuse-Recycle, and Habitats and Ecosystems. The middle-school students, who participated as game show contestants, spoke highly of the event, enjoying some laughs and learning a lot about the environment in the process. The winning team received a trophy (see adjacent photo) made entirely from recycled materials, which EPA staff members cobbled together using an old salad bowl, a lamp base, a candlestick, a brass spittoon and recycled jewelry.

Trophy presented to the winner of the Western Ecology Division's Earth Day Challenge.

Also, EPA Region 3 continued to administer the Student Environmental Development Program (SEDP), a summertime environmental education and leadership development program offered to students entering the eighth grade. The region has sponsored the program in Philadelphia for 18 years; in Washington, D.C., for 11 years; and in Baltimore for two years and has also helped community organizations implement SEDP. Students attend six weeks of classes, where they learn about environmental issues relevant to their urban communities. In addition to raising environmental awareness and stewardship, the program aims to build self esteem, promote critical thinking and teamwork, demystify public speaking, promote personal and civil responsibility, and allow students to learn through hands-on experiences and field trips. Certified science teachers lead these energetic groups, but EPA representatives, local leaders, and other state and federal organizations are also invited to speak regularly to the students. At the end of the program, students develop a presentation and deliver it to friends, families, community leaders and EPA representatives. Even the last five EPA Administrators have attended these events. Upon graduating from the program, students are encouraged to disseminate their knowledge within their communities. Since its inception in 1993, more than 1,150 students have completed the SEDP, but EPA estimates that these graduates have shared their environmental knowledge with more than 150,000 people.

EPA's Kelly Leovic provides instruction to middle-school students participating in Region 3's SEDP in Baltimore.

In April 2010, EPA representatives from the Region 6 Laboratory in Houston, Texas, visited the Alief Middle School and set up a display to help children better understand ground water transport processes.

Closing Remarks and Acknowledgements

EPA is pleased with the progress it made in 2010 to promote employee well-being, maintain a safe workplace and reduce the Agency's environmental footprint. We are confident that the actions we have already taken, as well as those projected for the future, will make us a better, more efficient and more responsible organization. We have worked diligently over the years to integrate safety, health and environmental considerations into all facets of our operations, but we recognize that our journey will never be complete, as our goal is to constantly strive for continual improvement. We look forward to the journey.

EPA would like to acknowledge the following staff for contributing to this publication and for their commitment to improving the Agency's safety, health and environmental performance:

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