Chickahominy River

Total Maximum Daily Load (TMDL) Action Plan

Hanover County, Virginia

Permit No. VAR040012

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Introduction

Virginia Regulation 9VAC-25-890 et. seq. regarding the General VPDES permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) required Hanover County to establish a Total Daily Maximum Load (TMDL) Action Plan to address the permit special condition for local TMDLs that were approved by the EPA prior to July 1, 2013. An update of the previously approved Chickahominy River TMDL Action Plan is required by May 1, 2020. The Chickahominy River TMDL Action Plan may be implemented in multiple phases over more than one state permit cycle using an adaptive iterative approach. This TMDL Action Plan identifies the best management practices implemented under terms of the state permit.

This plan is in compliance with the general permit and consistent with the Bacterial Implementation Plan Development for the Chickahominy River and Tributaries Technical Report. Focus will be directed at the MS4 area surrounding Beaverdam Creek because this is the most urbanized portion within Hanover County which contributes to the Chickahominy River impairment. Nutrient and Sediment reductions for the Chickahominy River and Tributaries are addressed through Hanover County's Chesapeake Bay TMDL Action Plan.

1. The name(s) of the Final TMDL report(s).

E. coli TMDL Development for Chickahominy River and Tributaries
- EPA approval 9/19/2012, SWCB approval 3/25/2013

Bacterial Implementation Plan Development for the Chickahominy River and Tributaries
- EPA approval 9/2/2014, SWCB approval 2/25/2016

2. The pollutant(s) causing the impairment(s).

E. coli

3. The WLA(s) assigned to the MS4 as aggregate or individual WLAs.

The final in-stream aggregate (Hanover County, Town of Ashland, and VDOT in Hanover County) E. coli bacterial load for the entire Chickahominy River study area:

Daily: 9.38E+07 cfu/yr

Annual: 3.43E+10 cfu/yr

4. Identification of the significant sources of the POC(s) from facilities owned or operated by the MS4 operator that are not covered under a separate VPDES permit. For the purposes of this requirement, a significant source of pollutants means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL. *(General Permit Part II.B.3(d)*)

Meetings were previously held with all Hanover County departments (Fire and EMS, Public Utilities, Public Works, and the Hanover County School Board) that operate facilities that could potentially meet the criteria for a high priority facility (significant source of pollutants) and 100% of Hanover owned facilities were screened for all potential pollutant impacts to stormwater. Types of facilities discussed included composting facilities, equipment storage and maintenance facilities, materials storage yards, pesticide storage facilities, public works yards, recycling facilities, salt storage facilities, solid waste handling and transfer facilities, and vehicle storage and maintenance yards. Identification, screening of facilities, and SWPPP implementation was performed in accordance with Part I.E.6.c and a detailed summary can be found in the MS4 Program Plan.

During discussions with Fire and EMS, Public Utilities and the Hanover County School Board, no high priority facilities or practices that could potentially pollute stormwater were identified. Discussions with Hanover Public Works identified two high-priority facility within the MS4 urbanized area; the Elmont and Mechanicsville Solid Waste Convenience Centers (not located in the Chickahominy River watershed).

During the facility screening process, all sanitary sewer pump stations located within the MS4 urbanized area of the Chickahominy River watershed were identified and were determined not to be significant pollutant sources. Sewer pump stations are managed under the SSO program described in Section 5. There are two operator-owned facilities located within the MS4 urbanized area that have septic systems. These two facilities are not located in the Chickahominy River watershed and are routinely maintained and would not provide a risk of stormwater contamination. In addition, there are two operator-owned dog parks located in Hanover County, but neither are located within the MS4 urbanized area nor the Chickahominy River watershed.

5. Management practices and strategies designed to reduce the pollutants of concern. *(General Permit Part II.B.3 (e))*

*Management Practices to reduce pollutant loading were selected based on the Chickahominy River Bacterial Implementation Plan, Hanover County's MS4 Program Plan, and in accordance with General Permit Part II.B.4 (a).

Septic System Pump-out Program

There are 2,242 properties using septic systems that are within Hanover County's MS4 urbanized area of the Chickahominy River watershed. State law requires that septic tanks located in a Chesapeake Bay Preservation Area be pumped out at least once every five years. Septic systems that are not routinely maintained have the potential to leak and contribute to bacteria loading. The Public Works Department tracks septic systems in the County and reminder letters are sent every five years to residents. The County requires that property owners provide documentation their system has been pumped.

Information about the County's septic pump-out program is available on the county website and can be found at the following link: http://www.hanovercounty.gov/Water-and-Sewer/Septic-Pump-Out/

Sanitary Sewer Overflow (SSO) Program

Hanover County has a robust Supervisory Control and Data Acquisition (SCADA) system which leverages CDMA/POTS technology to monitor all of its wastewater pump stations. The SCADA system provides extensive alarming and access to remote monitoring which helps to minimize response time. The Department of Public Utilities maintains "on-call" capabilities and strives for a response time of no more than one hour. On-call staff responds to all utility related issues including SSOs and pump station alarms. SCADA and "on call" services continue to effectively minimize the length of SSO events.

Hanover County has an up to date GIS system with layers dedicated to the County's sewer system. Field personnel have access to this information and use the system to quickly diagnose sewer related issues. The County provides regular funding via its Capital Improvement Program and Operation & Maintenance budgets for sewer rehabilitation with the goals of extending asset life and minimizing the risk of SSO events.

Pet Waste Program

The pet waste management program places post mounted distribution boxes for bags to be used for the collection of pet wastes in public parks, recreational areas, and neighborhoods. This serves to educate the public of the importance of the collection of these wastes. It is the responsibility of pet owners to clean up behind their pet in any public setting to reduce the harmful effects of dog waste on water quality and human health. This program is designed to encourage proper disposal of pet waste.

A pet waste flier was developed discussing the impact of pet waste on the environment. These fliers are distributed in monthly mailings to licensed pet owners and a copy of the flier can be found in the MS4 Program Plan.

The Pooch Pal Program increases individual and household knowledge by identifying pet waste as a pollutant and providing educational materials and resources to address the pollutant. Pet waste is a key source of pollutants in waters in Hanover County that are impaired for bacterial contamination. Encouraging the collection of these wastes and educating the public on the proper management of pet waste are effective measures to address this pollutant.

SWM Pond Retrofits

Hanover County implements retrofit projects to address both the Chesapeake Bay TMDL and Chickahominy Bacterial TMDL (further detail provided in the Chesapeake Bay TMDL Action Plan). Projects located in the Chickahominy watershed include:

- An existing dry pond at Laurel Meadows Elementary School was converted to a level 2 wet pond.
- Two existing dry ponds located in the High Point Farms and Locust Hill subdivisions were converted to level 1 constructed wetlands.
- Floating wetland islands and aeration units were installed at 4 existing wet ponds.

SWM Pond Retrofit projects help to reduce bacteria loading as a direct result of controlling the allowable discharge from each facility and are a focus of the County because they address requirements of both Hanover County's Chesapeake Bay TMDL and Chickahominy Bacterial TMDL. These facilities are inspected, at a minimum, two times per year and maintenance is performed as necessary.

There are a total of 83 stormwater facilities located within the MS4 urbanized area of the Chickahominy River watershed. This total is comprised of 12 operator-owned and 71 privately-owned facilities, which are maintained in accordance with Hanover County's MS4 permit.

Illicit Discharge Detection and Elimination

The County inspects all outfalls in the MS4 area throughout the MS4 permit cycle. All outfalls to be inspected have been divided for the five year permit cycle. The focus of permit year 1 outfall inspections is older subdivisions, many of which are on septic systems. The County has developed dry weather screening procedures as required by the MS4 permit. A summary of screening results, including any follow-up actions, are included as part of the MS4 Annual Report. Outfall screening/dry weather monitoring is an appropriate mechanism to detect illicit discharges to the storm sewer system.

Hanover County has also developed procedures and spreadsheet to track illicit discharges. The County has developed illicit discharge tracking and response procedures as required by the MS4 permit. A copy of the tracking spreadsheet is available in the MS4 Annual Report.

Commercial Site Inspections

The County conducts inspections of designated retail areas twice a year and reports any litter-trash or stormwater issues to the management of the business located there. Sites are examined for areas with the potential to pollute stormwater runoff.

Hanover County has focused on commercial sites with a potential to pollute storm water as a targeted strategy to prevent stormwater pollution. The management of materials and wastes (solid and liquid) at these sites could provide an avenue for pollution to take place if the wastes and other materials are stored outdoors and not properly managed. Dumpster leachate and dumpsters without drain plugs can be a source of bacteria. These inspections are an effective targeted strategy to educate business owners.

Legal Authorities

Hanover County maintains a list of legal authorities aimed at reducing the pollutant identified in the WLA. Applicable ordinances include Chapter 10 – Environmental Management and Chapter 12 - Flood Plain and Drainage Control. Hanover County Ordinances meet requirements to adopt a stormwater program consistent with the requirements of 9VAC-25-870-150.

Hanover County received VSMP program approval from DEQ on December 22, 2014 and maintains a compliant Municipal Separate Storm Sewer System (MS4) Permit (VAR040012).

6. Outreach strategy to enhance the public's education and employee training on methods to eliminate and reduce discharges of the POC(s). *(General Permit Part II.B.3 (g))*

Community Education and Outreach

The County is a financial supporter of the Hanover Caroline Soil and Water Conservation District (HCSWCD). The money provided by the County is used to support the water quality programs that the HCSWCD administers. Hanover County also supports the Master Gardeners Program and any requests to participate in the seminars for these educators. HCSWCD, with the help of Master Gardeners and other volunteers, offers educational opportunities to Hanover and Caroline County Citizens throughout the year. Their watershed education programs for students and residents increase individual and household knowledge of the impacts of developed land on stormwater and provide a direct association with the plants and animals that can be impacted by improper management of resources.

The HCSWCD has developed and receives funding through DEQ for their Chickahominy River TMDL Implementation Project that targets non-point source pollution and bacterial reduction. Targets of this project include: 1) pet waste; 2) urban BMP assessments and rain garden implementation; 3) buffer and tree plantings; 4) fencing and grazing management; 5) equine waste management and composting; 6) outreach education to both agricultural and residential landowners; and 7) water quality monitoring. The goals of the Implementation Plan are to build on already established County programs and to identify and recruit an entirely new audience of citizens for BMP implementation.

Chesapeake Bay TMDL Outreach

The County keeps residents informed of the requirements of the Chesapeake Bay TMDL and the obligation to address the TMDL under the provisions of the MS4 permit. Public education and outreach is provided through announcements in county newsletters and promotion of the Chesapeake Bay TMDL Action Plan at public hearings and on the County website. Announcements provide tips on how residents can reduce pollution to the Chesapeake Bay through their everyday activities such as pet waste pick-up, landscaping, car washing, and yard waste disposal.

The Chesapeake Bay TMDL Action Plan is available on the county website and can be found at the following link: http://www.hanovercounty.gov/Property/Municipal-Separate-Storm-Sewer-System-Permit-(MS4)/

Chesapeake Bay TMDL outreach increases citizen knowledge of pollutants that may enter the Bay through the County's MS4. Keeping the public informed allows them to

be proactive in day-to-day activities that they may not realize contribute pollutants to stormwater runoff. Maintaining an updated Chesapeake Bay TMDL Action Plan educates the public of projects Hanover County is undertaking to reduce pollutant loading to the Bay.

Employee Training

The County conducts biennial employee education as required through the MS4 permit. Training typically consists of a half-day seminar and/or online safety training which includes presentations on the MS4 program, stormwater pollution prevention, spill prevention control and countermeasures, and good housekeeping at County-operated facilities. County departments attending the training include personnel from Parks and Recreation, Fleet Management, Facilities Management, Fire and Emergency Services, Public Works, and Public Utilities. Providing training, refocusing, and reminders of applicable requirements are effective ways to focus employee attention on pollution prevention practices.

7. A schedule of anticipated actions planned for implementation of the items in Sections 5 and 6. *(General Permit Part II.B.3 (h))*

Actions	Programs / Practices	Implementation	Milestone
Management Practices	Septic System Pump-outs	On-going	Maintenance every 5 years
	SSO Program	On-going	Continuous
	Pet Waste Program	On-going	Continuous
	SWM Pond Retrofits	On-going	POC required reductions reported in Bay TMDL Action Plan. Inspect County SWM facilities bi-annually.
	Illicit Discharge Detection and Elimination	On-going	5 year inspection cycle for outfalls
	Commercial Site Inspections	On-going	Inspect sites bi-annually
	County Ordinance Code Chapters 10 & 12 MS4 Permit VAR040012	Complete	--
Education and Outreach	Community Education and Outreach	On-going	Consistent with MS4 permit local activity participation
	Chesapeake Bay TMDL Outreach	On-going	Consistent with MS4 permit Public Education and Outreach Plan
	Employee Training	On-going	Consistent with MS4 permit Training Guidance (biennially)

8. Public Comments on Action Plan. *(General Permit Part II.B.7)*

Prior to submittal of the action plan required in Part II.B.1, the permittee shall provide an opportunity for public comment proposed to meet the local TMDL action plan requirements for no less than 15 days.

The Hanover County Department of Public Works presented on the Chickahominy River TMDL Action Plan at the April 15, 2020 Hanover County Board of Supervisors Meeting. Public comments were allowed for a period of no less than 15 days through the close of the public hearing. The Board of Supervisors Meeting was advertised through the Hanover County website, Mechanicsville Local, and Ashland-Hanover Local.

The following comments were received and addressed:

1. Increase tree canopy: It is mentioned just briefly as only one BMP that HCSWCD uses. Please consider that trees offer more to our neighborhoods than just reducing stormwater runoff. Trees offer more "bang for your buck" when you start to explore the co-benefits that they would bring to Hanover. According to the Center for Watershed Protection, expanding urban tree canopy "reduces the urban heat island effect, reduces heating/cooling costs, lowers air temperatures, reduces air pollution, increases property values, provides wildlife habitat, and provides aesthetic and community benefits such as improved quality of life." Furthermore, trees offer a means for addressing climate change and sustainability of Hanover, as they can sequester carbon and keep it from entering the atmosphere. In fact, according to the U.S. Energy Information Administration, "Plant, say, one silver maple today, and in 25 years—assuming it survives—it will have sequestered about 400 pounds of carbon dioxide."
   Response: Tree canopy restoration and preservation is an encouraged practice in Hanover County through the HCSWCD and Chesapeake Bay Preservation Ordinance (Ch.10, Art. II); reference included in the plan. Reforestation will be considered where it provides a cost effective alternative for reducing POC(s).

2. Increased water quality monitoring: The Plan cites dry weather monitoring being conducted in Section 5. Please consider adding steps to implement monitoring following large rain events when bacteria levels typically see a spike.
   Response: Acknowledged; will take into future consideration. We are relying on the state monitoring network at this time due to monitoring complexities and consistency in monitored results. Our plan is intended to address the effects of these impacts.

3. Climate Resiliency: As a family that plans on staying in Hanover County as our permanent place of residence, it is important that all Plans created by the County consider how to make our communities more climate resilient. Climate change is upon us and there are Hanover citizens that will feel the effects of climate change more than others. By simply acknowledging a new section in the Plan that address climate resiliency for our community would be reassuring to me as a citizen. It would mean the County is beginning to think about those types of scenarios. Please consider updating the document to include this as a section. Resources such as https://www.iisd.org/faq/building-a-climate-resilient-city/ and https://resilientvirginia.org/ can help with this planning.
   Response: Hanover County acknowledges climate resiliency of new development through existing legal authorities. Ordinance Chapters 10 &12 discuss stormwater climate change concerns such as flood protection, tree

preservation, encouraging the use of low-impact development practices, and minimizing land disturbance and impervious land cover; reference included in the plan. Hanover County's implementation practices also have ancillary climate resiliency benefits and we will continue to consider those effects. These include reducing temperatures, stormwater flows, and improving stream function while reducing POC(s).