



Virginia Pollutant Discharge Elimination System
Phase II Annual Report

Permit Number VAR040022

Roanoke County Community Development
April 28, 2005

MINIMUM CONTROL MEASURE 1: PUBLIC EDUCATION AND OUTREACH **4**

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- BMP 1-2 Develop and distribute a Roanoke County Stormwater Informational Mailer to Roanoke County Residents on a Yearly Basis. The mailer will be designed as a regional document based on the unique issues and concerns for the Roanoke River Watershed.* 4
- BMP 1-3 In cooperation with Virginia Save Our Streams, Roanoke County will provide Stream School Seminars for adults and high school students on a yearly basis.* 4
- BMP 1-4 Develop a stormwater education program for Roanoke County school age children. Different programs will target appropriate grade levels.* 4
- BMP 1-5 Distribute posters, bumper stickers, flyers, fact sheets, and other items promoting the importance of Stormwater Quality to the citizens of Roanoke County.* 5
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- BMP 1-7 Establish a stormwater hotline for Roanoke County Citizens that allows citizens to report storm drain violations (illegal dumping), make general comments about stormwater/storm drains and stormwater maintenance concerns. The hotline will be designed to include comment tracking and follow up protocols, provide general information on the stormwater management program and provide storm water management program contact information.* 5
- BMP 1-8 Develop and maintain a Roanoke County Stormwater web page, where citizens can get information concerning the County's Stormwater Management Program, ordinances, design guidelines, general information, contact information, pollution prevention information, educational programs and links to other organizations and sites.* 5
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Minimum Control Measure 1: Public Education and Outreach

The County of Roanoke partnered with Explore Park to help fulfill most of the BMPs within this control measure and Minimum Control Measure 2. Explore Park's Earth-Wise program is supported by a number of local municipalities and enabled them to fulfill the BMPs of these control measures consistently on a regional level

BMP: 1-1. Complete a comprehensive review of existing stormwater educational programs available to Roanoke County and the Roanoke Valley region.

This resource review lists over 150 resources for stormwater information. The information is in the form of printed material, agency websites, environmental education efforts and organizations, maps, videos, hotlines, and books. A website and phone number is listed with each resource if it is available. The list can be seen in Appendix A (p. 14).

BMP: 1-2. Develop and distribute a Roanoke County Stormwater Informational Mailer to Roanoke County Residents on a Yearly Basis. The mailer will be designed as a regional document based on the unique issues and concerns for the Roanoke River Watershed.

In conjunction with the City of Roanoke and the Town of Vinton, the County developed an informational mailer titled "What's Your Watershed Address?" The County's measurable goal was to distribute the mailer to 8,500 County residents which is approximately 10% of the County population. The flyer was printed as an insert to the Department of Parks and Recreation bulletin which was distributed to 34,673 households in the County. This is approximately 100% of the population. An extra 1,000 flyers were printed for distribution in libraries, schools, and county offices throughout the next year. The flyer can be seen in Appendix A (p. 24).

BMP: 1-3. In cooperation with Virginia Save Our Streams, Roanoke County will provide Stream School Seminars for adults and high school students on a yearly basis.

Two Save Our Streams field days were conducted at Explore Park on June 26, and August 7. They were well attended and it is anticipated that more will be held in the upcoming year. An attendance list is provided in Appendix A (p. 28).

BMP: 1-4. Develop a stormwater education program for Roanoke County school age children. Different programs will target appropriate grade levels.

The Explore Park EarthWISE program entitled *Stormwater and Water Resources Education* was utilized to fulfill the requirements of this BMP. The program consists of SOL-based lessons that expose students to storm water, watersheds, pollution and runoff, regional water resources and other grade appropriate (K-12) topics. A description of the EarthWISE program is shown in Appendix A (p. 30) and a table showing the schools that utilized it and the number of students reached is shown in Appendix A (p. 42). Explore Park held summer programming for children consisting of two camps from June to August 2004. Approximately 15 Roanoke County children visited Explore Park as part of the EarthWISE summer program. A total of 1065 children were reached through the EarthWISE outreach programs.

Other programs and events included a poster contest in the Spring of 2004 and Water Monitoring Day in the Fall. All of the contest entries were displayed at Explore Park over the summer and the winner's poster was used as the cover of the BMP 1.2 informational mailer. For Water Monitoring Day, 761 Roanoke County students participated in collecting water samples at various streams throughout the County and testing for temperature, pH, dissolved oxygen, and turbidity.

BMP 1-5 Distribute posters, bumper stickers, flyers, fact sheets, and other items promoting the importance of Stormwater Quality to the citizens of Roanoke County.

Information was distributed at a large number of events around the region. The majority of the information was in the form of brochures, bumper stickers, maps, and flyers provided by the DCR. A list showing the events and the number of people in attendance, and quantities and types of information that was distributed is shown in Appendix A (p. 43).

BMP 1-6 Utilization of billboards in high traffic corridors to advertise the importance of stormwater quality, conservation, and other stormwater issues.

The County of Roanoke has removed this BMP from its permit. Since the date of approval of the permit, the County's zoning regulations have changed and no new billboards are being allowed within the County.

BMP 1-7 Establish a stormwater hotline for Roanoke County Citizens that allows citizens to report storm drain violations (illegal dumping), make general comments about stormwater/storm drains and stormwater maintenance concerns. The hotline will be designed to include comment tracking and follow up protocols, provide general information on the stormwater management program and provide storm water management program contact information.

The County's Citizen Inquiry System (CIS) is being utilized to handle the stormwater hotline. This system allows any County employee to provide citizens with prompt service regarding their questions and concerns. After a stormwater-related citizen issue is entered into the system, the assigned employee is notified via email, and any activity related to the issue is be logged in the system. Outside of normal business hours, citizens can log on to the County's website and fill out a form that is linked to the CIS. A stormwater specific email address has also been established and is posted on the stormwater web page.

BMP 1-8 Develop and maintain a Roanoke County Stormwater web page, where citizens can get information concerning the County's Stormwater Management Program, ordinances, design guidelines, general information, contact information, pollution prevention information, educational programs and links to other organizations and sites.

The County's website has a page devoted to Stormwater. The web address is <http://www.roanokecountyva.gov/Departments/Engineering/1Stormwater/>. The site currently includes general information, contacts, and links to stormwater information.

BMP 1-9 Produce Stormwater Program Public Service Announcements on a yearly basis that utilize radio and television media to educate the public on stormwater issues.

Efforts for PSAs this year were focused on the Water Monitoring Day Celebration. A paid advertisement was run in the Roanoke Tribune, Channel 7 news covered the event, a text message was run on Cox Cable 9, and a press release for the event was distributed. This information can be seen in Appendix A (p. 46).

BMP 1-10 Develop a stormwater quality education program for specific commercial businesses within the County of Roanoke and provide information to these businesses in an effort to increase business owner awareness of the impacts of illicit discharges into the County's storm sewer system.

An informational mailer along with a letter promoting stormwater video presentation was sent to 700 businesses from the list of target businesses. The video, specifically designed for businesses is titled "Stormwater Runoff: I can make a difference". The list of target businesses and the letter that was sent to them are both in Appendix A (p. 49).

Minimum Control Measure 2: Public Participation and Involvement

BMP 2-1 Coordinate a Storm Drain Stenciling Program with local schools, organizations, neighborhoods, businesses, etc., with the goal of stenciling storm drains throughout the County.

The storm drain stenciling program primarily involves teen groups and teaches that the storm drain system discharges untreated water into local streams and rivers, and also teaches the consequences of dumping wastes into the storm drains. Participants have found this activity enjoyable and the County expects to stencil a large percentage of drains near schools, neighborhoods, and other public places. A list of areas where storm drains were stenciled can be found in Appendix B (p. 59).

BMP 2-2 Coordinate a Save our Streams Program to educate local schools, organizations, neighborhoods, and businesses on water quality regulations, water pollution and the importance of stream monitoring within the County.

This BMP coordinates with BMP 1-3. Two Explore Park employees and at least five other citizens were trained and certified as monitors this year. Currently nine streams are being monitored quarterly in the Upper Roanoke River Watershed. A list of certified monitors and the streams that they monitor can be seen in Appendix B (p. 60)

Mudlick Creek runs adjacent to the property at Hidden Valley High School and if at least one of the biology teachers at the school is willing to become certified in the SOS protocol, a student monitoring program will be established there.

BMP 2-3 Once a year, at Virginia's Explore Park, hold a public forum to address different storm water issues, the County's progress towards storm water quality improvements, and to receive input from the public on the County's Stormwater Management Program.

The public forum meeting was held on October 16th of 2004 as the Water Monitoring Day Celebration. Over 200 people attended the event that was held in conjunction with the Upper Roanoke River Roundtable's annual meeting. Over 700 students participated in Water Monitoring Day, the day before the public forum. All of the data collected was consolidated and displayed at Explore Park during the celebration. A list of attendees and an agenda for the event are both shown in Appendix B (p. 61).

BMP: 2-4. Establish a Stormwater Management Program Citizens Advisory Committee

Committee members from the County of Roanoke, City of Roanoke, and Town of Vinton were asked to participate by representatives from their respective municipalities and met four times. For the second year of this committee the County recruited four citizens. The committee of 14 members comprises of citizens from The County, the City of Roanoke, and the Town of Vinton. The meetings were held quarterly with the government representatives and the location in rotated among the localities. Dinner is provided, as it was found this would help increase attendance. Attendance lists and minutes from the meetings can be found in Appendix B (p. 63).

Minimum Control Measure 3: Illicit Discharge Detection and Elimination

BMP: 3-1. Develop a storm drain system map which identifies all outfalls 15-inch and larger and all 12-inch outfalls from zoned industrial properties within the County of Roanoke, which discharge to natural waterways.

The County of Roanoke is making two distinct efforts to map the storm drain system. The first involves drafting the system in AutoCAD, based on research of as-built plans and planimetric data derived from aerial photography. To date, this effort has been concentrated on the developed area south of the City of Roanoke. The second effort towards mapping the storm drain system is field collection of the storm drain structures using the Global Positioning System (GPS). During the summer of 2004 the County of Roanoke hired interns to do the GPS mapping and continue the efforts from the previous year.

The AutoCAD-based mapping has located nearly 5000 storm drain structures, with 352 15-inch or larger outfalls, and 21 12-inch or larger outfalls from industrial zoned properties. All structures that have been mapped from as-built plans and topo maps will be field verified with GPS prior to completion of the mapping effort. A total of 5428 structures have been collected with GPS in the field, with 294 15-inch or larger outfalls and 43 12-inch or larger outfalls from industrial zoned properties.

It is estimated, based on data from the GIS department and field measurements in the Town of Vinton, that there are, on average, 40 structures per tax map. Therefore there are approximately 15,000 to 20,000 storm drain structures in the County of Roanoke. The measurable goal for this BMP is a complete map of 25% of all storm drain outfalls 15-inch and larger, and all outfalls 12-inch and larger from industrial zoned properties within the County of Roanoke. This map can be found in Appendix C (p. 72).

BMP: 3-2. Develop regulations and an enforcement program for a stormwater ordinance preventing illegal discharges into the storm drain system.

An illicit discharge ordinance was drafted for approval by the Board of Supervisors. The ordinance prohibits all discharges of sewage, industrial wastes, or other wastes into the storm drain system or into areas that drain to the storm drain system. The ordinance is expected to be adopted as part of the County's stormwater ordinance in the Spring of 2006. The draft of the illicit discharge ordinance is in Appendix C (p. 82).

BMP: 3-3. Pilot project for Illicit Discharge Detection and Elimination.

During the summer of 2004, the County implemented a pilot project for illicit discharge detection in the Mudlick Creek watershed. All of the outfalls within the watershed that had been located from the storm drain mapping effort were inspected during a dry period in early August. Only one flow was detected, and after it was traced back to the source, it was determined that it was not an illicit discharge. This project gave some insight into the process of detecting illicit discharges. It seems that the likelihood of finding any is low with this method as it is truly a matter of looking in the right place at the right time. If time allows, summer interns may be used to attempt another pilot project in a more industrial area of the County.

BMP: 3-4. Identify and enforce correction of illicit connections.

No activity in year two

Minimum Control Measure 4: Construction Site Runoff Control.

BMP: 4-1. Require Erosion and Sediment Control plans for any land disturbance greater than 10,000 square feet.

In February 2004 the County of Roanoke adopted an updated erosion and sediment control ordinance to reduce construction pollutants in its storm water runoff. The ordinance states that any land-disturbing activity of 10,000 square feet or more requires an approved erosion and sediment control plan that contains measures to reduce soil erosion and practices to control sediments that have already eroded. For land-disturbing activities between 5,000 and 10,000 square feet, either a plot plan prepared by a certified responsible land disturber or an engineered plan prepared by a professional engineer must be approved. For land-disturbing activities between 2,500 and 5,000 square feet, an “agreement in lieu of a plan” may be substituted for an erosion and sediment control plan. The complete erosion and sediment control ordinance can be found in Appendix D (p. 89).

In 2004 the Department of Community Development issued 78 erosion and sediment control permits with a total disturbed area of approximately 427 acres.

BMP: 4-2. Identify current Erosion and Sediment Control certified employees and develop a program for additional certifications and cross training.

Three county departments, Community Development, Parks and Recreation, and Utilities, were identified as having positions whose job responsibilities necessitate erosion and sediment control training and certification. Currently the county utilizes training and certification through the Department of Conservation and Recreation’s Virginia Erosion and Sediment Control Training and Certification Program. A table of the positions within each department, the employee(s) in the positions, and their level of certification can be found in Appendix D (p. 101).

BMP: 4-3. Develop a County sponsored awards program for Exemplary Erosion and Sediment Control Compliance

In year one an erosion and sediment control awards program was developed. The program recognizes any outstanding project or program that demonstrates excellence in natural resource conservation and environmental protection through the use of effective erosion and sediment control policies. The focus is on the application of a new practice, design or process that has combined technological and environmental considerations to reduce erosion and sediment loss and improve water quality.

A flyer describing the awards program and the types of innovative practices it promotes was developed for distribution to individuals and companies in preliminary meetings. This will provide county staff with a way to help promote the program and encourage erosion and sediment control practices that exceed the minimums for compliance. This flyer is in Appendix D (p. 102).

County staff in development review, engineering, and inspections make note of and vote on projects to be considered for awards. Any awards given will be presented in front of the Board of Supervisors quarterly or semi-annually, depending on the number of awards given. A plaque will be given and companies will be recognized in a splash screen on RVTV, the local public access television station. A seal or logo is also being considered so recipients can show in their literature or signage that they were recognized by the County of Roanoke for their efforts in erosion and sediment control.

In year two of the permit, no awards were given. It is difficult to find projects that have exceeded the minimum standards for erosion and sediment control. The County also does not feel it is appropriate to give awards to projects that have just met minimum standards and have had no violations, since that is what is required of all projects. The County plans to utilize the Roanoke Regional Homebuilders Association and the Upper Roanoke River Roundtable to help make nominations for County review of projects that deserve recognition.

Minimum Control Measure 5: Post Construction stormwater management in new development and redevelopment.

BMP: 5-1. Develop, adopt and enforce an ordinance addressing water quality in post construction site storm water runoff. Design the Roanoke County Stormwater Management Ordinance to address water quality, watershed management, design guidelines, and other applications that will meet the VPDES Phase II requirements.

The County, along with the City of Roanoke, has decided to hire a consultant to help with the preparation of a stormwater management ordinance. A number of localities in the region have met to discuss the possibility of some level of regional cooperation in the development of the stormwater ordinance. The ordinance will address several areas of concern in terms of resource protection including: stormwater quantity and quality, watershed planning, low impact development techniques, steep slope/soils development issues, floodplain management, land conservation, stream buffer requirements and maintenance of drainage easements. As per the permit requirements, the County plans to have the ordinance adopted by the Board of Supervisors in the Spring of 2006.

BMP: 5-2. Develop an Inspection and Enforcement program for maintenance of Post Construction structural stormwater quality controls in new development and redevelopment. The inspection program will be designed to tie into CRS inspections, Flood/911 response calls, flood damage reporting, and stream habitat inventory efforts.

This program is being created as one of the sections of the new stormwater ordinance which is in development. Efforts for year two were primarily focused on developing an inventory of structural runoff controls. In conjunction with the storm drain system mapping program, a database of structures was developed. Stormwater ponds were located in the field and digitized from aerial photography. Currently there are 154 structures inventoried in the database. The County plans to use handheld Windows CE-based computers with GPS integration to conduct the bi-annual inspections.

Minimum Control Measure 6: Pollution Prevention/Good Housekeeping.

BMP: 6-1. Develop Spill Prevention and Control Plans for Municipal Facilities

As a cornerstone of EPA's strategy to prevent oil spills from reaching our nation's waters, the Agency requires that facilities with a total above ground oil storage capacity of greater than 1,320 gallons develop and implement oil spill prevention, control, and countermeasure, or SPCC plans. All county facilities were evaluated and it was determined that the Public Safety Center, and the Cave Spring, Clearbrook, Fort Lewis, and Hollins fire stations required SPCC plans. The County hired Maureen Castern of Stratus Environmental Systems to prepare SPCC plans for the listed county facilities. The plans have been completed and the County is currently in the process of implementing them.

BMP: 6-2. Participate in a Household Hazardous Waste (HHHW) Collection Event

The County of Roanoke participated in Household Hazardous Waste Collection Day at the Roanoke Civic Center on August 21 2004. Over 800 people dropped off their unwanted household waste items. The City of Roanoke, Roanoke County, Botetourt County, Roanoke Valley Resource Authority, and the Town of Vinton provided financial resources and volunteers, which enabled the day to be a success. A table showing the breakdown of participants and the information that was distributed for the event can be found in Appendix E (p. 105). The next Household Hazardous Waste Collection Days are scheduled for May 15, August 7, and November 6, 2005.

BMP: 6-3. Develop and Maintain a Program for Maintenance of Public Storm Drain Systems.

The Stormwater Division of the Department of Community Development employs two stormwater construction and maintenance crews with a total of 8 men. These crews perform a large variety of duties including storm pond maintenance, installation of pipes and structures, repair of damaged structures, emergency response to flooding problems and all other county storm drain system maintenance. The measurable goal for this BMP is 5600 labor hours towards storm sewer system maintenance. Eight men working full time for one year is equivalent to 16000 labor hours, which is nearly three times the County's commitment for this BMP.

Currently, the stormwater operations supervisor records the work on projects in a hand written logbook. A database has been developed to keep a log of drainage projects and the hours worked on those projects. This will provide a better method to maintain records of the activities of the stormwater maintenance crew and will allow for more accurate reporting of man-hours for subsequent years of the County's VPDES permit.

BMP: 6-4. Develop and maintain Pollution Prevention and Hazardous Waste training programs for County employees, grounds maintenance workers and landscaping crews.

The County of Roanoke currently maintains basic hazardous waste training for employees in Fire and Rescue. The County's Environmental Assessment Team (EAT) is also involved in specifying hazardous waste training for applicable positions within the County. A basic environmental awareness and pollution prevention video was created as one of the tasks of the EAT. This video was shown to all current County employees, and all new employees are shown the video.