











2009 Accomplishments





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The U.S. Environmental Protection Agency (EPA) continued to exhibit solid performance and leadership in the areas of safety, health and environmental management throughout 2009. EPA reduced its injury and illness and lost-time disability case rates in 2009, surpassing reduction goals established by the Department of Labor. The Agency also met or exceeded several environmental goals, which allowed it to earn a green score (the highest rating) on the Office of Management and Budget (OMB) Energy Scorecard and the Environmental Stewardship Scorecard.

Moreover, in October 2009, EPA received a Presidential Award for Leadership in Federal Energy Management — one of only six federal agencies to receive this honor.

As the Designated Agency Safety and Health Official and Senior Sustainability Officer, I am pleased with the progress EPA made in 2009, and I appreciate the external recognition the Agency received. Even more importantly, I am encouraged by some of the less quantifiable improvements that continued to materialize across EPA throughout the year. For example, we observed a growing commitment to safety ethics and environmental sustainability among our more than 17,000 employees, as well as an enhanced commitment to serve in a leadership role. Throughout the year, our employees took the initiative to speak to their local communities (and other organizations) about progressive activities that EPA facilities are implementing, demonstrating the link that exists between green choices, good health and cost savings.

EPA intends to lead by example, and it is clear that our President expects no less from us. In October 2009, President Obama issued Executive Order (EO) 13514, Federal Leadership in Environmental, Energy, and Economic Performance, which established several new expectations for federal agencies, including new goals for reducing greenhouse gas emissions. The EO's message is clear: the White House expects federal agencies to set the bar in achieving sustainable solutions to environmental challenges. I am happy to report that EPA is well positioned to accept that responsibility and to meet the President's high expectations.

This publication describes activities undertaken in 2009 to promote green building principles, reduce energy and water use, foster electronics stewardship, support waste diversion programs, advance green transportation options, and protect the safety and health of employees. This report also explains what EPA has done to prepare itself to meet future goals and expectations.

I hope you enjoy reading about our 2009 accomplishments.

Craig E. Hooks

Assistant Administrator

Office of Administration and Resources Management

EPA's Framework Fosters Continual Improvement

Our nation's leaders have established safety, health and environmental management (SHEM) performance goals for federal agencies. In addition to meeting these requirements, EPA has also committed to an ongoing pursuit of continual SHEM improvement. By embracing this philosophy, the Agency acknowledges that its work will never be done when it comes to improving SHEM performance. No matter how many milestones are achieved, the Agency will continue to remain alert for emerging safety and health hazards and continue to search for new ways to reduce its environmental impact. In 2009, EPA continued to develop the framework and tools that are needed to support a paradigm of continual improvement. For example, EPA supported efforts to implement Safety and Health Management Systems (SHMSs) at individual facilities, worked on streamlining and improving EPA's existing Environmental Management Systems (EMSs), and developed self-evaluation tools to assist in identifying opportunities for improvement.

SHMS Moves Forward

EPA is encouraging each of its major offices and laboratories to develop a SHMS, a management system that promotes the integration of safety and health considerations into all levels of an organization's operational, planning and management decisions. SHMSs provide a framework for identifying, managing, eliminating, minimizing and controlling safety and health hazards.

SHMS implementation prompted OAR's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan, to reassess its workspaces and operational practices. In the process, safety and health managers determined that "unguarded rotating equipment" posed an unacceptable safety hazard to employees, which prompted them to install machine guarding equipment as shown in the picture below.



Fostering enhanced awareness, training is emphasized to help managers and employees better understand how their decisions and day-to-day actions impact the safety and wellbeing of their co-workers.

In 2009, EPA's Office of Air and Radiation (OAR) National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan, became the first EPA facility to complete the SHMS implementation process, demonstrating compliance with guidance issued by the Occupational Health and Safety Management Systems International Organization for Standardization (18001 Standard). Additional EPA locations are poised to follow this path. The Region 3 Office, the Region 5 Office and Laboratory, the Region 7 Office and Laboratory, and the Region 10 Laboratory all participated in a

SHMS implementation pilot project in 2009, and at the end of the year, EPA established a SHMS Workgroup to promote SHMS implementation even more broadly across the Agency.



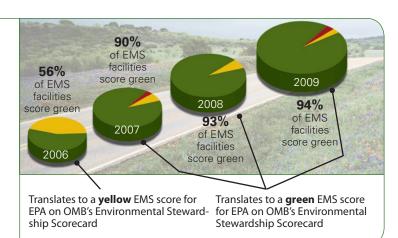
EPA employees perform a variety of activities. For example, personnel from the Office of Research and Development's Western Ecology Division Laboratory in Corvallis, Oregon (pictured above), conduct field work, analyze plant samples, and work in laboratories. EPA ensures that employees are aware of the potential hazards associated with their work, and the Agency implements controls to mitigate those hazards.

EMS Continues to Grow and Evolve

EMS programs are already established at all of EPA's major offices and laboratories. In 2009, the Agency's EMS performance earned the highest score (green) for the third year in a row on OMB's Environmental Stewardship Scorecard (see figure below). An EMS applies the same principles and processes that a SHMS does, except it focuses on mitigating environmental impacts rather than safety and health hazards. An EMS provides a framework that allows EPA to pursue sustainable environmental practices, comply with regulations, address evolving goals and measure performance. Additionally, EMS awareness training empowers EPA employees and prompts them to offer suggestions for further reducing the Agency's environmental footprint.

EMS—On the Road to Success

These charts show how the percentage of EMS facilities scoring green (the highest ranking) has increased over time. The scores are based on specific EMS performance metrics supported by the Office of the Federal Environmental Executive. The facility-level scores are rolled up to calculate an Agencywide EMS score, which is reflected on OMB's Environmental Stewardship Scorecard.



Although EMSs are already well established across EPA, the Agency worked on making improvements in 2009. For example, the Agency invited EMS coordinators to a meeting in July 2009 and asked them to recommend options for streamlining the administrative requirements associated with EMSs. Additionally, EPA made headway in developing a Higher-Tier EMS, which will serve as an overarching EMS for all of EPA and will capture responsibilities most effectively managed at the Headquarters level. Moreover, several EPA regions and the Office of Research and Development (ORD) continued to pursue the development of Multi-Site EMSs in an effort to consolidate management activities at multiple locations under one EMS umbrella.

EPA Launches the Self-Assessment Program

To support continual improvement, EPA managers must constantly ask themselves, "What steps can we take to make our workspaces safer, healthier and greener?" EPA engages in a variety of self-evaluation activities to answer this question. For example, the Office of Administration and Resources Management (OARM) conducts comprehensive SHEM audits at EPA offices, laboratories and research vessels on a three- to five-year cycle. Upon completing these audits, OARM gives the audited location a report that lists audit findings and identifies areas where actions should be taken to strengthen SHEM performance. Facilities are also expected to perform internal SHEM audits annually, and in June 2009, OARM launched the Self-Assessment Program to provide a standardized set of auditing tools for them to use. OARM offered webinar training during the summer of 2009 to explain how to use the tools. In January 2010, EPA began implementing the Self-Assessment Program. Senior managers must certify that each EPA location has completed an annual self-evaluation.



Elements Covered in the Self-Assessment Program

Examples (Not a Comprehensive List)

Occupational Safety and Health Review Elements

- Occupational Safety and Health Administration Regulations
- EPA's Facility Safety, Health and Environmental Management (FSHEM) Manual

Environmental Review Elements

- Clean Air Act
- Clean Water Act
- Resource Conservation and Recovery Act
- Toxic Substances Control Δc
- Atomic Energy Act
- Emergency Planning and Community Right-to-Know Act

Fire and Life Safety Review Elements

- National Fire Protection
 Association's Life Safety Cod
- International Building Code
- U.S. General Service Administration's Facilities Standards for the Public Buildings Service
- EPA's FSHEM Manual

Green Building

Green Building Continues to Advance

EPA continued to champion green building principles and projects throughout 2009. For example, EPA supported the integration of historical preservation and modern-day sustainability at its Region 1 Office, promoted low impact development and stormwater management techniques, and continued to build tools that will help the Agency meet — and exceed — future sustainability goals.

Introducing Modern Technologies into an Old Building

In December 2009, EPA Region 1 employees in Boston, Massachusetts, moved into the newly renovated John W. McCormack Building, a 22-story structure built in the early 1930s and considered one of the region's finest historic artdeco buildings. EPA worked with the U.S. General Services Administration to incorporate a variety of sustainable features, including energy-efficient heating and cooling systems; daylighting; double-pane, low-emissivity windows; and recycled-content building materials. New water-efficient plumbing fixtures, including dual-flush toilets and high-efficiency urinals, faucets and showers, were also installed. Additionally, a green roof with native plant species was established on the 4th and 5th floors to provide habitat for urban wildlife, mitigate stormwater runoff, reduce heating and cooling needs, and provide space for employees to enjoy fresh air. Following initial establishment, the plants on the roof will not require irrigation unless drought conditions occur, in which case, captured rainfall (stored in cisterns) will be used to support them. The building is expected to achieve Leadership in Energy and Environmental Design (LEED®) for New Construction version 2.2 Gold certification in 2010 and ENERGY STAR® certification in 2011. Planners and designers juggled diverse objectives to renovate this building; in the process, they demonstrated that green concepts can be implemented without compromising a building's historical significance.

Promoting Low Impact Development

Fulfilling one of EO 13514's expectations, EPA's Office of Water collaborated with other federal agencies to develop Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects Under Section 438 of the Energy Independence and Security Act. This document, issued in December 2009, promotes the use of low impact development, a set of practices that retains rainwater on site, protects receiving waters, and restores ground water resources. The document discusses the merits of using porous pavement; harvesting and reusing rainwater; and establishing rain gardens, vegetated swales and green roofs.

Leading by example, EPA installed green roofs at two EPA facilities in 2009 — the aforementioned John W. McCormack Building in Region 1 and ORD's Atlantic Ecology Division Laboratory in Narragansett, Rhode Island (pictured below). In addition, EPA supported an innovative project at the Region 2 Laboratory in Edison, New Jersey. At this site, EPA replaced an existing impervious parking lot with a parking area that features three different types of surfaces — porous asphalt, porous concrete and interlocking concrete pavers. Subsurface collection piping, instrumentation and storage tanks were installed so that EPA can perform cross-comparison testing of each material's efficacy in achieving ground water recharge and pollutant removal. Monitoring will be performed for up to a decade. In addition, the Edison facility installed a new, six-cell rain garden to collect roof water drainage and runoff from a portion

In 2009, ORD's Atlantic Ecology
Division Laboratory, in Narragansett,
Rhode Island, replaced its 30-year-old
roof with a green roof to reduce heating and cooling costs and stormwater
runoff. The new roof is expected to
reduce energy use by 30 percent in
the space immediately below the roof.
Excess rainwater, collected in cisterns,
will be used to water the roof's plants
during drought conditions.



of the parking lot that is still covered with impervious material. Each cell is extensively monitored with subsurface instrumentation and is being used to research different types of rain garden materials and enhancements. The data generated from Edison's porous pavement and rain garden studies will provide much-needed real-world data, which will help designers across the country maximize the efficacy of future projects by giving them information they need to make better informed choices about material selection, sizing and siting.

Paving the Path for Future Success

Over the past several years, EPA has developed a variety of tools and processes to ensure that green building principles are incorporated into all of its new construction, renovation, major repair projects and leasing agreements. EPA updated many of these tools in 2009, including its Best Practices Lease Provisions and its GreenCheck process. EPA also performed sustainability assessments at several of its facilities in 2009 to assess each one's current performance and identify possibilities for improvement. Implementing these improvements will help EPA meet EO 13514's goal of ensuring that at least 15 percent of its existing building inventory meets the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings by FY 2015. EPA is positioned to meet that goal. In fact, more than 5 percent of the buildings in EPA's current Federal Real Property Profile inventory already meet the Guiding Principles.

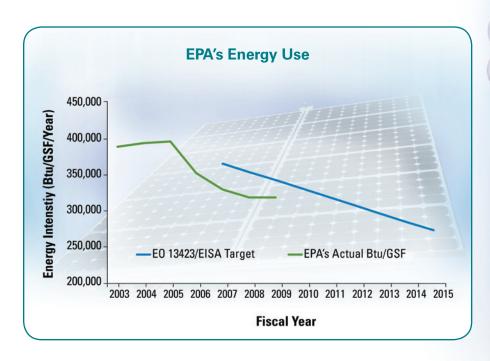


EPA Strengthens Its Energy Strategy

EPA continued to implement and expand its energy reduction strategy in 2009. The Agency upgraded equipment at EPA facilities, promoted advanced metering and supported renewable energy markets. EPA also completed energy assessments and re-commissioning evaluations at six facilities, and in the process, identified a list of potential new energy conservation projects for the Agency to consider for the future. Additionally, the Agency continued to demonstrate leadership in tracking its greenhouse gas (GHG) emissions — placing it in good position to address the GHG-related goals issued in EO 13514.

Energy Conservation — EPA Remains Ahead of the Curve

In 2009, EPA continued to exceed federal energy conservation requirements (see figure below). The Agency's overall energy intensity (a measure of total energy use per gross square foot) reported in FY 2009 was 318,050 British thermal units per gross square foot (Btu/GSF), 18.1 percent lower than its FY 2003 baseline intensity. This exceeds the 12 percent reduction goal established for this time period by EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management, and the Energy Independence and Security Act of 2007 (EISA). When green power purchases and source energy savings credits are taken into account, the Agency reduced its energy intensity 24.4 percent from the FY 2003 baseline.



Advanced Metering Strategy

The Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007 require federal agencies to institute advanced metering for electricity, steam and natural gas utilities where it is cost effective to do so. EPA is well on its way to meeting that goal and has volunteered to implement advanced metering for all energy and water utilities where cost effective. Advanced metering hardware has already been installed at many of EPA's major facilities. By the end of 2009, EPA had already captured more than 45 percent of

its energy consumption through advanced metering hardware. New installation opportunities have been identified, and in 2009, EPA started designing advanced metering hardware for the Region 1 Laboratory in Chelmsford, Massachusetts, and the Environmental Science Center in Fort Meade, Maryland, as well as multiple EPA buildings in Cincinnati, Ohio, and Research Triangle Park (RTP) in North Carolina.

EPA has also developed a national advanced metering software system, which compiles advanced metering data across the Agency and provides a Web-based, user-friendly interface for streamlined data analysis and reporting. EPA refined its software system in 2009 and released an updated version in July 2009. Comprehensive, third-party commissioning was initiated on the software system in August 2009, and an improved version was released in December 2009.

Leadership in Green Power and Renewable Energy

For more than a decade, EPA has been a leader among federal agencies in supporting the renewable energy market through its green power purchasing program. EPA signed two new Agencywide blanket contracts in March 2009,

which in combination with its eight existing contracts, enabled the Agency to purchase enough green power to offset 100 percent of its electricity use via delivered green power and renewable energy certificates (RECs) through the



What Is Advanced Metering?

EPA's advanced metering network will consist of a collection of meters that measure and record interval data at least hourly and transmit the data to a central collection point. Access to such detailed information will place the Agency in a better position to target and mitigate high energy and water use.

Region 3 Installs ENERGY STAR Equipment

The Region 3 Office in Philadelphia, Pennsylvania, provides hot and cold drinking water to employees. In 2009, the facility replaced 18 of its water dispensers with ENERGY STAR–rated units that use significantly less energy. This change is expected to save 6,500 kilowatt hours per year, which will translate to \$2,300 in annual savings and prevent 10 metric tons of carbon dioxide from entering the atmosphere each year.

ORD's Large Lakes and Rivers Research Station in Grosse Ile, Michigan, reduced its FY 2009 energy use by 13 percent compared to FY 2008. This energy savings is directly attributed to a heating system central plant upgrade that was completed in February 2009.

end of FY 2009. Later in the year, EPA procured three additional green power contracts to further extend its support for the renewable energy market through FY 2011.

EPA also commissioned a feasibility study in 2009 to assess the potential for generating onsite renewable energy at EPA laboratories. Completed in September 2009, the study evaluated solar, wind and ground source heat pumps and concluded that EPA could generate 9.8 percent of its energy needs through onsite renewables. The study confirmed that ground source heat pumps are the most economical renewable technology for EPA to pursue.

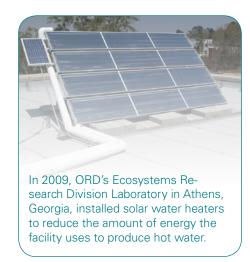
Tracking and Reducing GHG Emissions

EPA's Climate Leaders Program challenges businesses and other organizations to establish a GHG inventory, set reduction goals, and develop comprehensive climate change strategies. As the program's creator, EPA demonstrated its commitment to "walk the talk" in May 2009 when it became an official Climate Leaders partner. EPA also improved the scope and detail of its GHG emissions inventory in 2009, as well as its comprehensive inventory management plan, which offers a transparent and comprehensive record of the data sources and methodology that EPA uses to quantify its GHG emissions. EPA's efforts to quantify its GHG emissions will give it a tremendous lead in implementing the GHG-related requirements of EO 13514.





In 2009, EPA initiated a number of pilot projects to reduce air flow and energy use at the New Main Campus Laboratory at the Agency's RTP facility in North Carolina. These efforts included retrofitting fume hoods, replacing variable air volume box components, and modifying temperature tracking controls, which resulted in a 4.9-percent reduction in energy intensity in FY 2009.



GHG Emissions Are Already Decreasing

EPA has been tracking its Scope 1 and Scope 2 GHG emissions since FY 2003. (Scope 1 represents direct GHGs from sources that EPA owns or controls, and Scope 2 represents GHGs generated to support EPA's electricity, heat or steam purchases.) A comparison of the FY 2009 data against the FY 2003 baseline suggests that EPA's energy-efficiency projects have already led to a 10-percent decrease in Scope 1 and 2 emissions. The reduction is even more impressive — 61 percent — if the Agency's purchase of green power and RECs is taken into account, an approach allowed under the Climate Leaders reporting methodology.

Electronics Stewardship Enjoys Continued Success

The Agency has established a firm foundation for its electronics steward-ship program, and in 2009, the Agency demonstrated strong performance in the areas of green electronics acquisition, energy efficiency, and end-of-life management. The Agency's success in these areas earned it a green score (the highest offered) in electronics stewardship on OMB's Environmental Stewardship Scorecard.

EPA Embraces Green Acquisition as Standard Practice

More than 99 percent of the desktops, laptops and monitors that the Agency purchased or leased in 2009 were registered under the Electronic Products Environmental Assessment Tool (EPEAT), a system used to identify environmentally preferable electronics equipment. In fact, the majority of the Agency's acquisitions met the prestigious Gold standard, a designation reserved for products that meet EPEAT's highest tier of environmental performance.

Several factors enabled the Agency to achieve success. First, EPA's green purchasing plan requires all newly acquired computers to be both EPEAT registered and ENERGY STAR qualified. Second, EPA ensures that green acquisition stipulations are incorporated into contracts, such as the one implemented in 2008 to provide computers and information technology services to EPA Headquarters and laboratories. Third, EPA conducts quarterly green purchasing training for contracting officers to promote the purchase of EPEAT-registered products.



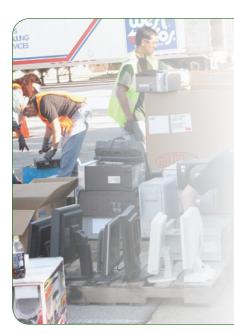
Power Management Settings Enable Energy Savings

EPA continued to increase the energy efficiency of its electronics equipment in 2009 and to ensure that employees power down their computers at the end of the day. At the end of 2009, power management features were enabled on more than 95 percent of EPA's computers, laptops and monitors. All of EPA's facilities have developed plans to enable power management and other environmentally preferable features on their equipment, as required by EO 13514. In November 2009, EPA piloted a software solution to ensure the enforcement of appropriate power management settings across the Agency. EPA also provided training to EMS coordinators in 2009 to promote power management.

Old Equipment Finds New Life or Gets Recycled

All of the computers that EPA removed from service in 2009 were handled in an environmentally responsible manner. Many of the computers got a second life, either through redistribution to other locations within EPA or through donations made to external organizations and schools through the Computers for Learning Program. In fact, 79 percent of the computers removed from service in 2009 were reused. The remaining 21 percent were recycled. EPA continued to provide training to property managers on best practices for end-of-life disposal, as well as to encourage offices to participate in the Computers for Learning Program.





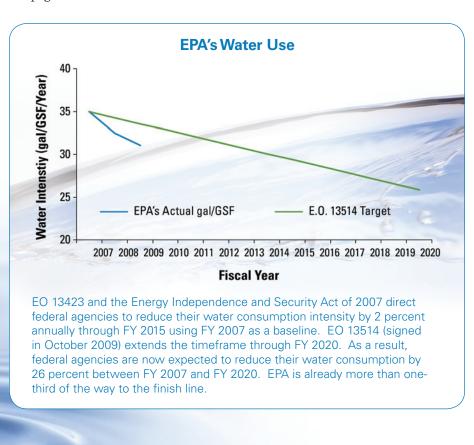
EPA Helps Organize a Multi-Organizational Electronics Collection Drive

The Agency's RTP facility is located in a large science park in North Carolina that provides office space to multiple companies and organizations. Working with the broader RTP community, EPA has joined forces with neighboring companies to organize a biannual electronics drive. The drive provides science park employees with an opportunity to dispose of their personal electronics (from home) in an environmentally responsible manner.

During the 2009 collection events, the RTP community donated 1,402 items, amounting to 86,729 pounds of equipment. EPA employees were responsible for 10,896 pounds of that total (or about 12.5 percent). The donated equipment was given to Kramden Institute, a local nonprofit organization that examined the donated items to identify salvageable items that could be refurbished for local schools. The remainder was recycled by Global Electric Electronic Processing, a company that ensures that obsolete electronics are recycled in an environmentally responsible manner.

Water Savings Surpass Expectations

Based on existing federal water conservation goals, EPA was required to reduce water intensity by 4 percent between FY 2007 and FY 2009. The Agency surpassed this target, achieving a reduction of 11.3 percent over the specified time period (see figure below). Such performance validates the strength of EPA's Water Conservation Strategic Plan, a document that prioritizes EPA's water conservation initiatives and outlines a timetable for completing projects at specific facilities. Some of the projects that were conducted in 2009 are described in the pages that follow.



EPA continued to implement condensate recovery projects in 2009. One successful strategy involves capturing air handler condensate and using it as cooling tower make-up water. The Environmental Science Center in Fort Meade, Maryland, which houses the Region 3 Laboratory and the Office of Chemical Safety and Pollution Prevention's microbiology laboratory branch, installed a system in June 2009 to reduce the amount of potable water used to support its cooling tower. Initial engineering evaluations estimate that the new system has an annual capture capacity of 660,000 gallons. If such estimates prove to be true, reductions in the facility's water bill would allow the facility to recoup project installation costs in less than one year. In late 2009, the facility also completed a project to redirect clean steam condensate from building humidification, which will result in additional savings. Also in 2009, EPA started laying the groundwork for a condensate recovery system at the New Main Campus Laboratory at RTP. Estimates suggest that this system will capture and recover 6 to 8 million gallons of water annually.

EPA encourages facilities to replace or retrofit their lavatory faucets with high-efficiency models that use less water. This initiative, launched in 2008, continued to enjoy wide support throughout 2009. Seven EPA facilities completed the replacements/retrofits in calendar year 2009, and their efforts are expected to save EPA more than 160,000 gallons of water per year. EPA also reduced the amount of water used in toilets and urinals. For example, OAR's National





Saving Water and Money in the Desert

ORD's National Exposure Research Laboratory leases space from the University of Nevada, Las Vegas (UNLV), which is located in a desert environment. Responding to concerns about water shortages, the Southern Nevada Water Authority (SNWA) has started offering rebates to organizations that convert high-maintenance lawn turf into desert landscapes. In response, EPA worked with UNLV to convert 120,000 square feet of turf into desert landscape, a change that is estimated to save 6.6 million gallons of water a year. The photos above show the facility before and after the conversion. Installation of the new landscape was completed during the last few weeks of 2008, which allowed UNLV to start reaping cost savings (in the form of lower water bills) in 2009. UNLV was also able to capitalize on the SNWA rebate program, which reimbursed the university approximately \$180,000 for its efforts.

Air and Radiation Environmental Laboratory in Montgomery, Alabama, retrofitted old toilets, urinals and faucets — improvements that will translate to at least 90,000 gallons of annual water savings. As another example, restroom renovations implemented in 2009 at OAR's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan, are expected to save 180,000 gallons of water per year.

EPA also reduced the amount of water used to support laboratory operations in 2009. For example, the Region 7 Laboratory in Kansas City, Kansas, replaced its existing liquid-ring vacuum pump with a closed-loop system, which is expected to save 800,000 gallons of water per year. In addition, the Environmental Science Center in Fort Meade, Maryland, and the Andrew W. Breidenbach Environmental Research Center (AWBERC) in Cincinnati, Ohio, both retrofitted their steam sterilizers in 2009, an improvement that is expected to save 1.4 million gallons of water per year annually.

EPA is confident that it will continue to achieve additional water savings in future years. Several water conservation projects are already in the queue, and efforts to identify additional watersaving opportunities are ongoing. With regard to the latter, EPA conducted water assessments at multiple facilities (see sidebar) in 2009, evaluating them against the Federal Energy Management Program's water efficiency best management practices (BMPs) as well as EPA's laboratory-specific BMPs. These assessments support the Agency's goal of pursuing continual improvement.



EPA has been performing water assessments and developing water management plans for its facilities for many years, which placed it in good position to meet the water assessment requirements mandated under the Energy Independence and Security Act of 2007. The following facilities were assessed in FY 2009:

- The Region 1 Laboratory in Chelmsford, Massachusetts.
- The Environmental Science Center in Fort Meade, Maryland.
- AWBERC and the Annex II building, both in Cincinnati, Ohio.
- The New Main Campus Laboratory and the National Computer Center, both in RTP, North Carolina.
- The Human Studies Facility in Chapel Hill, North Carolina.
- ORD's Mid-Continent Ecology Division Laboratory in Duluth, Minnesota.
- ORD's Gulf Ecology Division Laboratory in Gulf Breeze, Florida.
- OAR's National Air and Radiation Environmental Laboratory in Montgomery, Alabama.

EPA used the information gleaned from its assessments to produce a list of water conservation opportunities, which the Agency submitted to the Federal Energy Management Program. EPA also completed detailed water management plans for the following facilities in 2009:

- The Environmental Science Center in Fort Meade, Maryland.
- The Region 7 Laboratory in Kansas City, Kansas.
- The Center Hill Facility and the Testing and Evaluation Center in Cincinnati, Ohio.

EPA Strives to Reduce Its Waste Stream

EPA improved its solid waste diversion performance in 2009, achieving an estimated 51 percent waste diversion rate. Such progress came as no surprise given the extensive work the Agency performed over the course of the year to enhance waste diversion programs across the country.

Late in 2008, EPA developed an array of tools and resources, collectively named Strive for 45, to help facilities revitalize their waste diversion programs and achieve a 45 percent waste diversion goal. In 2009, Strive for 45 became fully operational, and an intranet site was developed to support the initiative. EPA facilities received information on recycling best practices, progressive waste reduction strategies, and suggestions on how to improve data collection and reporting mechanisms. They were also invited to participate in an Agencywide recycling competition called the Recycling Rally, which was held from January to June 2009. The rally was a tremendous success. Seventeen EPA facilities participated, each submitting monthly recycling and trash data (if available). The cumulative waste diversion rate of the participating EPA facilities increased from 52 to 66 percent during the competition, thanks to the addition of new materials to recycling programs, new employee outreach strategies and improved data measurement. Moreover, some EPA locations (see sidebar on page 18) shattered the 45 percent waste diversion goal, achieving diversion rates in the 70 or 80 percent range.



And the Winner is...

At the conclusion of the Recycling Rally, OAR's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan, prevailed as the Waste Diversion Grand Champion with an 82 percent waste diversion rate. Awards were also given to:

- **Region 1.** Representatives from the regional office and laboratory implemented *Strive for 75*, raising the bar on the competition. They met their goal and achieved a waste diversion rate of 76 percent.
- Region 9. Both the regional office and laboratory exhibited excellent performance during the rally. The former achieved a waste diversion rate of 80 percent, and the latter received recognition for showing the most improvement among EPA laboratories. The Region 9 Laboratory credited much of its success to outreach.
- ORD's Mid-Continent Ecology Division Laboratory in Duluth, Minnesota. This location achieved a 79 percent waste diversion rate during the rally. As an added bonus, this location's recycling program provides an opportunity for EPA to partner with local schools and interface with the public. During the school year, students participating in the school's Work Experience Program (WEP) spend four to six hours a week at EPA collecting and moving recycled materials from collection points to a central holding area. The WEP gives students with disabilities work experience and an opportunity to be evaluated for future training or potential job skills.

EPA also placed emphasis on obtaining more accurate and comprehensive recycling data in 2009. Toward that end, multiple EPA facilities signed new contracts with waste and recycling haulers in 2009 to ensure accurate data tracking. For example, the Region 6 Laboratory in Houston, Texas, established a contract with a recycling pick-up service capable of providing detailed tonnage data. In addition, the RTP facility in North Carolina began tracking landfill waste tipping weights under its custodial contract, which provided the data necessary to quantify the facility's waste diversion rate.

EPA facilities also continued to expand the scope of materials covered in their waste reduction strategies. For example, EPA Headquarters started recycling plastic bags, an endeavor that coincided with the local city council's decision to tax plastic bags to prevent river pollution. The Region 4 Office in Atlanta,



Georgia, launched a program to recycle old furniture and other metal office furnishings. About 1,200 pounds of metal was collected and given to a local

recycling company as part of that effort. In addition, ORD's Gulf Ecology Division Laboratory in Gulf Breeze, Florida, initiated efforts to collect candy wrappers and other product packaging (e.g., tape dispensers, cereal boxes and chip bags) and sent the collected materials to TerraCycle, a company that converts trash into useful products, such as hair bows and bookbags.

Composting also continued to take hold across the Agency. ORD's Western Ecology Division Laboratory in Corvallis, Oregon, launched a new composting program in 2009, and the Agency's RTP facility in North Carolina expanded its existing program by implementing vermicomposting at an onsite daycare center. In addition to these two locations, seven other EPA locations continued to compost organic waste throughout the year, diverting an estimated 185 tons of organic material across the Agency in FY 2009.



EPA attracts employees who are passionate about environmental issues. In many cases, employees approach management and offer to take the lead in implementing a sustainable practice. Such was the case in 2009 at the Office of Chemical Safety and Pollution Prevention's Environmental Chemistry Laboratory in Bay St. Louis, Mississippi, when Jeremy Stewart brought a bucket to work and asked his 10 co-workers to deposit food waste in it. On a periodic basis. Mr. Stewart brings the bucket home and adds the contents to his own personal compost pile.

Reducing Chemical Use in EPA Laboratories

EPA laboratories have implemented numerous strategies to reduce their use of toxic chemicals. For example, the Region 4 Laboratory in Athens, Georgia, recently upgraded its autosampler, which has reduced nitric acid waste generation by about 20 milliliters per sample. The Region 5 Laboratory in Chicago, Illinois, started using a new discrete analyzer (in lieu of its Lachat autoanalyzer) in 2009 to assess samples for cyanide, nitrate-nitrite, total kjeldahl nitrogen and total phosphorus. The new equipment uses about 100 times less sample and reagent and generates about 100 times less waste than the Lachat autoanalyzer. In 2009, the Region 5 Laboratory installed more efficient autosamplers in front of three inductively coupled plasma units, a change that led to reductions in sample size and waste generation.

EPA laboratories have also strengthened their chemical management systems by 1) establishing controls on chemical procurement, 2) tracking chemicals once they enter the laboratory, and 3) ensuring that chemicals are used up or "adopted out" before they expire and become hazardous waste. For example, by the end of 2009, 12 of EPA's major laboratories had implemented "chemical adoption programs," including five regional laboratories (i.e., Regions 3, 4, 5, 7, and 8); OAR's Radiation and Indoor Environments National Laboratory in Las Vegas, Nevada; and ORD laboratories located in Rhode Island, North Carolina, Florida, Georgia, Minnesota, and Nevada. Such programs allow EPA to donate unneeded or unwanted chemicals to local high schools, universities and other organizations, where they can be productively and safely used.



EPA Promotes Safer and Greener Transportation

EPA employees drive thousands of miles per year, traveling to public meetings and field sites, driving between EPA facilities, and supporting emergency response activities. Such mobility poses a safety and environmental concern. When employees get behind the wheel, they have the potential to be in serious accidents, and they also contribute pollutants and GHGs to the environment. For these reasons, the Agency regards transportation to be a key issue requiring strong leadership, from both a safety and an environmental perspective.

Roadway Safety Remains a Top Priority

In 2009, EPA continued to provide access to an online driver safety training program developed by the National Safety Council. The Agency also continued to build awareness about driver safety by releasing a safety bulletin in April 2009 called *Work-Related Motor Vehicle Safety* — released as part of the Agency's

Injury and Illness Prevention Program. At the end of the year, EPA launched an outreach campaign to alert senior managers and EPA employees of the President's decision (issued via EO 13513) to prohibit employees from text messaging when driving on the government's behalf. EPA fully supports this ban, as text messaging is a hazardous practice that causes drivers to take their eyes off the road and remove at least one hand from the steering wheel.



The White House issued EO 13513, Federal Leadership on Reducing Text Messaging While Driving, in October 2009. EPA immediately launched an outreach campaign to educate employees about the EO, which prohibits federal employees from text messaging when they are driving government-owned, -leased, or -rented vehicles or privately owned vehicles (POVs) on official government business. The EO also prohibits the use of government-supplied electronic devices when employees are driving in their POVs, even during off-duty hours.

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EPA Targets the Environmental Impacts of Job-Related Travel and Employee Commuting

EPA maintains a fleet of vehicles that employees drive to conduct Agency business. Both EO 13423 and EO 13514 require federal agencies to reduce petroleum consumption in vehicle fleets by 2 percent each year, using FY 2005 as the baseline for tracking progress. EO 13423 requires reductions through FY 2015, which translates to a 20-percent required reduction over the specified time period; EO 13514 extends the requirement through FY 2020, raising the bar to a 30-percent required reduction. EPA has met EO 13423's end goal a full six years ahead of schedule and is well positioned to meet EO 13514's expectations. In FY 2009, the Agency's vehicle fleet petroleum consumption was 23 percent lower than the FY 2005 consumption level.

EPA's success can be attributed to several factors. When possible, the Agency reduces the amount of driving that employees perform. Some EPA locations, such as the Region 2 Office in New York City, are using videoconferencing to cut down on travel. The Agency continues to decommission large vehicles and replace them with more fuel-efficient models, including alternative fuel vehicles (e.g., E85 models, compressed natural gas vehicles and hybrid electric vehicles). In FY 2009, EPA acquired 125 alternative fuel vehicles, exceeding the acquisition goals established under the Energy Policy Act of 1992. The Agency increased its use of alternative fuel by nearly 30 percent over the course of the year, consuming 51,133 gasoline gallon equivalents in FY 2009, which helped offset petroleum use.

The Region 4 Office Increases Its Alternative Fuel Use

Although EPA's alternative fuel use has risen substantially over the past two years, the Agency has encountered challenges in this area. Infrastructure issues are a significant problem. The Agency's flex-fuel vehicles run on either alternative fuel or conventional fuel (gasoline) and drivers are forced to choose the latter if they cannot locate a refueling station that sells alternative fuel.

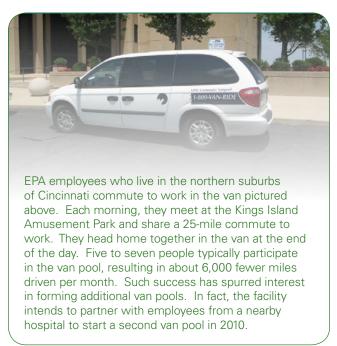
The Region 4 Office in Atlanta, Georgia, has been aggressive in addressing this challenge, and it increased its E85 fuel use from 1,440 gallons to 7,346 gallons between FY 2007 and FY 2009 — an increase of more than 400 percent. Education, modern technology and commitment are cited as key ingredients to this location's success. Persistent message delivery is part of the strategy. Employees are instructed to choose E85 fuel over gasoline whenever

possible, and they are told to limit their purchase of gasoline to the bare minimum if they find themselves in situations where no E85 refueling stations are available. When Region 4 first began promoting E85 fuel, employees received E85-related training every time they checked out a vehicle. The message has taken hold; employees are now more likely to make an effort to find E85 refueling stations. To assist them, in 2009, the Region 4 Office started equipping its vehicles with Global Positioning System (GPS) units that are programmed to identify refueling stations that sell E85. The GPS units are beneficial for two reasons: they boost E85 fuel use (by locating appropriate refueling stations) and reduce the number of miles driven on EPA's behalf (by identifying the most direct route between destinations).

EPA vehicle fleet managers also focused on maintenance issues to ensure optimal performance, with some EPA locations advocating the use of solar-powered tire inflators.

The Agency is also committed to reducing the amount of fuel that is consumed during employees' commutes to and from work. Toward that end, EPA continued to encourage public transportation through a Transit Subsidy Program, which about half of the Agency's employees used. At some of the Agency's urban facilities, such as the Region 5 Office in Chicago, Illinois, more than 90 percent of employees participate in the Transit Subsidy Program. Other initiatives to address commuting are also underway. For example, employees in Cincinnati, Ohio, took the initiative to form a van pool in 2009 to reduce the number of single-occupancy vehicles on the road (see below). In addition, employees at ORD's Western Ecology Division Laboratory in Corvallis, Oregon, continued to participate in an annual month-long Bike Commute Challenge. In September 2009, they pedaled 2,795 miles back and forth from work, preventing about 2,740 pounds of carbon dioxide from entering the environment and burning about 137,000 calories in the process.







EPA "Pumps Up" the Gas Mileage

Adequate tire inflation helps improve gas mileage, a message that EPA has taken to heart. Taking it one "green" step further, the Agency has identified a way to deliver compressed air to tires using a solar-powered pump, which allows tires to be inflated without relying on fossil fuels for delivery. Representatives from the Agency's RTP facility took the lead with this project and identified a company in Texas willing to convert an underground storage tank pressurization pump into a solar-powered tire pump. The pump was then installed in RTP's parking lot, and signs were posted to alert EPA employees, onsite contractors and employees from a neighboring facility of the pump's presence. To date, user logs suggest that at least 380 gallons of gasoline have been saved by using RTP's solarpowered pump. Following in RTP's footsteps, solar-powered air pumps are now installed at ORD's Atlantic Ecology Division Laboratory in Narragansett, Rhode Island, and its Robert S. Kerr Environmental Research Center in Ada, Oklahoma.

EPA Provides a Safe and Healthful Work Environment

EPA employees work in offices, laboratories and the field. While they all confront typical office-related hazards (e.g., tripping, slipping), some of them also climb trees, dive into aquatic environments, handle toxic reagents, perform chemical exposure studies, respond to chemical spills, conduct recovery operations at disaster sites and operate potentially dangerous machinery. Despite the inherent hazards associated with these activities, EPA's injury and illness rate and its lost-time case rate both decreased in FY 2009 — a testament to the strength of the Agency's safety and health programs. Good health and productivity go hand in hand. Thus, EPA's efforts to ensure employee well-being enable the Agency to better serve the public.

Focusing on Emergency Responders

EPA's emergency response personnel encounter risks when responding to releases of oil or hazardous substances, and they frequently work under physically and emotionally demanding situations. EPA continued to address the safety and health needs of this group throughout 2009. For example, EPA:

- Developed four new chapters of EPA's Emergency Responder Health and Safety Manual
 to provide additional guidance on how to work safely in confined spaces;
 address chemical and biological threat agents; select appropriate personal
 protective equipment; and report injuries, illnesses, and exposures.
- Analyzed respirator fit testing data to ensure that EPA's standard-issue respiratory equipment provides adequate protection.
- Participated in a Medical Countermeasures Workgroup to evaluate options for providing chemoprophylaxsis to EPA's mission-critical emergency responders in the event of a biological attack.

EPA also focused on fatigue in 2009, acknowledging the negative impact that long hours and insufficient rest have on an employee's safety and health. EPA helped develop Guidance for Managing Worker Fatigue During Disaster Operations, a two-volume document that the multi-agency National Response Team released in April 2009. Exhibiting leadership, EPA volunteered to use the document to create a fatigue management program for the Agency. A workgroup formed to advance this objective in September 2009.



Addressing Emotional Well-Being

EPA's emergency response personnel may be called on to respond to tragic events (e.g., the September 11 attacks and Hurricane Katrina). To support them, EPA has established a Critical Incident Stress Management (CISM) Program — a comprehensive, multi-component crisis intervention system that involves pre-incident preparation, peer support, debriefings, follow-ups and referrals.

The Agency's CISM Team consists of trained psychologists and social workers, as well as EPA employees who have volunteered to obtain crisis intervention training. The CISM Team gained new members in 2009, and EPA continued to support the team's development by providing access to training, such as a course that addressed the psychological aspects of radiological events. Also in 2009, EPA continued to investigate the possibility of incorporating animal-assisted crisis response into the CISM program.

Preventing Injury and Illness and Promoting Wellness

In 2009, EPA hosted special events (see adjacent photo) and also performed the following activities to support its Injury and Illness Prevention Program:

- Produced safety bulletins that raised awareness about motor vehicle safety, provided strategies for managing workrelated stress, and offered tips on maintaining a healthy heart.
- Posted quarterly safety and health updates on EPA's Intranet.
- Sponsored EPA's fourth "Clear Your Clutter Challenge" to encourage employees to remove paper piles, extension cords and other tripping hazards from their workspaces.

EPA also continued to support activities that promote good physical health. For example, EPA Headquarters supported a weight loss program in 2009 and upgraded its fitness centers. Also in 2009, EPA distributed a survey to take stock of wellness initiatives that are in place across the entire Agency. The information was compiled and submitted to the Office of Personnel Management to support the President's Work-Life Initiative. As a follow-up, EPA identified strategies for enhancing its wellness programs, an objective that it will pursue in the future.



held its annual "Walk to Wellness" in conjunction with its annual Injury and Illness Prevention Awareness Day. Safety bulletins and other informational handouts were made available to the 650 EPA employees who attended. Those in attendance also watched fitness demonstrations, interacted with health and wellness vendors, engaged in sports competitions and preventative health screening, and participated in a 1.5-mile walk around the National Mall. The Agency's senior managers (including OARM's Assistant Administrator, captured in the picture above) put on their sneakers to actively show support for these activities.



In 2009, EPA upgraded the fitness centers at three of its facilities in the Washington, D.C., metropolitan area. These facilities provide access to cardiovascular and weight training equipment, as well as a variety of aerobics classes.

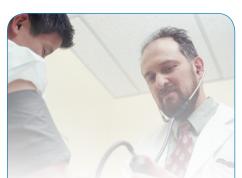


Staying Ahead of Evolving Hazards

The type of research that EPA laboratories perform changes over time. EPA must stay one step ahead in addressing the safety and health implications associated with new activities, which it did in 2009 by addressing:

- Chemical warfare agents. EPA may be called upon to handle samples that contain chemical warfare agents. To prepare, the Agency assessed facility design issues related to chemical warfare agents, including laboratory exhaust air treatment options. In addition, a workgroup started addressing safety and health concerns related to ultra-dilute chemical warfare agents. Workgroup members evaluated chemical warfare sample receipt procedures, initiated efforts to develop a Dilute Solution Hygiene Plan, and started developing a training program to address relevant hazards.
- Nanomaterials. Some EPA laboratories have started performing research on nanomaterials and nanotechnologies. In response, EPA issued an interim policy memorandum in 2009 that outlines protective controls that should be in place when working with these materials. EPA also developed a sample job hazard analysis for EPA laboratories to use to assess hazards associated with nanomaterial research.





The H1N1 virus made its first unwelcome appearance in the United States in April 2009. In response, EPA took action to prevent the spread of illness among employees and initiated advance planning to ensure that the Agency's essential operations would be able to continue in the event of a pandemic. Safety and health professionals at individual EPA locations hung posters that encouraged employees to cover their coughs, while some locations used videos and other methods to deliver this message. Many EPA locations established additional hand sanitizer stations throughout their facilities and purchased alcohol wipes to promote good hygiene and clean surfaces. Others communicated with their custodial service providers about ways to prevent germs from spreading. In September 2009, the Agency released a guidance document to assist EPA locations in preparing for the potentially disruptive combined effect that pandemic HIN1 influenza and seasonal influenza could have on its workforce.

EPA Reaches Out to Local Communities

EPA serves as a leader in identifying sustainable solutions to environmental challenges. As described in this report, the Agency has already implemented numerous sustainable practices at its facilities, enabling it to meet or exceed several federal environmental goals. While strong performance is certainly a prerequisite for credibility, the Agency understands that leadership entails much more than just meeting milestones or scoring points on scorecards. It also involves finding ways to serve as a catalyst for environmental improvement in local communities. The following examples demonstrate EPA's commitment in this regard.

Many EPA employees participate in local community projects. For example, employees from ORD's Atlantic Ecology Division Laboratory in Narragansett, Rhode Island (pictured above), participate in community coastal cleanup events.

EPA Offers the Community a Solution for Obsolete Electronics

As technology evolves, our nation accumulates massive amounts of obsolete electronic equipment. Regrettably, some citizens throw these items in the trash, and others stow them away because they do not know how to dispose of them properly. EPA's Office of Environmental Information (OEI) is committed to showing local communities how easy it is to collect unwanted computer equipment. For the past three years, OEI has sponsored a collection event to help residents, organizations and small businesses in the Washington, D.C., metropolitan area find an environmentally responsible solution to this problem. To date, EPA and community volunteers have helped collect more than 77 tons of equipment, including more than 1,750 computers, 1,850 monitors and 750 printers. All of this equipment is sent to an electronics recycling facility that has a "no landfill" policy. Equipment that can be used is refurbished and given a new life. Equipment that is no longer useful is demanufactured for all of its parts, including metals, glass and plastics, and distributed to industry for reuse. Recovered materials that cannot be recycled are crushed and used in other manufacturing processes.

EPA Encourages Other Organizations to "Go Green"

In 2009, representatives from ORD's Mid-Continent Ecology Division Laboratory in Duluth, Minnesota, delivered a presentation to a local high school's asset management committee that highlighted the cost savings associated with green choices (e.g., recycling, faucet repair, energy conservation). The presentation helped convince the school's headmaster to explore the possibility



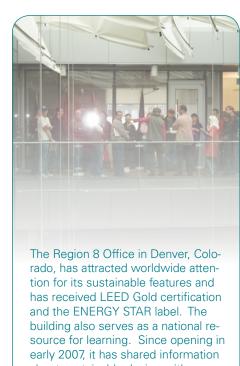
of implementing a schoolwide EMS in 2010. EPA Region 6 representatives also participated in a "How To Go Green" seminar in 2009 sponsored by the Dallas Hispanic Chamber of Commerce. They used this opportunity to showcase EPA's EMS efforts and identify steps that seminar participants could take to establish their own EMS programs.

EPA Brainstorms with a Local Community

Leaders in the city of Mission, Kansas, view environmental sustainability as a key community objective. In 2009, the city ramped up its commitment to future generations when it decided to develop a comprehensive master sustainability plan. Community leaders called upon the EPA Region 7 Office for assistance and advice. EPA representatives attended multiple community meetings, sharing information about energy-efficiency projects and helping outline the tenets of a master sustainability plan.

EPA Educates the Next Generation

EPA employees also impact the community through the volunteer work they perform with students. Employees at EPA's Region 2 Laboratory in Edison, New Jersey, assist students with career development and serve as mentors. Staff members from Edison have: 1) delivered lectures covering environmental stewardship principles; 2) organized boat field trips to allow students to participate in hands-on water monitoring activities and benthic macro-invertebrate assessments; and 3) invited senior students to visit the laboratory, shadow a staff member and learn (through direct observation) about the work that scientists do.



rado, has attracted worldwide attention for its sustainable features and has received LEED Gold certification and the ENERGY STAR label. The building also serves as a national resource for learning. Since opening in early 2007, it has shared information about sustainable design with more than 9,000 individuals during facility tours. Tour participants learn about the building's renewable construction materials, energy and water conservation features, and daylighting strategies. Visitors also learn about the building's atrium sails, which were installed to help control heat and alleviate glare. They also visit the building's green roof, where they learn about the facility's photovoltaic panels, research plants and weather station.





Through its Footsteps to Sustainability campaign, the Region 9 Office encourages employees to calculate and reduce their personal ecological footprints and to encourage their neighbors and local communities to do the same. To assist them in this endeavor, Region 9 hosts a variety of educational forums and invites high-profile speakers, such as Mathis Wackernagel of the Global Footprint Network, to provide insight and inspiration on how to achieve a more sustainable world.

Closing Remarks and Acknowledgements

The White House and Congress established EPA nearly four decades ago, tasking it with the mission to protect human health and the environment. EPA has been working to provide a safer, healthier and greener environment for Americans ever since. EPA's commitment to these objectives extends to its offices and laboratories as well, taking the form of safety and health programs, green building initiatives, energy reduction projects, water conservation initiatives and recycling programs. The Agency was pleased with its performance in 2009 and believes it is ready to answer the President's call for federal leadership in environmental, energy and economic performance in 2010 and the future. If the Agency's success inspires others to follow a similar path, the benefits will come full circle: EPA's commitment to safety and health programs and environmental sustainability will prompt others to become more responsible employers and better environmental stewards, which in turn will support EPA's overarching mission of protecting human health and the environment.

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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- Regional Science and Technology Division Directors.
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- Architecture, Engineering, Asset Management and Sustainable Facilities personnel.
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- Safety, health and environmental management program managers and facility managers.
- EMS and SHMS coordinators.
- Pollution prevention and recycling coordinators.
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