

Pollution Prevention 2010



Office of Pollution Prevention
629 East Main Street
Richmond, Virginia 23219
804-698-4344

Inside:

From the Director	1
Virginia Green Tourism	2
Governor's Environmental Excellence Awards	3
Virginia Environmental Excellence Program	6
Energy Efficiency & Renewables	9
Outreach to Reduce Priority Chemicals	10
Resources	11

From the Director



For more than twenty-five years, pollution prevention has played a key role in the Department of Environmental Quality's (DEQ) mission to protect and enhance Virginia's environment. DEQ's Office of Pollution Prevention (OPP) hosts a number of programs and initiatives that serve as a conduit for non-regulatory assistance to businesses, institutions, and communities. These efforts are aimed at motivating Virginia facilities to minimize their environmental footprint through actions that often exceed requirements while enhancing their bottom line. A few of the highlights from 2010 are:

- Celebrating the tenth anniversary of the Virginia Environmental Excellence Program;
- Significantly expanding membership in the Virginia Green tourism program, including meeting Governor Robert F. McDonnell's challenge to recruit 75 new members in honor of the Blue Ridge Parkway's 75th anniversary;
- Awarding 20 Governor's Environmental Excellence Awards to manufacturing facilities, government agencies, and partnerships for their combined reductions of more than 3 million pounds of hazardous waste, 175 million pounds of solid waste, 14 million gallons of water use, and 1.2 billion BTUs of energy use as well as savings of \$6.6 million; and,
- Presenting five webinars on various pollution prevention and environmental management system topics to a combined audience of more than 350 people.

DEQ's reputation both nationally and regionally as a leader in promoting partnerships and engaging audiences through non-regulatory environmental programs continues. I am confident that as we move forward in the new decade, pollution prevention will continue to be an important strategy for the Commonwealth.

David K. Paylor



Virginia Green Tourism

Virginia Green is the Commonwealth's voluntary initiative to promote pollution prevention practices across all sectors of the tourism industry. Participating tourism businesses and organizations voluntarily commit to requirements, including recycling and waste reduction, water and energy conservation, and green conferences and events.

The program, which was launched as a pilot project in 2006, is structured to encompass the entire travel and tourism sector, and includes lodging, restaurants, attractions, conference facilities, convention centers, events, travel organizations, visitor centers, and supporting organizations.

OPP oversees development of all programmatic guidance and reviews each of the submitted applications, while DEQ's partners, the Virginia Tourism Corporation (VTC) and the Virginia Hospitality and Travel Association (VHTA), coordinate marketing and promotion of the program.

2010 Virginia Green Highlights:

- **Nearing the Goal of 1,000 Participants.** Spurred by various regional efforts and several added categories of participation, the number of Virginia Green participants has increased dramatically in 2010. On December 1, 2009, just over 600 facilities and organizations were in the program. The Virginia Green Advisory Committee help set the goal of 1,000 participants by the end of 2010. As of the end of October, the program had nearly 875 participants.
- **Virginia Green Challenge Honoring the Blue Ridge Parkway's 75th Anniversary.** On August 1, the Virginia Tourism Corporation challenged Virginia's tourism industry to recruit an additional 75 facilities to the program prior to the Blue Ridge Parkway's 75th Anniversary celebration on September 11, 2010. The challenge was promoted throughout the Commonwealth and 82 new members joined during the promotion. All facilities received a commemorative Blue Ridge Parkway plaque for joining during the challenge, and were recognized at the anniversary celebration.
- **Virginia Green Resolution Adopted By the 2010 General Assembly.** Senate Joint Resolution 232 commended the hospitality and tourism industries for their leadership and efforts in support of the Virginia Green program.
- **Launching of the Virginia Green Suppliers Network.** The Virginia Green Suppliers Network (VGSN) was established in September 2010, and is intended to serve as a resource for Virginia Green participants interested in green products and services.
- **Recruitment Videos Launched.** In October 2010, a five-minute recruitment video was produced, featuring testimonials from leading proponents of the program. The video will be used by convention and visitors bureaus and other travel organizations throughout the Commonwealth to recruit new participants.
- **Consumer Involvement & Feedback.** At the end of the 2010, the program's new marketing website was released, featuring a renewed emphasis on consumer feedback. Consumers will be actively encouraged to provide feedback to Virginia Green participants on their greening efforts.



Governor's Environmental Excellence Awards



Governor's Environmental Excellence Awards

On April 7, the winners of the 2010 Governor's Environmental Excellence Awards were announced at the Environment Virginia Symposium in Lexington. The awards program was co-sponsored by DEQ, the Virginia Department of Conservation and Recreation, Dominion, and DuPont. Twenty entries were recognized with awards in the categories of Environmental Program, Environmental Project and Land Conservation. Gold medal winners are highlighted below.

Lipton Tea, Suffolk: Lipton Sustainability Improvement Program

Gold Medal Winner, Environmental Program, Large Business

In 2007, Lipton launched an employee-led recycling team to identify waste streams for the more than 2,000 tons of trash sent to local landfills each year. The plant is the sole U.S. production site of Lipton Tea and is the largest tea processing facility in the country. By promoting the "reduce, reuse, and recycle" approach, the facility has achieved its goal of becoming a "zero-landfill site." The plant sends no waste to landfills by processing all of its waste through aggressive recycling and composting programs and converting some of it into usable energy. Traditional recycling methods capture 70% of plastic and cardboard. Another 25% sent to an off-site composter returns as mulch for the plant site and local landscapers. The remaining 5% is converted to energy by the nearby Naval Shipyard. Additional environmental initiatives funded through recycling savings include: providing incentives for employees to purchase hybrid vehicles; installing preferred hybrid parking spaces; eliminating disposable dinnerware from the cafeteria by providing all employees with reusable lunch bags, hot/cold tumblers and metal utensils; installing compostable air filters; and, installing high efficiency lighting throughout the site.



DEQ Director David Paylor (center) with Unilever/Lipton's Ted Narozny and Robert Bredbenner

James Madison University: Stewardship of the Natural World

Gold Medal Winner, Environmental Program, Government

James Madison University has expressed a commitment to becoming a model steward of the natural world. In 2006 and 2007, a diverse working group charted a path to institutionalize environmental stewardship. Next, three positions, an administrative office, and a council of 100 citizens were created. Environmental policies were adopted in six areas: water, air, materials/waste, energy, environmental literacy education, and citizen attitudes and behavior. An emissions inventory, campus energy assessment, and draft strategic environmental plan were developed. By the end of 2010, the University expects to reduce its water use by 2.5 million gallons and eliminate the generation of 3,000 metric tons of carbon dioxide equivalent emissions. Initial successes include increasing the recycling rate to about 34%, offering expanded environmentally-oriented academic offerings in ten disciplines, and increasing the use of alternative transportation by an average of 7% annually.



Pictured with DEQ's David Paylor are Zack Evans (student), Ken Newbold, Christie-Joy Hartman and Ben Delp.



Accepting the award for Wetland Studies and Solutions, Inc., is Mike Rolband, pictured with DEQ's David Paylor and Rick Weeks.

Wetland Studies and Solutions, Inc.: Green Headquarters Building

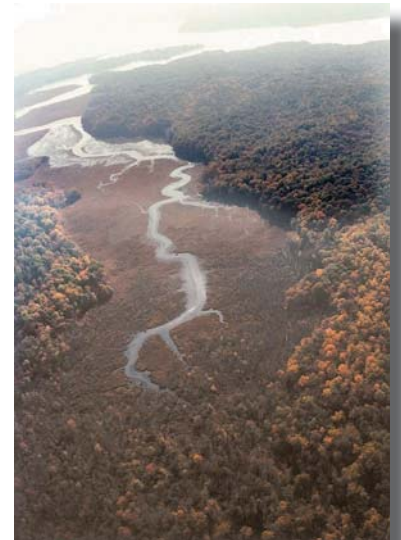
Gold Medal Winner, Environmental Project, Small Business

Wetland Studies and Solutions, located in Northern Virginia, provides natural and cultural resources consulting services. The company's new headquarters building is the Commonwealth's first facility to be certified Gold under the Leadership in Energy and Environmental Design (LEED) green building rating system. The building reduces potable water consumption by 72% and energy consumption by 47%. It also uses low-impact development techniques to mimic the hydrology of an undisturbed forest, reduce downstream degradation, and help maintain biodiversity and wildlife habitat. Recycled and renewable materials, passive "green" building design, and high-tech solutions all help to create a healthy, vibrant work space for employees. The company performs retrofits frequently to keep up with new sustainable products and technologies.

Protection of Crow's Nest Peninsula

Gold Medal Winner, Land Conservation

Located just 45 miles from Washington D.C., the Crow's Nest Natural Area supports globally rare upland forests and tidal wetlands. It is one of the most biologically significant areas on the East Coast, protecting 2,200 acres of mature forest, 750 acres of wetlands, 11 miles of shoreline, and 15 miles of stream. The area has been targeted by multiple development plans for more than 40 years, during which time it was also the focus of conservation efforts. A unique partnership led by Stafford County and the Virginia Department of Conservation and Recreation, and involving the Virginia Department of Environmental Quality Clean Water Revolving Loan Fund, The Nature Conservancy, the Northern Virginia Conservation Trust, the Virginia Land Conservation Foundation, the U.S. Army Corps of Engineers, the Virginia Coastal Zone Management Program, other federal partners, and local citizens, brought decades of effort to fruition with the purchase of 2,872 acres for \$33 million dollars on July 29, 2009. Funding was provided through a creative combination of bonds, public funding, and federal grants.



Pictured with David Paylor are Michael Nardolilli (Northern Virginia Conservation Trust), Paul Milde (Stafford County Board of Supervisors), Nikki Rovner (The Nature Conservancy), Mark Mansfield (US Army Corps of Engineers), and Larry Smith (Virginia Department of Conservation and Recreation).

Other winners recognized were:

Environmental Program:

US Army Garrison Fort Lee: Sustainability Program, Silver Medal

Lockheed Martin Corporation: Pollution Prevention Program, Silver Medal

Micron Technology, Virginia: Environmental and Compliance Management Systems, Silver Medal

US Army Transportation Center and Fort Eustis: Environmental and Natural Resources Division, Silver Medal

Cargill Meat Solutions - Timberville Further Processing: Environmental Management System, Bronze Medal

Southeastern Container, Inc.: SEC Virginia Team Environmental Impact Initiative, Bronze Medal

Covanta Fairfax, Inc.: Environmental Management System and Sustainability Initiatives, Bronze Medal

Smithfield Station: Pollution Prevention and Best Practices for Smithfield Station, Bronze Medal

Fairfax County Wastewater Management Program: Community Outreach Program, Bronze Medal

Virginia Department of Corrections: State Farm Food Waste Composting Program, Bronze Medal

Environmental Projects:

Canon Virginia, Inc.: Foam Densification Process, Silver Medal

MillerCoors LLC: Water Conservation and Reuse, Silver Medal

University of Virginia: Food Waste Composting Project, Silver Medal

Church Dwight Co., Inc.: Plant Sustainability and Pollution Prevention Projects, Bronze Medal

Land Conservation:

Perpetual Conservation Easement on the James River Park System, Silver Medal



Accepting Fort Eustis' award from DEQ's David Paylory are Susan Miller, Colonel Glenn Grothe, Mark Sciacchit and Arba Williams.

Virginia Environmental Excellence Program

The Virginia Environmental Excellence Program (VEEP) is intended to recognize facilities that have demonstrated a commitment to enhanced environmental performance and to encourage innovations in environmental protection.

Since 2000, DEQ has promoted the non-regulatory Virginia Environmental Excellence Program (VEEP) as a mechanism to encourage “beyond-compliance” environmental results. VEEP provides recognition and incentives to those facilities meeting the program requirements, which include a demonstration of their commitment to environmental performance through the development of an environmental management system (EMS), implementation of voluntary pollution prevention initiatives and compliance with environmental regulations. There are three types of participation options for interested facilities:

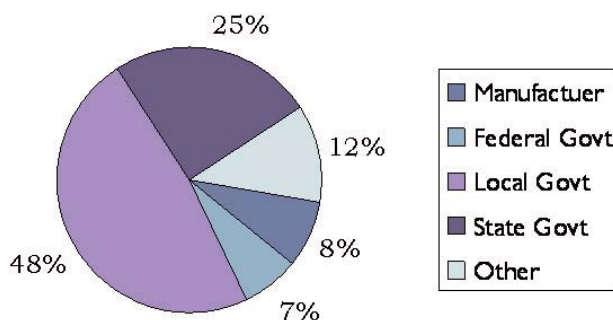
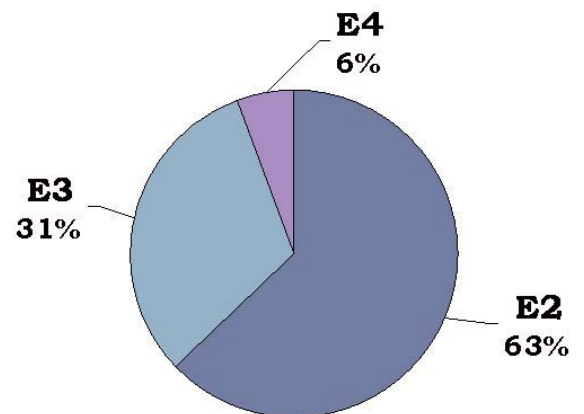
- E2 (Environmental Enterprise) for facilities that have made significant progress toward the development of an EMS, have made a commitment to pollution prevention and have a record of sustained compliance with environmental regulations.
- E3 (Exemplary Environmental Enterprise) for facilities that have exceeded the E2 requirements and have a fully-implemented EMS.
- E4 (Extraordinary Environmental Enterprise) for facilities that have exceeded the E3 requirements, have completed at least one full cycle of an EMS as verified by a third-party auditor and have demonstrated a commitment to continuous and sustainable environmental progress and community involvement.

OPP administers VEEP, reviewing applications and renewals, performing site visits for E3 and E4 applications, conducting compliance reviews, and coordinating recognition events.

Highlights from 2010

Growth of the Program. The program continues to grow, with approximately 450 member facilities at the end of 2010. Approximately 63% of VEEP facilities are at the E2 level, another 31% are at the E3 level, and the remaining 6% are at the E4 level. In 2010, DEQ received more than 170 VEEP applications, with about 25% of those for new facilities and the rest for renewing facilities or those moving to another level of the program.

VEEP facilities are located in all geographic areas of the Commonwealth, with larger numbers in the urban areas. VEEP participation by sector is as follows: 48% local governments; 25% Virginia State agencies; 12% other facilities; 8% manufacturing; and, 7% federal agencies.



Outreach. OPP maintains an e-mail list of contacts at participating VEEP facilities and relates pertinent environmental information periodically via an electronic newsletter. OPP also conducts non-regulatory pollution prevention site assessments at newly applying E3 and E4 facilities. Staff look to identify possible pollution prevention opportunities and stay current on contemporary pollution prevention technology. OPP staff has conducted approximately 35 site visits in 2010.

VEEP Incentives. Members of the Virginia Environmental Excellence Program enjoy two types of incentives: recognition and regulatory flexibility.

- **Recognition Ceremony.** Upon request, DEQ recognizes new and renewing VEEP facilities at ceremonies throughout the Commonwealth. In 2010, DEQ participated in events for more than 25 facilities. These events focus attention on the members' efforts to improve the environment by minimizing their footprint. The ceremonies also emphasize the positive partnership shared by DEQ and its VEEP members and highlight the individuals who commit to reduce their facility's impact, as well as the administrators and managers who support them. At left, DEQ Director David Paylor (third from left) presents Sharon Bulova, Chair of the Fairfax County Board of Supervisors, with a plaque at a ceremony in recognition of the Fairfax County Wastewater Management Program's recent acceptance at the E4 level.



- **Annual Permit Fee Discounts for VEEP Facilities:** Several years ago, the General Assembly adopted legislation establishing annual fees for facilities with certain types of waste and water permits. Simultaneously, the legislature acknowledged that VEEP members "go beyond" compliance and determined that improved environmental performance merited permit fee discounts:
 - Hazardous waste: potentially 5% for E2 facilities and 10-20% for E3 and E4 facilities
 - Solid waste: potentially 10% for E2 facilities and 20% for E3 and E4 facilities
 - Water: potentially 2% for E2 and 5-20% for E3 and E4 facilities.

In 2010, the discounts totalled in excess of \$127,300.

- **Alternate Compliance Methods:** In 2005, the General Assembly acknowledged that regulatory and administrative flexibility are powerful incentives for driving improved environmental performance when it passed legislation allowing certain VEEP members to request the use of alternative, innovative approaches to meet or go beyond current levels of compliance. VEEP members at the E3 and E4 levels are eligible to request the use of "alternate compliance methods"; the law authorizes DEQ's three regulatory boards to grant appropriate facility requests. VEEP members have used this mechanism to request reduced monitoring and reporting frequency, streamlined permit application and renewal processes, and to make operational changes without prior approval from the Department.

As outlined in the law, only alternate compliance methods that meet the purpose of the applicable regulatory standard, achieve the purpose through increased reliability, efficiency or cost effectiveness, and provide equal or greater environmental protection will be approved; proposals that alter existing standards, increase pollutants released to the environment, increase impacts to Virginia's waters, or result in a loss of wetland acreage will not be approved. Depending on the method requested, the changes may require a permit amendment.

As an example, in 2010 the Philip Morris Park 500 plant in Chesterfield, an E4 facility, requested and was granted the following flexibility: (1) reduction in the frequency of monitoring of pH from once per day to five times per week; (2) removal of nutrient limitations and monitoring in the facility's individual permit because those parameters are covered by the facility's Chesapeake Bay Watershed General Permit; and, (3) permission to perform a pilot study of their Natural Treatment System (NTS) to determine if the facility can reduce or eliminate the amount of sodium bisulfite used in their treatment process yet maintain water quality by demonstrating that the NTS can de-chlorinate the wastewater stream through natural processes prior to discharge to the river.

Environmental Results. To remain in good standing, all VEEP facilities must submit a progress report each year. Once again the program is proud to boast a 100% reporting rate from VEEP members. Several years ago, DEQ instituted an on-line reporting system that emphasizes the reporting of measurable results rather than descriptive updates. When applying for and renewing participation, facilities select from a list of more than 35 environmental indicators that they then use as the basis of their results tracking and VEEP annual reporting. Facilities report results in both actual and normalized quantities (i.e., results based on production, number of employees, etc.). Normalized results allow facilities to better track year-to-year performance. Over the past year, DEQ has worked to update and streamline the VEEP on-line reporting process. In 2011, the reporting website should be more intuitive and offer more reporting options. The overall program results as presented below should only be considered as a general indication of VEEP facility performance because: (1) the program is voluntary and data is reviewed as submitted by the facilities; (2) many facilities still have limited experience tracking environmental data; (3) the numbers shown represent a single facility; and, (4) the reports are a snapshot from one year and may not reflect overall reduction trends.

2010 Aggregate VEEP Results (2009-2010)

Water Use:

- Reduced total water use by more than 994.4 million gallons

Material Use & Waste:

- Reduced the amount of hazardous materials used by 7.8 tons
- Reduced hazardous waste generation by 523.7 tons

Energy Use and Air Emissions

- Reduced greenhouse gas emissions by 3,900 tons
- Reduced emissions of volatile organic compounds (VOCs) by 5 tons
- Reduced total energy use by 145,400 MMBtus

Cost Savings: Over \$24.6 million

Conserved 187 acres of land

Examples of individual VEEP facility progress and successes:

- A city was able to reduce the amount of water use (production and virgin water use) by reducing the amount of unaccounted for water loss in their distribution system. This was accomplished by conducting a water loss survey and repairing water mains, water valves, fire hydrants and service line leaks on a priority basis. Between 2008 and 2009, the city saw a reduction in water use of 160,491,000 gallons, or 21%.
- A public school system completed lighting upgrades at five schools and distributed monthly updates on energy and water usage to all schools. Energy savings to date equal \$33,000.
- A manufacturer instituted a continuous improvement project to reduce their hazardous waste generation from waste ink. Hazardous waste was reduced by 43,000 pounds, saving \$8,500.
- An organization in Northern Virginia tested innovative technologies and techniques to recover, reuse, and recycle lead from their shooting ranges. As a result of these efforts, there was a net reduction of more than nine tons of lead and mixed materials from the property.
- A community college implemented an array of approaches to reduce their environmental footprint, including: (1) instituting a recycling center on campus to reduce the landfilling of recyclable materials; (2) investing in a shuttle service to reduce carbon emissions from commuter vehicles; (3) installing new heating and air conditioning systems to reduce energy consumption; (4) installing replacement doors to reduce loss of heat and decrease energy consumption; and, (5) implementing a teleconferencing system to reduce the need for travel. The free shuttle service runs between the campus and nearby cities and is used by approximately 4,000 students per month. The school has calculated the energy reductions and savings: 18% decrease in energy use, \$28,000 in savings, and 323 tons reduced CO2 emissions.
- A manufacturer with a no-landfill policy for all wastes implemented an environmental evaluation project, designed to reduce the facility's environmental footprint. Notable initial accomplishments include replacing an organic solvent with a less volatile and more environmentally-friendly corn-based chemical, lowering the facility's annual chemical emissions by 14%, and eliminating the facility's chlorinated solvent waste stream, which is now reclaimed for reuse.
- A manufacturer reduced its use of electricity and natural gas through a behavior based energy management system, resulting in savings of \$46,000. Significant investments in a behavior based energy (including water) management system and water re-use projects resulted in a 9.5 % improvement in total water use from 2008 to 2009, with a savings of \$323,000.
- A federal facility that recycles many forms of non-hazardous solid waste such as office paper, shredded paper, plastic, cardboard, miscellaneous scrap metal including food and beverage cans, scrap brass, yard waste, used kitchen oil, wood pallets, batteries, antifreeze, freon, used motor oil, fluorescent bulbs and ballasts, tires, electronics, and construction and demolition debris (concrete block, brick, rubble, clean soil, wood, metal, etc.), and re-used excess property, generated revenues of more than \$2.6 million.

Energy Efficiency & Renewables

Virginia and other states continue to face air quality challenges related to ozone, regional haze, fine particulates, and toxic air pollutants. Increasing energy efficiency and implementing clean energy technologies are two ways to mitigate negative impacts.

In many cases, clean, renewable energy approaches provide an environmentally and economically preferable alternative to conventional end-of-pipe pollution control. One significant barrier to implementation of these approaches can be a lack of access to current and comprehensive information. OPP actively participates in energy efficiency and renewable energy related outreach and seeks out partnerships with other organizations.

In 2010, OPP continued to implement renewable energy, energy efficiency, and alternative fuel outreach.

Technical Assistance: OPP offers free energy assessments to interested facilities. OPP also maintains the Virginia Information Source for Energy website, or VISE. The website is a repository for information on alternative energy options in Virginia, energy efficiency tips, and financial incentives.

Partnerships: OPP collaborates with various organizations to promote energy education and the value of energy efficiency and renewable energy including the Virginia Department of Mines, Minerals and Energy and Hampton Roads Clean Cities. In 2010, OPP hosted a series of webinars on energy topics including energy assessments and audits, and federal and state incentives for energy efficiency and renewable energy.



Virginia Green member Sunset Hills Vineyard completed the largest solar installation in Loudoun County in late 2010 (under construction above). It is sized to replace 100% of the winery's electrical usage.

Outreach to Reduce Priority Chemicals



National Partnership For Environmental Priorities

The National Partnership for Environmental Priorities (NPEP) focuses on the voluntary reduction of Priority Chemicals found in products and wastes. NPEP, which is operated as a joint initiative between EPA and the states, has a goal of removing four million pounds of Priority Chemicals from the nation's waste stream by 2011 based on a 2007 baseline. EPA Region 3, which covers the Mid-Atlantic area, has committed to reducing 88,000 pounds per year. OPP coordinates with EPA Region 3 to implement NPEP in the Commonwealth and encourages facilities to participate in the program by voluntarily committing to eliminate or substantially reduce or recycle targeted chemicals. This year four Virginia facilities joined NPEP committing to a reduce priority chemicals by 6,500 pounds.

- The Virginia Department of Corrections - Sussex has begun capturing and recycling lead from shooting ranges.
- DuPont Front Royal is reducing lead used in products.
- The City of Chesapeake Garage is reducing the use of lead wheel weights.
- The City of Newport News Waterworks Lee Hall Maintenance and Operations center is also reducing the use of lead wheel weights.

Virginia Fluorescent Lamp Recycling Challenge

While fluorescent lamps are beneficial to the environment because of their energy efficiency, they do contain small quantities of mercury. To ensure that mercury is not released to the environment, the best option is to recycle fluorescent lamps. In 2007, DEQ challenged facility managers, particularly those at commercial buildings, to recycle their lamps. Facilities in the "Virginia Fluorescent Lamp Recycling Challenge" cumulatively recycle over 53,000 bulbs per year.

Lead Free Wheel Weight Initiative

Last year OPP began actively promoting EPA's Lead Free Wheel Weight Initiative (LFWWI). The LFWWI focuses on finding lead free alternatives for the wheel weights used in balancing tires. Membership in LFWWI provides recognition through NPEP. This year Virginia added the City of Chesapeake and the City of Newport News as participants in the LFWWI.

Auto Salvage Industry Mercury Reduction

OPP's partnership with the Virginia Automotive Recyclers Association (VARA) yielded a pilot project to remove mercury tilt switches in automobiles as part of the dismantling and salvage process. Mercury-containing switches in automobile scrap have been identified as a primary source of mercury air emissions from the steel industry. Several years ago, OPP sponsored the distribution of pre-paid collection kits with instructions for removing the switches and precautions for safe handling and shipping. VARA promoted the pilot to its membership, and more than thirty facilities participated in the program. VARA also coordinated the pilot program with NPEP, pledging to remove 1,500 switches (the equivalent of almost five pounds of mercury).

The success of the pilot program resulted in legislation adopted by the 2006 Virginia General Assembly which requires removal of mercury convenience switches from end-of-life motor vehicles prior to demolition. DEQ has worked with VARA, the Virginia Department of Motor Vehicles, the scrap industry, steel manufacturers, and the automotive industry to implement the program. End of Life Vehicle Solutions (ELVS), an organization created by automotive manufacturers, has distributed collection buckets for mercury switches throughout the Commonwealth. To date, 56,097 switches have been collected, equating to 123.4 pounds of mercury.

Resources

General Information

www.deq.virginia.gov/p2

Virginia Green Tourism Program

www.deq.virginia.gov/p2/viriniagreen/homepage.html

www.VirginiaGreenTravel.org

Governor's Environmental Excellence Awards Program

www.deq.virginia.gov/info/geea/2010/homepage.html

Virginia Environmental Excellence Program

www.deq.virginia.gov/veep

Virginia Information Source for Energy

www.deq.virginia.gov/p2/vise/homepage.html

National Partnership for Environmental Priorities

www.deq.virginia.gov/p2/wastemin.html