



## **MS4 ANNUAL REPORT**

REPORTING PERIOD: JULY 1, 2020 - JUNE 30, 2021

MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION MARINE  
CORPS BASE QUANTICO (MCINCR-MCBQ)  
QUANTICO, VA

September 2021

Revised January 2022



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# Acronyms and Abbreviations

|             |   |
|-------------|---|
| BMP         | best management practice  |
| CGP         | Virginia Construction Stormwater General Permit                                 |
| CSWMAP      | Comprehensive Storm Water Management Action Plan                                |
| DWF         | dry weather flow  |
| EC          | Environmental Coordinator   |
| lb/yr       | pound(s) per year   |
| MCINCR-MCBQ | Marine Corps Installations National Capital Region – Marine Corps Base Quantico |
| MCM         | minimum control measure   |
| MS4         | Municipal Separate Storm Sewer System   |
| NMP         | nutrient management plan  |
| NREA        | Natural Resources and Environmental Affairs                                     |
| SWPPP       | stormwater pollution prevention plan  |
| TMDL        | total maximum daily load  |
| TN          | total nitrogen  |
| TP          | total phosphorus  |
| TSS         | total suspended solids  |
| USEPA       | United States Environmental Protection Agency                                   |
| VDEQ        | Virginia Department of Environmental Quality                                    |
| VPDES       | Virginia Pollutant Discharge Elimination System                                 |
| WWTP        | wastewater treatment plant  |



# Facility Information

**Name of Facility** Marine Corps Base Quantico  
**Street Address** 3250 Caitlin Ave  
**City** Quantico **State** VA **Zip Code** 22134  
**County** Stafford, Prince William, Fauquier (MS4 in Prince William County only)

# Signature and Certification

**Certification, as required by Virginia Administrative Code (9VAC25-890-40):**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



# Introduction

This is the annual report for the Marine Corps Installations National Capital Region – Marine Corps Base Quantico (MCINCR-MCBQ) for its Phase II (small) Municipal Separate Storm Sewer System (MS4) permit number VAR040069<sup>1</sup> issued on November 1, 2018. This report covers the period of July 1, 2020, through June 30, 2021.

To meet the six minimum control measures<sup>2</sup> (MCMs) required under the MS4 permit, MCINCR-MCBQ has proposed best management practices (BMPs) to help reduce the negative effects of stormwater runoff. The BMPs to be implemented by MCINCR-MCBQ are described in the January 2019 Final MS4 Program Plan and evaluated in this annual report to determine the MS4 program's effectiveness.

As a Department of Defense facility in an urbanized area, MCINCR-MCBQ is considered a small MS4, which subjects it to the federal Phase II stormwater requirements and state requirements. MCINCR-MCBQ is also subject to the requirements of the Chesapeake Bay Preservation Act, which places additional restrictions on land disturbing activities.

Requirements for an associated stormwater pollution prevention plan (SWPPP) under Virginia Pollutant Discharge Elimination System (VPDES) permit VA002151 for industrial stormwater discharges were previously met by MCINCR-MCBQ through a Comprehensive Storm Water Management Action Plan (CSWMAP), which identified stormwater pollution prevention requirements for both the Industrial VPDES permit and MS4 permit. However, the Virginia Department of Environmental Quality (VDEQ) requested a separate standalone MS4 SWPPP, which was developed August 2019 to meet Section I E 6 c of the MS4 permit. The MS4 SWPPP development is further detailed in Section 8.2 of this annual report.

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<sup>1</sup> General Permit No. VAR040069, General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems; Authorization to Discharge under the Virginia Stormwater Management Program and the Virginia Stormwater Management Act. Effective Date: November 1, 2018. Expiration Date: October 31, 2023.

<sup>2</sup> The six minimum control measures are delineated in 9VAC25-890-40 Part I E.



# MS4 Program Plan and Program Effectiveness

MCINCR-MCBQ's MS4 Program Plan underwent a thorough review and revision in January 2019 to meet the requirements of the MS4 permit effective November 1, 2018. MCINCR-MCBQ revised and updated the MS4 Program Plan again in May 2020, which provided clarity to the sections associated with the six MCMs and Total Maximum Daily Load (TMDL) Special Conditions outlined in Sections I and II of the MS4 permit and added a section summarizing annual reporting requirements. The new and updated content provided information, changes, latest inspection dates, and additions to the stormwater program.

MCINCR-MCBQ met the measurable goals set for BMPs identified in the MS4 Program Plan during this reporting period to the best of its ability, given the constraints of COVID-19. MCINCR-MCBQ does not rely on another entity to satisfy any state permit obligations or to implement portions of the MS4 Program Plan. There have been no changes to roles and responsibilities that impact the implementation of this MS4 program. Two changes to key personnel have occurred during the reporting period. The Natural Resources and Environmental Affairs (NREA) Director is now Walter Christensen, and the NREA Water Program Assistant is Ben Foster.

Sections 3 through 8 of this annual report include a review and assessment of each MCM, and Sections 9 and 10 meet the reporting requirements for special conditions related to the Chesapeake Bay TMDL and Local TMDLs.



# MCM 1: Public Education and Outreach

BMPs pertaining to MCM 1: Public Education and Outreach focus on the development of educational materials and awareness concerning stormwater pollution. They are designed to inform and educate the public about the potential impact stormwater discharges have on local water bodies and the steps that the public can take to help reduce pollutants in stormwater runoff.

## 3.1 High-Priority Stormwater Issues

MCINCR-MCBQ has identified the following three high-priority stormwater issues for outreach and education: nutrient overloading in waterways (Chesapeake Bay TMDL), importance of adequate ground cover to prevent soil erosion, and litter prevention.

## 3.2 Strategies to Communicate High-Priority Stormwater Issues

In this reporting period, MCINCR-MCBQ used strategies identified in **Table 3-1** to communicate each of the high-priority stormwater issues during Earth Day and Kids Fest.

**Table 3-1. Summary of Communication Strategies**

| Strategy                               | Description   | Corresponding High-Priority Stormwater Issues   |
|--|---|---|
| Media Materials                        | The Marine Corps Base Quantico Facebook page ( <a href="https://www.facebook.com/events/814527192750910/">https://www.facebook.com/events/814527192750910/</a> ) posts pictures and descriptions of Earth Day, Kids Fest, and MCINCR-MCBQ NREA Branch participation in the Modern Day Marine event (canceled because of COVID-19). Car wash guidelines are also posted to the Quantico webpage ( <a href="https://www.quantico.marines.mil/LinkClick.aspx?fileticket=PPF5i_NYx1l%3d&amp;tabid=20836&amp;portalid=147&amp;mid=46642">https://www.quantico.marines.mil/LinkClick.aspx?fileticket=PPF5i_NYx1l%3d&amp;tabid=20836&amp;portalid=147&amp;mid=46642</a> ). | Nutrient overloading in waterways<br>Litter prevention  |
| Training Materials                     | Onsite classroom training was provided for construction personnel, contract officers, engineering technicians, construction managers and other installation staff. These can be found in <b>Table 8-1</b> .   | Nutrient overloading in waterways<br>Importance of adequate ground cover to prevent soil erosion<br>Litter prevention |
| Signage; Traditional Written Materials | Earth Day event educational displays are usually presented to hundreds of participants related to the reuse and recycling of resources, proper car washing procedures and maintenance, cleanup and disposal of litter, and outdoor activities such as mowing the lawn, cleaning up brush, and raking leaves.  | Nutrient overloading in waterways<br>Litter prevention  |

### 3.3 BMP Appropriateness for MCM 1

The BMPs and activities conducted in support of MCM 1 were designed to effectively communicate to the public the high-priority stormwater issues. In response to COVID-19, MCINCR-MCBQ has implemented safe ways to effectively communicate to the public in accordance with Virginia law and guidelines.

## MCM 2: Public Involvement and Participation

BMPs pertaining to MCM 2: Public Involvement and Participation focus on involving employees, residents, contractors, and active-duty personnel in stormwater and pollution prevention efforts. This is achieved through restoration cleanup events, public events, household hazardous materials collection, and addressing emerging chemicals such as per- and polyfluoroalkyl substances.

### 4.1 Public Input on the MS4 Program

MCINCR-MCBQ posts contact information on the NREA website,<sup>3</sup> as a means for the public to provide input on the MS4 program. No input was received from the public during this reporting period.

### 4.2 MS4 and Stormwater Webpage

MS4 annual reports, the MS4 Program Plan, and other required documents pertaining to the MS4 program are posted to the NREA website<sup>4</sup> as well.

### 4.3 Public Involvement Activities

Sections 4.3.1 through 4.3.4 identify the four public involvement activities that were planned for this reporting period. **Table 4-1** lists each of the four activities along with the metric and corresponding category listed in Table 2 of the MS4 permit.

**Table 4-1. Public Involvement Activities This Reporting Period**

| Activity                                       | Metric   | Corresponding Category in Table 2 of MS4 Permit |
|--|--|---|
| 1. Recycling Center Cleanup                    | 5 participants   | Restoration                                     |
| 2. Earth Day Cleanup                           | 20 participants  | Restoration                                     |
| 3. Hazardous Materials Collection and Disposal | 11,586 pounds of material or number of items collected | Disposal or collection                          |
| 4. Kids Fest                                   | 500 attendees  | Educational events                              |

<sup>3</sup> NREA website's URL: <https://www.quantico.marines.mil/Offices-Staff/G-F-Installation-and-Environment/Natural-Resources-Environmental-Affairs/>

<sup>4</sup> NREA annual report and stormwater documents are available at <https://www.quantico.marines.mil/Offices-Staff/G-F-Installation-and-Environment/Natural-Resources-Environmental-Affairs/NREA-Documents/>.

### 4.3.1 Recycling Center Cleanup

**Date:** During the week of Earth Day activities

**Location:** Marine Core Base Quantico Recycling Center

**Number of Participants:** 5

**Description:** Marine volunteers participated in the cleaning of excess trash and debris in and around the center to promote a cleaner facility. The activities included grass cutting, weeding, and erosion control and prevention. The cleanup and maintenance of the facility is beneficial to not only facility operations but the longevity of the stormwater management facilities and preventing degradation of water quality.

### 4.3.2 Earth Day Cleanup

**Date:** Annually, during the week of Earth Day activities

**Location:** Various roadsides and trails

**Number of Participants:** 20

**Description:** During the week of Earth Day activities, Marine and civilian volunteers usually participate in the cleaning of excess trash and debris from around the installation and on the waterfront. Debris is removed from the various roadsides and trails. The event is beneficial to engaging participation of the community encouraging an awareness of pollution/'debris' transport via stormwater runoff and improving water quality.

### 4.3.3 Hazardous Material Collection and Hazardous Waste Disposal

**Date:** This activity is ongoing year-round.

**Location:** MCINCR-MCBQ Hazardous Materials Reuse Center

**Material Collected:** 11,586 pounds of material

**Description:** MCINCR-MCBQ maintains a hazardous materials reuse center on Base for all tenants, units, civilian personnel, and residents to use year-round. The center collects partially used cans of hazardous materials like spray paint or latex paint, hand sanitizer, or any chemical or materials that are no longer needed to be repurposed at other units. By reducing the amount of hazardous materials purchased new or brought onto the installation, MCINCR-MCBQ not only saves money in purchase and disposal costs but also reduces the risk of spills. This activity is meaningful to provide homeowners responsible methods for disposing of hazardous materials and should reduce situations where similar waste may end up in stormwater conveyance channels.

### 4.3.4 Kids Fest

**Date:** April 24, 2021

**Location:** Butler Stadium

**Number of Participants:** 500 attendees

**Description:** Spring Fest events included a Kids Fest with door prizes, children's activities, face painting, games, and educational displays attended by children, parents, and Base personnel. NREA staffed informational tables to discuss ways to participate in pollution prevention and stormwater awareness. The education of kids is beneficial to promote an environmental ethic as they grow older. The knowledge they learn will help provide the foundation of the next generation's environmental stewards and promote a healthy water quality.

## 4.4 Collaboration with Other MS4 Permit Holders

MCINCR-MCBQ did not collaborate with any other MS4 permittees in the public involvement activities that occurred within this reporting period.

## 4.5 BMP Appropriateness for MCM 2

The BMPs and activities conducted in support of MCM 2 are designed to effectively engage the public on pollution prevention and the high-priority stormwater issues when public participation and gatherings are safe in accordance with Virginia law and guidelines.



# MCM 3: Illicit Discharge Detection and Elimination

BMPs pertaining to MCM3: Illicit Discharge Detection and Elimination focus on the maintenance of an up-to-date MS4 map and information table, prohibiting illicit discharges, maintaining written procedures for non-stormwater discharges, dry weather field screenings and investigations into illicit discharges, and notification of downstream MS4 permittees of physical connection.

## 5.1 MS4 Map and Outfall Information Table

The MS4 map and information table have been updated to reflect current conditions and were submitted to VDEQ during the July 2018 to June 2019 reporting period. No new outfalls were added to the MS4 during this reporting period. MCINCR-MCBQ has added twenty-eight (28) Stormwater Management Facilities (SMF) through construction projects since 2019. These SMFs were added during construction through the Construction General Permit process and have been added to MCINCR-MCBQs inventory and inspection rotation.

## 5.2 Dry Weather Outfall Screening

In November 2019, MCINCR-MCBQ finalized its updated Illicit Discharge Detection and Elimination Procedures, which also covers MCINCR-MCBQ dry weather screening protocols. There are currently 198 stormwater outfalls identified within the MCINCR-MCBQ MS4 area. As a result, MCINCR-MCBQ is subject to Part I E 3 c (2c) of the Small MS4 Permit, which requires a minimum of 50 outfalls to be screened during each 12-month period. Additionally, it is required that no more than 50 percent of the 50 were screened during the previous 12-month period. During this reporting period, MCINCR-MCBQ conducted dry weather screening on 95 outfalls.

## 5.3 Illicit Discharge Source Investigations

During the dry weather outfall screening conducted from December 2020 to June 2021, dry weather flow (DWF) was observed at 27 MS4 outfalls. Dry weather source tracking will continue into the next reporting year. A summary of discharges from the past 4 years can be found in **Table 5-1**.

Table 5-1. Summary of Illicit Discharge Source Investigations

| Outfall ID | DWF Inspection Years |           |           | Notes   |
|------------|----------------------|-----------|-----------|---|
|            | 2017–2018            | 2019–2020 | 2020–2021 |   |
| 108        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |
| 100        | X                    |           |           | <b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage. |

Table 5-1. Summary of Illicit Discharge Source Investigations

| Outfall ID | DWF Inspection Years |           |           | Notes   |
|------------|----------------------|-----------|-----------|---|
|            | 2017–2018            | 2019–2020 | 2020–2021 |   |
| 110        | X                    | X         | X         | <p><b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.</p> <p><b>2019–2020:</b> Tiny bit of foam seen at the mouth of the outfall. Flow sample collected from west side of culvert under Fuller Rd. Origin of flow was traced to stormwater pond.</p> <p><b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.</p>  |
| 111        | X                    | X         | X         | <p><b>2017–2018:</b> Illicit Discharge: Unknown input to storm drain system is occurring upstream of the discharge point into a stormwater pond. Because of the potential for sanitary sewage infiltration, MCINCR-MCBQ will rescreen in 2019 and continue source investigation.</p> <p><b>2019–2020:</b> Flow sample collected from west side of culvert under Fuller Rd. Origin of flow was traced to stormwater pond.</p> <p><b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.</p> |
| 124        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |
| 125        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |
| 126        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |
| 138        |                      |           | X         | <b>2020–2021:</b> DWF. Origin of flow was traced to building nearby where there was DWF.  |
| 143        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling. A gas leak was detected nearby.   |
| 200        | X                    | X         | X         | <p><b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.</p> <p><b>2019–2020:</b> Moderate flow; clear. Damaged: end section is detached and pipe is corroded. Origin of flow was traced back to stream in forested area.</p> <p><b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.</p>  |
| 201        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |
| 204        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |
| 226        | X                    | X         |           | <p><b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.</p> <p><b>2019–2020:</b> Substantial erosion downstream of the outfall. Flow was inferred to be groundwater infiltration.</p>  |
| 230        | X                    | X         |           | <p><b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.</p> <p><b>2019–2020:</b> Bacterial sheen observed at outfall and in downstream pond. Flow/ponding/small stream downstream of outfall. Flow was traced to stormwater pond upstream from outfall.</p>  |

Table 5-1. Summary of Illicit Discharge Source Investigations

| Outfall ID | DWF Inspection Years |           |           | Notes   |
|------------|----------------------|-----------|-----------|---|
|            | 2017–2018            | 2019–2020 | 2020–2021 |   |
| 231        | X                    | X         |           | <b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.<br><b>2019–2020:</b> Flow traced to stormwater pond.  |
| 232        | X                    | X         |           | <b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.<br><b>2019–2020:</b> Trickle flow present. Flow is presumed to be from groundwater infiltration. Orange benthic growth present on pipe.   |
| 236        |                      | X         |           | <b>2019–2020:</b> Poned water at outfall; sample was obtained from flow in nearest upstream manhole. Pipe completely overturned. Flow can be heard in pipe but there is no flow coming out of the pipe. Flow was traced to groundwater infiltration.  |
| 237        | X                    | X         | X         | <b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.<br><b>2019–2020:</b> Poned water downstream of outfall. Outfall not draining properly. Flow observed. Sediment buildup casing ponding at outfall. Flow was traced to groundwater infiltration.<br><b>2020–2021:</b> DWF. Flow trickle and algae present.                        |
| 241        | X                    | X         | X         | <b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.<br><b>2019–2020:</b> Water is clear with iron deposits/sediment. Small amount of ponding at mouth and downstream of outfall. Trash observed around outfall. Flow was traced to a natural stream.<br><b>2020–2021:</b> DWF. Orange discoloration, near Lincoln Military Housing. |
| 246        |                      | X         |           | <b>2019–2020:</b> Illicit Discharge: Trickle flow at outfall – insufficient amount of flow to sample. Water had soap suds and was traced to car being washed upstream.  |
| 247        |                      |           | X         | <b>2020–2021:</b> DWF found in one of the outfalls.   |
| 249        |                      | X         |           | <b>2019–2020:</b> Trickle flow observed; traced to stormwater pond. Flow insufficient to obtain a sample.   |
| 251        |                      |           | X         | <b>2020–2021:</b> DWF. Stagnant water present.  |
| 252        | X                    | X         |           | <b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.<br><b>2019–2020:</b> Outlets to small stream/pool of water. Very slow trickle/flow. Flow presumed to be stream base flow.   |
| 254        | X                    |           |           | <b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.   |
| 255        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |
| 257        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |

Table 5-1. Summary of Illicit Discharge Source Investigations

| Outfall ID | DWF Inspection Years |           |           | Notes  |
|------------|----------------------|-----------|-----------|--|
|            | 2017–2018            | 2019–2020 | 2020–2021 |  |
| 314        | X                    |           | X         | <b>2017–2018:</b> Attributed to stream base flow, infiltrated groundwater, stormwater pond discharges, or residual stormwater drainage.<br><b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.   |
| 328        | X                    |           |           | <b>2017–2018:</b> Illicit Discharge: Flow source traced to Building 2106. Flow had slight sanitary odor. Building scheduled for demolition so no further investigation conducted at this time. MCINCR-MCBQ will rescreen in 2019 to confirm no dry weather flow. |
| 337        |                      |           | X         | <b>2020–2021:</b> DWF. Confirm illicit discharge with field sampling.  |
| 340        | X                    |           |           | <b>2017–2018:</b> Attributed to air conditioning condensate.   |
| 551        |                      |           | X         | <b>2020–2021:</b> Reviewed. DWF.   |

Table 5-2. 2021 Reported Illicit Discharges

| Date     | Discharge      | Reported By | Notes   |
|----------|----------------|-------------|---|
| 11/28/20 | Drinking Water | Public      | Water line break at Russell Road near the exit ramp to southbound Jefferson Davis Highway. Repairs were completed and the line was placed back in service. No detrimental environmental effects noted.      |
| 12/31/21 | Drinking Water | Public      | Water line break at Louis Road. Repairs were completed and the line was placed back in service on 12/31. No detrimental environmental effects noted.  |
| 1/13/21  | Drinking Water | Public      | Water line break at Neville road. Repairs completed and placed back in service. No detrimental environmental effects noted.   |
| 1/25/21  | Drinking Water | Public      | Water line break behind Building 3089 along Ruhl Street. Repairs completed and placed back in service on 1/25/21. No detrimental environmental effects noted.   |
| 2/16/21  | Sewage         | Public      | Sewage manhole overflow due to blockage. Blockage was cleared and placed back into service on 2/15/21. Immediate area around manhole limed. No detrimental environmental effects noted.                     |
| 6/19/21  | Gasoline       | Public      | Approximately 2 quarts of gasoline spilled at the marina. Clean up occurred on 6/20 using absorbent pads and booms. The release remained in the marina and no detrimental environmental effects were noted. |
| 6/28/21  | Sewage         | Public      | Sewage spill due to power outage at the lift station and generator failed to start. Generator repaired and power restored. No detrimental environmental effects noted.                                      |

|         |                |        |  |
|---------|----------------|--------|--|
| 7/20/21 | Drinking Water | Public | Water line break at the intersection of Broadway Street and 6 <sup>th</sup> Avenue. Repairs completed and placed back in service on 7/4/21. No detrimental environmental effects were noted. |
| 8/6/21  | Drinking Water | Public | Water line break near Building 2007 on Elliot Road. Repairs completed and placed back in service on 8/10/21. No detrimental environmental effects were noted.                                |
| 9/15/21 | Drinking Water | Public | Water line break at the Ammunition Supply Point. Repairs completed and placed back in service on 9/16/21. No detrimental environmental effects were noted.                                   |

Follow-up investigations will continue in the next reporting cycle. No major repairs were needed to outfalls. Outfall 200 had noted damage in the 2019-2020 report, however, the pipe damage did not affect the stormwater discharge or the quality of discharge. The end of the pipe was broken, shortening the distance the pipe reached into the riprap of the outfall area. This does not cause additional erosion as the flow is still dissipated by the riprap around the outfall. MCINCR-MCBQ determined that repairs were not warranted.

## 5.4 BMP Appropriateness for MCM 3

The BMPs and activities conducted in support of MCM 3 lead to the identification and elimination of identified illicit discharges. As mentioned in the previous section, MCINCR-MCBQ finalized its Illicit Discharge Detection and Elimination Written Procedures, which was completed November 2019.



# MCM 4: Construction Site Stormwater Runoff Control

To meet MCM 4: Construction Site Stormwater Runoff Control, MCINCR-MCBQ's construction site stormwater runoff program is implemented in accordance with Part I E 4 a (3) of the MS4 permit, because MCINCR-MCBQ is a federal entity in the process of developing updated standards and specifications in accordance with the Virginia Erosion and Sediment Control Law (§62.1-44.15:51 et seq. of the Code of Virginia) and Virginia Erosion and Sediment Control Regulations (9VAC25-840). MCINCR-MCBQ has direct legal authority over the use and condition of the land and infrastructure it owns and operates within its legal boundaries. MCINCR-MCBQ works with outside contractors to conduct a variety of construction projects at the facility and incorporates requirements into contracting language for construction projects to implement controls for preventing non-stormwater discharges to the MS4. All construction contractors are required to implement appropriate controls and comply with regulations even if the construction activity does not require a stormwater discharge permit. The contract language, as well as other legal authorities at MCINCR-MCBQ, incorporates requirements stipulated in various Virginia laws and regulations for addressing stormwater discharges from construction activities. Please refer to the MCINCR-MCBQ MS4 Program Plan for more detail on Virginia laws and regulations applicable to MCINCR-MCBQ.

Land-disturbing projects that occurred during the reporting period have been conducted in accordance with the current department-approved standards and specifications for erosion and sediment control. **Table 6-1** summarizes the inspections and enforcement actions conducted during this reporting period.

**Table 6-1. Summary of Inspections and Enforcement Actions This Reporting Period**

|                                     |                     |
|-------------------------------------|---------------------|
| Total Number of Inspections         | 576                 |
| Total Number of Enforcement Actions | 2                   |
| Type of Enforcement Actions         | Notice of Violation |

## 6.1 BMP Appropriateness for MCM 4

The BMPs and activities conducted in support of MCM 4 are appropriate to help minimize erosion from construction sites and limit sediment runoff.



# MCM 5: Post-Construction Stormwater Management for New Development and Development on Prior Developed Lands

BMPs pertaining to MCM5: Post-Construction Stormwater Management for New Development and Development on Prior Developed Lands focus on the prevention or minimization of water quality impacts deriving from new development and redevelopment projects that disturb greater than or equal to 1 acre of land, including projects less than 1 acre that are part of a larger common plan of development that discharges into the MS4. MCINCR-MCBQ does not have privately owned stormwater management facilities associated with the MS4 permit.

## 7.1 BMP Inspections and Maintenance

Inspections were performed on 225 BMPs, which included BaySavers/Filters, bioretention areas, a bioswale, dry detention ponds, dry extension detention ponds, a permeable pavement, vegetated treatment areas, and wet ponds, located throughout MCINCR-MCBQ during this reporting period. 125 of the BMPs were located within the MS4 service area. These evaluations consisted of visual inspections, photographs, and required maintenance where applicable for each BMP. Inspections found general maintenance needed for trash and debris removal.

No other significant maintenance, repair, or retrofit activities were performed on BMPs during the reporting period.

## 7.2 Construction Database Submittal

Seven projects requiring coverage under the Virginia Construction Stormwater General Permit (CGP) were conducted during this reporting period, and four projects were completed. However, information on stormwater management facilities was not submitted through the CGP database for land-disturbing activities for which coverage under the CGP was obtained. MCINCR-MCBQ works directly with VDEQ and submits as-built drawings for each of its CGP BMPs and, as such, is under the impression that submittal of BMPs into the CGP database is not required.

## 7.3 BMP Warehouse Submittal

No BMPs were implemented this reporting period beyond those required for water quality treatment because of new construction. Consequently, no BMPs have been reported into the VDEQ BMP Warehouse during this reporting period. Quantico tracks new SMFs installed as part of projects not permitted under the CGP in order to report those new stormwater management facilities into the BMP Warehouse on an annual basis, if any (per MS4 Permit Part I.E.5.g). Stormwater management facility inspections have not been submitted in the BMP Warehouse.

## 7.4 BMP Appropriateness for MCM 5

The BMPs and activities conducted in support of MCM 5 are appropriate to address post-construction stormwater management. They include procedures for BMP inspections, maintenance

requirements, and the roles and responsibilities of each of MCINCR-MCBQ's divisions in implementing the various BMPs.

# MCM 6: Pollution Prevention and Good Housekeeping

BMPs pertaining to MCM 6: Pollution Prevention and Good Housekeeping focus on the prevention or reduction of pollutant runoff from municipal operations and relevant training.

## 8.1 Revision of Daily Operational Procedures

No daily operational procedures were developed or modified during this reporting period.

## 8.2 New SWPPP Summary

Prior to this reporting period, MCINCR-MCBQ maintained a CSWMAP document to facilitate management of MCINCR-MCBQ's Storm Water Program by addressing the requirements of both the VPDES Industrial Storm Water Program and the MS4 Program. However, VDEQ requested that a separate document be developed to specifically address the requirements of an MS4 SWPPP. Consequently, an MS4-specific MCINCR-MCBQ SWPPP was developed in June 2019. In May 2020, MCINCR-MCBQ completed a comprehensive review of all buildings and practices that could potentially impact stormwater or stormwater quality by the activities it conducted onsite. MCINCR-MCBQ through this exercise was able to identify any new sites to be added to its SWPPP and to ensure all currently monitored sites were reflected accurately in its records. No additional high-priority facilities were identified other than those identified in the previous CSWMAP during this reporting period.

## 8.3 SWPPP Modification

Refer to Section 8.1 regarding the development of a standalone MS4 SWPPP document. The information required for an MS4 SWPPP was previously incorporated into a comprehensive document to meet SWPPP requirements for both the VPDES Industrial Stormwater Discharge Permit and MS4 permit. However, no high-priority facilities with a high potential to discharge pollutants to the MS4 have been added or removed during this reporting period. The SWPPP has not otherwise been modified other than to update potential pollutant inventories, develop SWPPP maps, and confirm that the presented information is current, which occurred in May 2020.

## 8.4 Nutrient Management Plan Summary

A turf and landscape nutrient management plan (NMP) was developed during the 2018 to 2019 reporting period for the Lincoln Housing Areas, which fall within the MCINCR-MCBQ MS4 area. The NMP was submitted to the Virginia Department of Conservation and Recreation by a certified nutrient management planner and approved through January 2, 2024. No new NMPs were developed during this reporting period.

## 8.5 Training

**Table 8-1** summarizes the training events conducted in accordance with MCM 6 of the MS4 permit, including the date of the training event, number of attendees, and objective of the training event.

**Table 8-1. Summary of Training Events This Reporting Period**

| Training Event                    | Date              | Number of Attendees | Objective   |
|-----------------------------------|-------------------|---------------------|---|
| Environmental Coordinator Meeting | December 15, 2020 | 21                  | Onsite classroom training for Environmental Coordinators (ECs). ECs act as the unit’s official liaison with NREA Branch on environmental matters. Their duties include maintaining general awareness of environmental regulations applicable to their units, conducting mandatory NREA Branch training events and meetings, preparing required reports to NREA Branch including environmental data collection, and the facilitation and tracking of corrective. ECs attend stormwater pollution prevention classroom training at least once per year from all major commands and tenants on Base and are instructed how to train their staff. |
| MS4 Training                      | June 2, 2021      | 43                  | Onsite classroom and virtual training to raise awareness and understanding of MS4 requirements  |

## 8.6 BMP Appropriateness for MCM 6

The BMPs and activities conducted in support of MCM 6 are appropriate to address good housekeeping and pollution prevention and meet the requirements set forth for good housekeeping in daily operations, SWPPPs, NMPs, and training.

# Chesapeake Bay TMDL

MCINCR-MCBQ finalized its draft Chesapeake Bay TMDL Action Plan in April 2021 to meet the requirements of Section I.B of the MS4 permit for the permit cycle November 1, 2018, through October 30, 2023, and those contained within the 2021 VDEQ Water Division Guidance Memo No. 20-2003. The Stormwater MS4 Support Chesapeake Bay TMDL Action Plan was submitted to VDEQ and documented the amount of total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS) discharged by MCINCR-MCBQ's Mainside Wastewater Treatment Plant (WWTP), as well as the reduction amounts required for these effluents during this permit cycle.

## 9.1 BMPs Not Reported to the BMP Warehouse

MCINCR-MCBQ is not claiming credit toward Chesapeake Bay TMDL pollutant reduction requirements for any BMPs implemented during the reporting period but not reported to the VDEQ BMP Warehouse.

## 9.2 Credits Acquired

No credits were acquired during this reporting period to meet any of the required reductions of the Chesapeake Bay TMDL.

## 9.3 Progress Toward Meeting Required Reductions

MCINCR-MCBQ has made progress toward its Chesapeake Bay TMDL pollutant reduction requirements through the implementation of BMPs installed July 1, 2009, through June 30, 2020, and through nutrient and sediment trading potential with the Mainside WWTP. MCINCR-MCBQ operates the Mainside WWTP and participates in the Virginia Nutrient Trading Program. The VPDES permit for the WWTP includes effluent limits for TN, TP, and TSS; however, the monitored end-of-year cumulative loads for these effluents discharged by the WWTP are well below the annual permit limits. The differences between the permitted effluent TN, TP, and TSS limits and actual effluent quality discharged are, therefore, eligible credits that the WWTP can sell or trade with other entities.

As MCINCR-MCBQ has exceeded reduction requirements for TSS already, no additional TSS reduction is required during this permit cycle. The remaining reduction amounts for TN and TP are 81.04 pounds per year (lb/yr) and 11.51 lb/yr, respectively. MCINCR-MCBQ intends to implement a nutrient trading agreement with the Mainside WWTP and issue these amounts of effluent to the MCINCR-MCBQ MS4.

**Table 9-1** provides the cumulative progress toward meeting the compliance targets for TN, TP, and TSS based on BMPs installed between 2009 and 2020 and nutrient and sediment trading with the Mainside WWTP. No control measures have been implemented during this reporting period, and the following table reflects the information contained in the Chesapeake Bay TMDL Action Plan submitted to VDEQ in 2021 following VDEQ's release of the updated guidance memorandum for BMP efficiencies.

Table 9.1 Progress Toward MCINCR-MCBQ's Required Reductions for this Permit Cycle

| Variable   | Load Reductions for Existing Sources (lbs/yr) |              |                  |
|--|---|--------------|------------------|
|  | TN  | TP           | TSS              |
| <b>Total Reductions Required for this Permit Cycle</b>               | <b>367.26</b>                                 | <b>38.99</b> | <b>31,534.85</b> |
| Total Allowable Existing Source Reductions from Existing BMPs        | 286.22  | 27.48        | 53,065.40        |
| <b>Remaining Reductions Needed for this Permit Cycle (2018-2023)</b> | <b>81.04</b>                                  | <b>11.51</b> | <b>0</b>         |

It is MCINCR-MCBQs intent to meet the remaining TN and TP credits, if not achieved through additional BMPs, is to use Nutrient Trading Credits with our Mainside Wastewater Treatment Plant. If the credits are needed, MCINCR-MCBQ will submit the required trading form

## 9.4 BMPs Planned for the Next Reporting Period

MCINCR-MCBQ does not yet have BMPs planned for implementation during the next reporting period. However, MCINCR-MCBQ plans to explore the following opportunities to apply credits toward its Chesapeake Bay TMDL pollutant reduction requirements:

- Increased water quality treatment design in its new development projects (that is, overdesign stormwater BMPs and claim credit toward TMDL goals)
- Implementation of structural BMPs

### SECTION 10

## Local TMDL

As of January 2019, no United States Environmental Protection Agency (USEPA)–approved TMDLs require MCINCR-MCBQ to develop a Local TMDL Action Plan. If a USEPA-approved TMDL is published after this date and requires MCINCR-MCBQ to develop a TMDL Action Plan, MCINCR-MCBQ will coordinate with VDEQ to identify a deadline to submit a TMDL Action Plan. The 2018 to 2023 MS4 permit does not identify a deadline to submit Local TMDL Action Plans for TMDLs approved by USEPA after June 30, 2018.<sup>5</sup>

<sup>5</sup> Refer to MCINCR-MCBQ's January 2019 *MS4 Program Plan*.

