COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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To: The Honorable Robert F. McDonnell

The Honorable Beverly J. Sherwood, Chair
House Committee on Agriculture, Chesapeake and Natural Resources

The Honorable Emmett W. Hanger, Jr., Chair
Senate Committee on Agriculture, Conservation and Natural Resources

From: David K. Paylor

Date: December 1, 2013

Subject: Office of Pollution Prevention, 2013 Annual Report

I am pleased to provide you with a copy of the Department of Environmental Quality's (DEQ's) Office of Pollution Prevention's 2013 Annual Report This report has been prepared pursuant to Virginia Code § 10.1-1425.17 and sets forth DEQ's pollution prevention activities.

DEQ hosts a number of pollution prevention programs which provide non-regulatory assistance to businesses, institutions, and communities and motivate Virginians to minimize their environmental footprint. This report describes the progress of these programs during 2013.

This report is being made available at http://www.deq.virginia.gov/LawsRegulations/ReportstotheGeneralAssembly.aspx. If you have any questions concerning this report or if you would like a hard copy of this report, please contact Angie Jenkins, Policy Director at (804) 698-4268.

Pollution Prevention
2013

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Inside:

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 Virginians to minimize their environmental footprint through actions that exceed what is required while enhancing their bottom line. A few of the highlights from 2013 are:

- Assisting in the planning and presentation of Virginia's first Marine Debris conference, which was held in February in Virginia Beach;
- Exhibiting program information at the VCU Environment and Sustainability Conference in January, the Virginia Manufacturers Association Industry Environmental Conference in September, and the Virginia Occupational Safety and Health Conference in October;
- Presenting nineteen Governor's Environmental Excellence Awards awards at the Environment Virginia symposium in April; and,
- Presenting the first ever Virginia Green tourism conference in December at the Virginia Aquarium in Virginia Beach.

DEQ continues to enjoy a national reputation as a leader in promoting collaborative partnerships and engaging audiences through non-regulatory environmental programs. I am confident that DEQ's successful pollution prevention and sustainability initiatives, in combination with support from Governor McDonnell and Secretary Domenech and our engaged and committed stakeholders, will continue to flourish.

David K. Paylor

Pictured (from left to right) at the E3 ceremony for Roanoke Cement Company are Bob Sells, Lance Clark, DEQ Director David Paylor, and Costas Tassiadamis.

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 program requirements, including recycling and waste reduction, water and energy conservation, and holding green festivals, events, and meetings. They are encouraged to commit to additional green practices, and they are recognized for their continuous improvements in environmental performance.

VirginiaGreenTravel.org

The program, which was first 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, campgrounds, events, visitor centers, wineries, golf courses, transportation facilities 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 and the Virginia Hospitality and Travel Association, coordinate marketing and promotion.

2013 Virginia Green Highlights:

1,400 Virginia Green Participants. Virginia Green continued to grow due to industry awareness, regional partnerships, and an emphasis on greening festivals and events. Of the states that have green lodging/ green tourism programs, Virginia has the largest number of participants overall and is second only to Florida (with more than 700) in the number of lodging participants (Virginia has 540).

The Richmond Oyster Shell Recycling Project collects shells from participating Virginia Green restaurants and then recycles them into oyster habitat.

Measureable Results. Virginia Green does not require annual reporting of environmental results; however, environmental progress is documented through the annual awards program and through ongoing technical assistance and outreach. The program also uses the American Hotel & Lodging Association's green guide and various other publications to make conservative estimates of its progress. Based on that guidance, program participants are achieving the following annual reductions:

Environmental Benefits	Quantity	Cost Savings for Participants
Wastes Recycled / Diverted from Landfill	10-12,000 tons	$150,000
Reduced Electricity Use	264 million kilowatt hours	$26-30 million
Reduced Natural Gas Use	110,000 trillion cubic feet	$1.5 million
Reduced Water Use	1.2 million hundred cubic feet	$1.8 million
Greenhouse Gas Emissions Reduced	450 million pounds	

The Hilton Garden Inn Richmond Downtown celebrated Earth Day by donating new recycling bins to William Fox Elementary in Richmond.

Regional Partnerships & Workshops. In 2013, Virginia Green worked with regional tourism organizations throughout the Commonwealth to encourage increased local participation and engagement with the program. Many regional partners have developed green trip planning functions to promote the Virginia Green participants in their regions.

Virginia Green Suppliers Network (VGSN). The VGSN is a fee-based internet directory of green service providers in support of Virginia Green. Fees generated are used for enhanced program outreach and marketing. In 2013, OPP worked with the VGSN to research ways to expand its participation and effectiveness. It administered a survey to all members in mid-2013; feedback will be used to implement future site enhancements and improvements in marketing.

Richmond 2015. The World Road Cycling Championships, staged in a different city each year, will be hosted by Richmond in 2015, marking only the second time the event has been held in the United States. It is expected to bring more than 1.5 million visitors

to the Richmond region and require every hotel room within a 60-mile radius. Virginia Green and OPP are working with the race organizers to use the event as an opportunity to showcase Virginia Green partners and brand the green aspects of the entire region.

Consumer Engagement & Branding. Virginia Green has begun to actively engage consumers to challenge them to support the 1,400 Virginia Green partners that are located in all corners of the state. The Virginia Tourism-based website allows consumers to plan green vacations and to give constructive feedback that will encourage the partners to continuously improve. Additionally, Virginia Green is reaching out to non-profits and other organizations and encouraging their members to "travel green" by supporting the program. Finally, the program continues its grassroots efforts to brand itself and engage consumers at all certified festivals and events.

The Virginia Beach Green Team's Bag Monster made an appearance at the Virginia Marine Debris Summit held in February at the Virginia Aquarium.

Pilot Project to Promote Sustainable Winery Practices in Virginia. In 2013, the Virginia Green program partnered with the Manufacturing Technology Center in Wytheville and Virginia Tech's Grape Chemistry program on a special project to assist Virginia wineries. Funded by a grant from EPA Region 3, the project's goals were to provide technical assistance to the participating wineries and to document and share best practices with the Commonwealth's wine industry as a whole. Assistance studies were performed at three Virginia Green wineries. The audit team focused on opportunities to improve production and operational efficiency and to fully document sustainable practices already in place. It is hoped that the project will be expanded in 2014 to provide assistance to additional wineries.

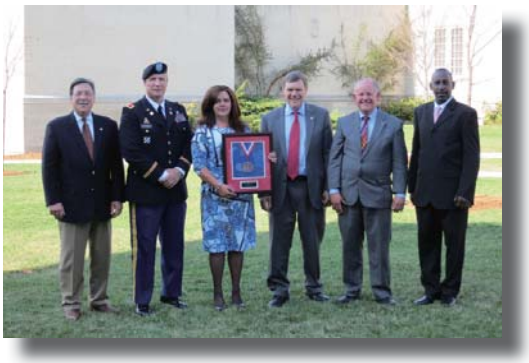
First Annual Virginia Green Conference and Awards Ceremony. In early December, Virginia Green will host its first annual conference at the Virginia Aquarium. The conference will feature technical workshops, a Green Vendor Marketplace, a stream clean-up and a luncheon to honor the winners of the 2014 Virginia Green Travel Star Awards. Technical workshops will address topics such as food waste composting, solid waste recycling, organizing green meetings/conferences and marketing green practices to consumers.

Governor's Environmental Excellence Awards

On April 10th, the winners of the 2013 Governor's Environmental Excellence Awards were announced at the 24th Environment Virginia Symposium in Lexington. The awards program was co-sponsored by DEQ, the Virginia Department of Conservation and Recreation, Dominion, and MeadWestvaco. Nineteen entries were recognized with awards in the categories of Environmental Sustainability and Land Conservation. An additional nine entries were presented Honorable Mention certificates. Winners are highlighted below.

Gold Medal Winners

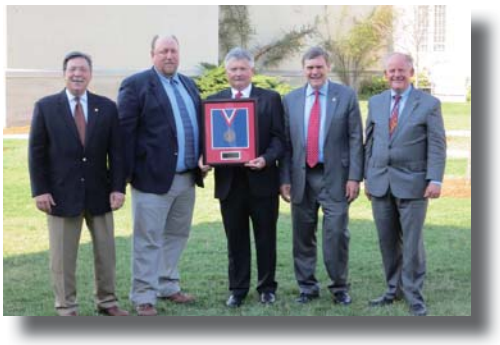
DuPont Spruance Plant, Richmond: Environmental Sustainability Program. DuPont Spruance's comprehensive sustainability program includes numerous highly-effective components which have resulted in reductions in energy use, water consumption, and generation of waste and air emissions. Examples include an active Six Sigma program (a team of highly-trained technical personnel who identify and implement projects driving continuous improvements in processes and procedures), implementation of the DuPont Production System (an integrated system designed to deploy best practices, develop people and organizational capability and find creative new ways to utilize assets and eliminate waste), and participation in the Responsible Care Management System, ISO 14001, the Virginia Environmental Excellence Program (E4), and the Certified Energy Auditor Training Program. From 2010-2012, DuPont significantly reduced its environmental footprint, including water reductions of 5,000,000 gallons per year, elimination of 230,000 pounds per year of hazardous waste, and solid waste reductions of more than 600,000 pounds per year, resulting in an estimated annual savings of more than $800,000. In addition, energy conservation has resulted in savings of almost $1 million.



Joint Base Langley – Eustis (Eustis): Sustainability Program. Conservation of resources has been a long-time priority for the installation, and Fort Eustis has seen steady reductions in water, energy and fuel usage. Base leadership embraced sustainability through a strategic planning process that included installation goals of zero waste, resource efficient buildings, and continuous improvements to training lands, residential and office areas, and installation green space. Fort Eustis uses an ISO 14001-based environmental management system (EMS) to drive the sustainability program and track progress through measureable objectives and targets. In partnership with the Army Corps of Engineers, Fort Eustis closely monitored recent facility expansion and renovations to construct twenty U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) buildings. As a Chesapeake Bay Partner, the installation has pursued stormwater best management practices and has inserted Low Impact Development aspects into many construction and paving projects. The base's training lands are vital to the Department of Defense mission, and the installation's sustainability program has ensured healthy forested lands, initiated efforts to control invasive species, and balanced wildlife and ecological factors.

Joint Expeditionary Base Little Creek – Fort Story: Sustainment Study and Energy & Natural Resource Conservation. Joint Expeditionary Base Little Creek – Fort Story's sustainability program consists of an active ISO 14001-compliant EMS, execution of a sustainability study to identify base-wide goals, use of a Cross-Functional Team to meet goals, and conservation of natural resources. The program was initiated to meet Department of the Navy and Executive Order goals and improve regulatory compliance. EMS training is required for all personnel working on base, and a wallet-sized "green card" with the environmental policy statement, significant aspects, and objectives is carried by employees. Priorities include improving recycling, green building and purchasing, protecting natural resources, and reducing toxic chemical, energy and resource use. Successes include reducing hazardous waste generation by 53%, reducing energy use by 52%, achieving a solid waste diversion rate of 43%, converting a coal steam plant to natural gas, reducing annual emissions by

more than 500 tons, constructing three 3.7 KW wind turbines (the first Navy wind turbines in the Hampton Roads area), and constructing ten LEED facilities. The installation attributes its success to leadership support, an effective education program, completion of the sustainability study, and incorporation of sustainability goals into future construction and training plans.



MillerCoors Shenandoah Brewery, Elkton: Sustainability Program. The MillerCoors Shenandoah Brewery's sustainability program consists of managing their environmental, social, and economic risks and opportunities in a strategic way to protect the company's reputation and maximize business value. By empowering grass roots teams and investing in capital improvements, the plant's environmental footprint has been reduced by focusing on five key areas: reducing energy, reducing water, sustaining their zero-waste-to-landfill status, reducing their carbon footprint, and reducing their overall impact. MillerCoors goal is to reduce total water and energy usage by 15% from 2008 levels. The Shenandoah Brewery is one of the most energy efficient breweries in the world, ranking first in the MillerCoors network at 106MJ/hl (company average of 145MJ/hl). Water use has been reduced by 23% since 2008 including a 6% improvement in 2012 vs. 2011. Since 2011, the Shenandoah Brewery has uniquely applied membrane bioreactor technology to reduce nutrient discharges below required permit limits, which has become a model technology for other industries. The Shenandoah Brewery has also been a zero-waste-to-Landfill facility since 2009.

PepsiCo Blue Ridge Gatorade, Wytheville: Wastewater Treatment Plant Beneficial Reuse. PepsiCo's Blue Ridge Gatorade plant, built in 2006, produces Gatorade, SoBe, Propel, and Lipton products, and was the first food and beverage manufacturing plant of its size to receive the prestigious LEED Gold certification. Examples of sustainability accomplishments at the facility include: solar panels that power external LED lighting; hybrid vehicles for company use; steam recovery to minimize boiler make-up water; gray water use in toilets and irrigation; recovery of heat from bottle coolers to pre-heat incoming water; addition of thermal insulation throughout the facility's piping system to increase efficiency; donation of waste dry sugar to local bee farmers; and an extensive recycling program for cardboard, plastic, metal, glass and batteries, resulting in a 96.7% recycling rate. Most recently, the facility initiated a wastewater treatment plant beneficial use project to reuse almost 100% of the on-site treatment plant's by-products. After research showed that the plant by-product had nutritional benefits for crops, it was certified by the state and is now land applied on local farms at no cost. The plant also installed an innovative gas recovery system so that it can use biogas, a carbon-neutral form of energy, on-site in the boilers, thus reducing the need for fossil fuels.

Piedmont Environmental Council, Warrenton: Land Conservation Program. The Piedmont Environmental Council's (PEC) land conservation program combines public and private initiatives with creative market-based solutions to attain conservation goals identified by local and state governments with substantial input from citizens. Specific activities include conservation easement promotion through landowner outreach and education, educational workshops for professionals, support of local Purchase of Development Rights programs, and administration of nine land conservation funds. PEC has land conservation staff in each of the nine counties of their service region, enabling the organization to establish uniquely broad and deep long-term relationships with landowners and other stakeholders. PEC also provides land management services and technical assistance through their Sustainable Habitat Program. PEC is accredited by the Land Trust Accreditation Commission, an independent program of the Land Trust Alliance, a status only 180 land trusts nationwide have achieved. In addition to their work promoting and educating landowners about conservation options, PEC holds easements on 42 properties totaling more than 6,267 acres, and owns four properties protecting over 390 acres.

Prince William County Solid Waste Division: Sustainability Program. Prince William County's Solid Waste Division has had an EMS since 2003 and is the only active landfill in the state that has been accepted into the Virginia Environmental Excellence Program at the E4 level, the highest level of the program. The Division's vision of environmental sustainability has resulted in a broad program, with cutting edge initiatives in recycling, water quality, stormwater protection, erosion control, air quality, alternative energy, material reuse, and habitat development. Facilities have been opened up to school groups, bird watchers, business groups, professional organizations, and everyday citizens. In addition to management support and a strong working relationship with regulatory agencies, community stakeholder involvement and pride have been keys to the program's success. Positive results of the Division's efforts include having one area designated as an Audubon at Home wildlife sanctuary in 2012 and prolonging the landfill's life expectancy to 2065 through citizen education and expanded recycling and composting opportunities.

Virginia Port Authority: Corporate Environment and Sustainability Program. The Virginia Port Authority oversees four marine terminals in Hampton Roads, the Virginia Inland Port in Front Royal, and the Richmond Deep Water Terminal, and is the only port in the nation to have its container terminals ISO 14001 certified. The Port's sustainability program focuses on four elements: air quality, water quality, habitat restoration and creation, and energy conservation and alternatives. Initiated in 2002, the program encompasses all operations; examples of focal areas include stormwater, greenhouse gas emissions, toxics use reduction, greening of the supply chain, recycling, promotion of carpooling and teleworking, and the use of alternative fuels. Results include an annual sustained reduction of 30% in air emissions and 40% in water quality impacts from marine terminal operations, as well as the creation, restoration, and preservation of 50 acres of forested riparian buffer, tidal and non-tidal wetlands, open space, shallow water habitat, and oyster reefs. Recent energy conservation measures have resulted in a 40% decline in utility costs at the Norfolk terminal, with a total cost savings of over $50,000 annually from all recycling and energy efficiency efforts.

Virginia Tech, Blacksburg: Sustainability Program. In June of 2009, Virginia Tech's Board of Visitors approved a climate change action resolution, which then became university policy. A set of actions and measures to direct the university toward achieving the goals and targets of the resolution (which became the "Sustainability Plan") was developed. The plan has four major components: improving the efficiency of facilities and operations; enhancing academic programs related to sustainability; engaging with the larger Blacksburg community; and changing campus culture and behavior to conserve energy, water, and materials. The Office of Energy and Sustainability is responsible for monitoring energy usage and greenhouse gas emissions, overseeing the implementation of the resolution and plan, coordinating programs for campus sustainability, and managing a campus-wide student internship and undergraduate research program. In the first three years, nearly 90% of the immediate phase actions were completed or in-process. The university's efforts have been recognized nationally by achieving a Silver Rating in the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment and Rating (STARS) program, which is in the top 20% and the highest in Virginia; being selected by the Princeton Review's Guide to Green Colleges 2012 Honor Roll, one of only sixteen institutions; achieving Tree Campus USA status from the Arbor Day Foundation in the inaugural year of the program in 2008 and being re-certified every year since; and being featured in the USA Today's Guide to Green Living 2011 Fall Edition.

Silver Medal Winners

Anheuser Busch Williamsburg Brewery: "Better Worlds Initiatives". Anheuser Busch's Global Environmental and Health and Safety policies outline the foundational principles of the plant's sustainability program: compliance with all standards; production of products in the most environmentally responsible manner; incorporation of environmental targets into performance evaluations; employee participation and accountability; integration of environmental

considerations into business planning, decision making and daily activities; ensuring safe and efficient operations while promoting continuous improvement; increased awareness of environmental programs and involved stakeholders; and evaluating, benchmarking, and communicating performance. Results from the Williamsburg brewery include the recycling of more than 99% of its solid waste and byproducts, including more than 82,000 tons of spent grain that is used as feed by local farmers each year; savings from process improvements of over 16,000,000 gallons of water, 9% energy use reduction, and 15% fuel use reduction. Innovations in energy conservation, fluid savings, and waste reduction have been driven by employees through the company's "Excellence Thru Ideas" program, which solicits cost savings and conservation ideas. The facility's Environmental Committee, which consists of representatives from each operating department, promotes and helps organize community outreach events.

City of Virginia Beach/Trust for Public Land: Pleasure House Point Natural Area. Located just south of the Chesapeake Bay, Pleasure House Point Natural area is 118 acres of water, tidal marsh, sandy shores, and maritime forest. One of the largest undeveloped parcels of land on the Lynnhaven River, yet recently at risk for a large waterfront development, the property will now be permanently protected for generations to come. The project preserves wetland and maritime forest, provides opportunities for passive recreation, nature observation and non-motorized water access, grants opportunities to interpret various habitats and wildlife that the coastal wetlands and maritime forests support, and fosters additional growth in community awareness and support for ongoing ecosystems. Other important project partners include the Virginia Department of Game and Inland Fisheries, the Virginia Department of Environmental Quality Clean Water Revolving Loan Fund, the U.S. Fish and Wildlife Service, Dominion Power, Wells Fargo, and the Virginia Land Conservation Foundation.

Henrico County Public Schools Construction and Maintenance Division: Environmental Sustainability and Management System. In support of its commitment and vision to become the premier school division in the country, the Henrico County Public Schools Department of Construction and Maintenance developed and implemented an Environmental and Sustainability Management System as a management tool to document and measure the organization's environmental performance and sustainability. Accomplishments include achieving LEED Gold for Glen Allen High School and LEED Silver for Holman Middle School; instituting procedures to eliminate the use of caustic floor cleaners; eliminating 26 methylene chloride containing products; reducing by one-third the warehouse inventory of environmentally hazardous products; implementing an aerosol management program to collect and recycle the residual content of cans and prevent release to the environment; reducing energy use by 30% through lighting upgrades; implementing no vehicle idling and no vehicle washing policies; and promoting school-based recycling efforts.

Smithfield Packing Company, North: Smithfield Sustainability Program. Smithfield's sustainability program is comprised of six pillars: animal care, employees, environment, food safety and quality, helping communities, and value creation. The company has defined goals for improvements in water use, energy use, greenhouse gas emissions, solid waste generation, packaging materials used, and regulatory compliance. Between 2008 and 2012, Smithfield reduced solid waste by 60%, water use by 17%, energy use by 13%, and carbon dioxide equivalents by 20%. Examples of sustainability projects include composting sludge and non-pork inedible meat, reusing or recycling used oil, and recapturing hot water for reuse. Smithfield's sustainability program extends beyond the fenceline through their community outreach initiatives, which have included participation in road cleanups, Adopted Highway Program and Clean the Bay Day, as well as sponsorship of the World Water Monitoring Challenge with local schools. Stakeholders are engaged on issues that arise from all six of the company's sustainability pillars, including the company's goals and progress toward meeting them.

Bronze Medal Winners

Fareva Richmond: Zero Landfill Program. Fareva Richmond, which manufactures and packages pharmaceutical and consumer products for distribution worldwide, has long been working on a Zero Waste Initiative which strives to recycle 95% or more of all waste generated at the site. A new effort in support of Zero Waste is the Zero Landfill Program, which was designed to help reach the "high-hanging fruit" and move the facility's overall recycling number from 93% to 95% and beyond. The project focuses on seventeen distinct areas of the facility, including manufacturing areas, packaging lines, laboratories, and warehouse spaces. During the nineteen months that the program has been operational, the site shipped approximately fifty fewer loads to the local landfill due to waste diversion efforts, saving landfill space, disposal costs, and fuel while reducing air emissions.

James Madison University, Harrisonburg: Student Learning Outcome Assessment Instrument. All divisions of James Madison University (JMU) are charged with a responsibility for environmental stewardship via JMU's 18th defining characteristic: "The University will be an environmentally literate community whose members think critically and

act, individually and collectively, as model stewards of the natural world." While greening internal operations is viewed as essential, JMU believes that higher education institutions have the additional and primary obligation of educating students. The university's assessment and outcomes project challenges all graduates to think critically about their role in environmental stewardship, to integrate environmental stewardship into JMU's culture, to facilitate greater conservation behaviors, to measure JMU's student environmental literacy progress, and to strategically target future undergraduate environmental literacy programs.

Joint Base Myer – Henderson Hall: Sustainability Program. Joint Base Myer – Henderson Hall is a small, yet high profile military installation comprised of three military bases physically located in Arlington and the District of Columbia. The comprehensive 25-year sustainability program includes both the natural and human environment found on the installation and employs a systems-based approach to sustainability, recognizing the interrelatedness of Mission, Community, and Environment. An Environmental and Sustainability Management Plan has also been implemented as a method of tracking objectives undertaken to meet the base goals. Results include: implementation of a green procurement plan; construction of a large composting project for horse and stable waste; conversion of three high profile areas from conventional grass to native landscaping sites; construction of a LEED Silver barracks building; and energy and water conservation retrofits.

NASA Langley Research Center, Hampton: Trash-Powered Research: Optimizing Biomass Energy. Since 1917, Langley Research Center (LaRC) has been vital to NASA's innovative role in aerospace technology, space exploration, and the understanding of the Earth's changing climate. The Center has an extensive steam infrastructure that has been used for over 60 years for heating and cooling as well as for research operations in seven wind tunnels on the Center. Standard practice at LaRC had been to operate the wind tunnels using steam from the Center's onsite Steam Plant's dual-fuel boilers, which use natural gas, in addition to using steam from a waste-to-energy (WTE) biomass (municipal solid waste) plant on NASA-owned land adjacent to the Center operated by the City of Hampton. In 2011, LaRC implemented a focused initiative to increase use of steam from the WTE plant, thereby reducing the use of steam from the fossil fuel-powered plant. The project focused on operational and cultural initiatives to overcome communication gaps and change long-standing practices and biases. As a result of the effort, LaRC realized a 47% reduction in natural gas and 2 million gallon reduction in water use.

University of Virginia Healthsystem, Charlottesville: Sustainability Program. The University of Virginia (UVA) Health System Sustainability Program includes all facets of the Medical Center, School of Medicine, School of Nursing, and the Health Sciences Library, as well as over 10,000 service providers. Due to the large volume of waste generated in a health care setting, waste reduction and recycling are a key focus. Recycling continues to be expanded in terms of locations, schedules, and types of recyclables accepted. In addition, the program has targeted energy use: the first building targeted had $1,000,000 in energy savings from 2009-2011. Information technology and software products that allow the reduction of energy and paper use have been implemented hospital-wide. For example, telemedicine supports access to clinical services throughout the 85-site network to help provide services without the need for patients to travel to Charlottesville.

Virginia Department of Corrections: Sustainability Program. The Department's Sustainability Program came about through the gradual implementation of various actions including implementation of an Energy Conservation Plan in 1992, development of a Water Conservation and Management Plan in 2000, establishment of the Recycling and Sustainability Coordinator position in 2009, and, the subsequent Sustainability Policy enacted in 2012 that brought all of the previous steps under one umbrella. The primary benefits are the reduction of waste streams and conservation of resources. The keys to its success have been ensuring that all 11,000+ employees are aware of the policy and its regulations along with ensuring that the executive teams, wardens/superintendents and the recycling/sustainability coordinator are enforcing the policies.

Honorable Mention Winners

- **Covanta Alexandria/Arlington: Environmental Management System**
- **City of Winchester: Urban Waste Wood Recycling Program**
- **Howmet Castings & Services, Hampton: Landfill Reduction Project**
- **Kingsmill Resort, Williamsburg: "Ecologix" Program**
- **Loudoun County Public Schools: Energy and Environment Program**
- **Marstel-Day LLC, Fredericksburg: "Reaching a Deeper Shade of Green" Initiative**
- **Masco Cabinetry - Mt. Jackson: "Tomorrow's Thinking Today" Initiative**
- **Virginia Commonwealth University: Sustainability Program**
- **Virginia Eagle Distributing, Verona: Sustainability Initiative**

E3: Economy, Energy and Environment Initiative

The Manufacturing Technology Center (MTC), located at Wytheville Community College, is a long-time OPP partner in promoting pollution prevention throughout the Commonwealth. In August of 2011, the MTC, a partner with GENEDGE ALLIANCE, a National Institute of Standards and Technology Manufacturing Extension Partnership affiliate, spearheaded the launch of an E3 (Economy, Energy and the Environment) initiative. Called E3 Southwest Virginia, the effort supports sustainable manufacturing in seventeen counties in that region. Joining forces with the local community, the MTC provides manufacturers with hands-on assessments of production processes to reduce energy consumption, minimize their carbon footprint, comply with environmental regulations, prevent pollution, increase productivity, and drive innovation. Over twenty-seven different public and private-sector organizations are participating in the E3 Southwest Virginia project, including OPP (which co-sponsored an energy efficiency and conservation workshop with the MTC), the Virginia Community College System, EPA Region 3, the US Department of Energy, the US Department of Labor, and the US Department of Commerce.

In 2012, a separate E3 project, E3 Southside Virginia, was initiated in the Southside Virginia metropolitan area consisting of Danville City and Pittsylvania County by GENEDGE ALLIANCE. Funding for this effort comes from the Virginia Tobacco Indemnification Commission and the Danville Regional Foundation. This project provides the same services as delivered in the Southwest Virginia project.

Results to date of the projects are:

- Multiple Energy Manager Workshops and Environmental and Energy Conferences have been attended by over 430 clients from 120 facilities.
- Sixteen E3 Technical Assessments have been conducted in Southwest Virginia (Wytheville area) resulting in the identification of the following potential savings and environmental opportunities:
    - $313,000 in energy savings
    - Environmental savings of $639,000
    - Process efficiency savings of $5.3 million
    - Conservation of almost 13 million gallons of water
    - Reduction of 12 million gallons of waste water discharges
    - Reduction of 10,000 pounds of solid waste
    - Reduction of 10,000 pounds of hazardous waste
- Ten E3 Technical Assessments have been conducted in Southside Virginia (Pittsylvania County/Danville area) resulting in the identification of the following potential savings and environmental opportunities:
    - $471,000 in energy savings
    - Environmental savings of $300,000
    - Lean savings of $162,000
    - Conservation of almost 18 million gallons of water
    - Reduction of 13 million gallons of waste water discharges

For more information on Virginia's E3 project, contact Keith Litz at the Manufacturing Technology center at klitz@wcc.vccs.edu or 276-223-4858.

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. There are four types of participation options for interested facilities:

- E2 (Environmental Enterprise) for facilities that have made significant progress toward the development of an environmental management system (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.
- SP (Sustainability Partners), the newest VEEP track, which is designed to encourage organizations to make environmental sustainability part of their culture through leadership, innovation, and continual improvement.

OPP administers VEEP, which includes reviewing applications and renewals, performing site visits, conducting compliance reviews, and coordinating recognition events.

Highlights from 2013

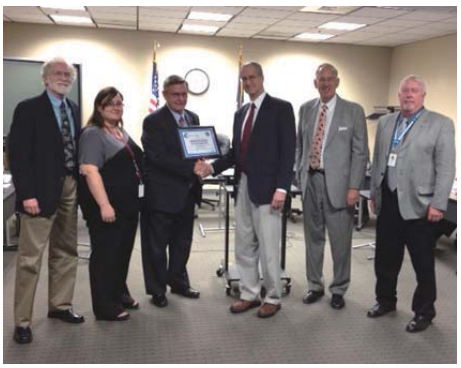
Fareva Richmond's Eunice Kulesza at the July VEEP Workshop.

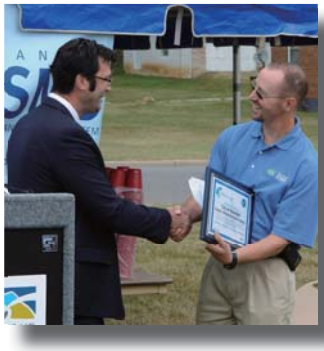
Outreach. As in previous years, DEQ continued to employ multiple types of outreach intended to keep current program participants up-to-date as well as to reach potential new members, such as workshops, e-newsletters, webinars, and updates via social media. A day-long VEEP workshop in July in Richmond attracted more than 50 attendees, and a webinar in September drew an audience of more than 30. In addition, staff made presentations at events sponsored by other oganizations, including the "Sustainability for Small Business Summit" sponsored by Verizon in Arlington in September. A new VEEP exhibit was displayed at several state-wide conferences, including the VCU Environment and Sustainability Conference in January, the Virginia Manufacturers Association Industry Environmental Conference in September, and the Virginia Occupational Safety and Health Conference in October.

VEEP Data Management Improvements. In 2012, OPP won a grant from US EPA Region 3 to enhance the VEEP program by integrating the program's database into DEQ's primary database, CEDS. This project will improve VEEP data management capabilities as well as make VEEP facility and environmental results information available in real-time to the rest of the agency. The integrated database resulting from the project will provide inspectors, monitoring staff, and permit writers with a more complete profile of facilities that are part of VEEP, including EMS and pollution prevention projects. During 2013, OPP staff worked with DEQ information management staff to develop the programming requirements, which are expected to be implemented by early 2014.

Annual Permit Fee Discounts for VEEP Facilities. When legislation establishing annual permit fees for facilities was put in place, the General Assembly acknowledged that VEEP members "go beyond" compliance and determined that their 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 10-20% for E3 and E4 facilities); and water (potentially 2% for E2 and 2-20% for E3 and E4 facilities). In 2013, the discounts totaled in excess of $81,000.

Recognition Ceremonies. Upon request, DEQ recognizes new and renewing VEEP facilities at ceremonies throughout the Commonwealth. In 2013, DEQ participated in 10 events for 17 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. Below are photographs from E3 ceremonies at (left to right) the Albemarle County Service Authority, the City of Roanoke Public Works Service Center, and the Luck Stone Fairfax Plant.





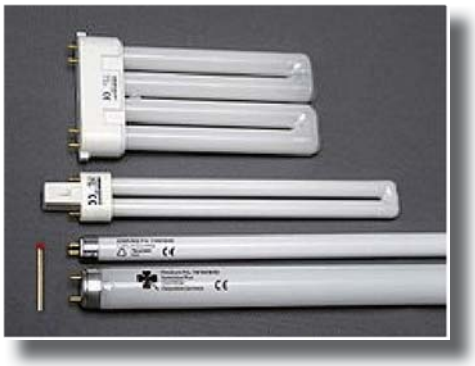
Environmental Results. To remain in good standing, all VEEP facilities must submit an annual progress report. Several years ago, DEQ instituted an online reporting system that emphasizes the reporting of measurable results rather than descriptive updates. When applying for and renewing participation, 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 product, number of employees, etc.). Normalized results allow facilities to better track year-to-year performance.

2013 Aggregate VEEP Results*

- **Recycled 7.1 million tons of non-hazardous waste**
- **Decreased hazardous waste disposal by 119,000 tons**
- **Reduced total water use by 2.6 billion gallons**
- **Reduced the use of hazardous materials by 83 tons**
- **Reduced greenhouse gases by more than 6,000 tons**
- **Used 487,000 tons of recycled materials**
- **Preserved 3,000 acres of land**
- **Saved more than $107 million**

****Results reported in 2013 are based on calendar year 2012 accomplishments. The overall program results as presented above should only be considered a general indication of VEEP facility performance because: (1) the program is voluntary and data is submitted by the facilities; (2) many facilities still have limited experience tracking environmental results data; and, (3) the aggregate results are a snapshot from one year and may not reflect overall reduction trends.***

Outreach to Reduce Priority Chemicals



Mercury Reduction

OPP works to promote and coordinate statewide pollution prevention efforts to reduce or eliminate the use of mercury and mercury-containing products and to collect unused elemental mercury for proper management and recycling. Virginia's Mercury Reduction activities draw heavily upon the strengths of successful mercury-related programs in other states and cities. DEQ has utilized existing partnerships with industry mentors, state and local governments, and the dental industry and created new partnerships with federal government agencies, the hospital and pharmaceutical industry, and local school systems. One of these efforts is the "Virginia Fluorescent Lamp Recycling Challenge," which was initiated in 2007 to encourage facility managers, particularly those at commercial buildings, to recycle their fluorescent lamps, which contain small amounts of mercury. The "Virginia Fluorescent Lamp Recycling Challenge" has continued to grow and now includes 54 members that have pledged to collectively recycle over 54,000 fluorescent lamps each year.

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 because the 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. Subsequent to the pilot project the 2006 Virginia General Assembly adopted legislation requiring the 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 auto 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, approximately 73,000 switches have been collected in Virginia, equating to more than 164 pounds of mercury collected. There are currently 295 recyclers in Virginia participating in the program.

Energy Conservation and Renewable Energy

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.

Often, clean, renewable energy and energy conservation provide an environmentally and economically preferable alternative to conventional end-of-pipe pollution control. OPP actively participates in and promotes energy efficiency and renewable energy related outreach and seeks out partnerships with other organizations.

Energy efficiency, conservation, and renewables are all key components of OPP's primary programs, VEEP and Virginia Green. 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.

Resources

General Information
www.deq.virginia.gov/Programs/PollutionPrevention.aspx

Virginia Green Tourism Program
www.deq.virginia.gov/Programs/PollutionPrevention/VirginiaGreen.aspx
www.virginia.org/green/

Governor's Environmental Excellence Awards Program
www.deq.virginia.gov/Programs/PollutionPrevention/GovernorsEnvironmentalExcellenceAwards.aspx

Virginia Environmental Excellence Program
www.deq.virginia.gov/veep.aspx

Virginia Information Source for Energy
www.deq.virginia.gov/Programs/PollutionPrevention/VirginiaInformationSourceforEnergy.aspx

Resources