

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)



**MARINE CORPS BASE QUANTICO
QUANTICO, VIRGINIA**

**ANNUAL REPORT
JULY 1, 2014 - JUNE 30, 2015**



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1. INTRODUCTION

Polluted stormwater runoff is transported through Municipal Separate Storm Sewer Systems (MS4s) and often discharged untreated into local water bodies. To prevent harmful pollutants from being washed or dumped into a MS4, operators must obtain a Virginia Pollutant Discharge Elimination System (VPDES) permit and develop a stormwater management program.

Discharges from MS4s are regulated under the Virginia Stormwater Management Act and the Federal Clean Water Act. Marine Corps Base Quantico (MCBQ) is considered a small MS4 operator, permitted under the Virginia Stormwater Management Program MS4 General Permit; permit# VAR040069.

Small MS4 programs must be designed and implemented to control the discharge of pollutants from their storm sewer system to the maximum extent practicable in a manner that protects the water quality in nearby surface waters and wetlands.

The MS4 General Permit requires that small MS4s develop, implement, and enforce a program that includes the following six minimum control measures:

- Public education and outreach on stormwater impacts.
- Public involvement and participation.
- Illicit discharge detection and elimination.
- Construction site stormwater runoff control.
- Post-construction stormwater management in new development and redevelopment.
- Pollution prevention/good housekeeping for municipal operations.

Each of these minimum control measures has multiple requirements that MCBQ must accomplish as part of its stormwater management program. To meet these requirements, MCBQ has developed a stormwater management plan with proposed best management practices to help reduce the negative effects of stormwater runoff. The best management practices to be implemented by MCBQ are described in the Comprehensive Stormwater Management Action Plan (CSWMAP) and this annual report.



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MCBQ is not relying on another government entity or any qualifying local programs to satisfy any permitting requirements.



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2. BACKGROUND

MCBQ is covered under Phase II of the federal storm water program. The Phase II rule regulates storm water discharges at MCBQ from two categories.

- Operational requirements related to its Municipal Separate Storm Sewer System (MS4), which is defined as the system of storm water conveyances (including ditches, catch basins, piping) owned and operated by MCBQ.
- Construction activities disturbing land between 1 and 5 acres in size which occur on MCBQ property.

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

MCBQ maintains VPDES permit VA002151 for industrial stormwater discharges and an associated storm water pollution prevention plan (SWPPP). The SWPPP partially overlaps the MS4 permit requirements and was consolidated in Fiscal Year 2011 into the existing CSW-MAP.

The watersheds surrounding MCBQ are assigned a specific code. The United States Geological Survey has categorized all of the watersheds in the United States by using Hydrologic Unit Codes (HUC). The HUC is an 8-digit code that refers to the specific watershed in which the site is located. The HUC for the lower Potomac is 02070011. All stormwater discharges of concern from MCBQ are released to the Potomac River or tributaries of the Potomac River.



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3. CURRENT PERMIT BEST MANAGEMENT PRACTICES (BMPS) AND GOALS

MCBQ selected BMPs under each of the six minimum control measures to achieve the overall objective of reducing the discharge of pollutants into receiving waters, including the Potomac River. These BMPs were documented in the General Permit Registration Statement.

Information on compliance with each of the six minimum control measures, an assessment of the appropriateness of the selected BMPs, and progress towards achieving them are described in the following sections.

3.1 PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACTS

The Public Education and Outreach minimum control measures consist of BMPs that focus on the development of educational materials. They are designed to inform the public about the impact storm water discharges have on local water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

3.1.1 Current BMP and Goals

Currently MCBQ provides storm water education by means of classroom training for construction contractor personnel and base personnel. MCBQ also has a website where storm water information may be accessed by contractors, tenants, and activities. Frequently asked questions, links to articles, important templates for storm water construction applications, and other pertinent information is kept on this site. Also, charity car wash functions are common at MCBQ, and brochures for proper car washing protocol and general storm water education are utilized. These brochures are given to the car wash participants and also handed out to car wash patrons. MCBQ was working toward achieving 4 goals within this BMP during this reporting cycle.



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Goal #1: Publish storm water articles in the base newspaper and on the Natural Resources and Environmental Affairs (NREA) website.

Tasks:

An article dealing with storm water issues will be prepared and published on the Web Site.

Status:

For the reporting year of July 2014 – June 2015, no article on storm water was published in the base newspaper, the Sentry.

Goal #2: Education in storm water, via classroom education and web-based information.

Tasks:

- a) On-site classroom training will be monitored through the reporting period and reported annually.
- b) Conduct on-site classroom training for construction contractor personnel, contract officers, engineering technicians, construction managers and other installation staff.
- c) Conduct on-site classroom training for Environmental Coordinators (ECs) aboard MCBQ.

Status:

- a) All new construction projects are required to have their Responsible Land Disturbers and site superintendents attend the classroom storm water training. It is MCBQs intent to hold classroom training sessions for construction personnel once every calendar quarter.
- b) On February 2, 2015 a training session was provided to contract officers, construction managers, and engineering technicians. The remainder of the construc-



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tion managers and engineering technicians attend one of the quarterly classroom training sessions for the construction personnel.

- c) Annually, all ECs are provided classroom training on storm water pollution prevention. Annual training was conducted on November 18, 2014.

Goal #3: Provide brochures to charity car wash functions.

Tasks:

- Annual Requirement - Keep an inventory of charity car wash activities on base.
- On-going Requirement - Ensure that the activity coordinators receive and pass out the car wash brochures and follow proper car washing procedures.

Status:

Car washes are coordinated through the Marine Federal Credit Union (MFCU) on base. The credit union provides NREA's car wash brochures to each organization conducting a car wash to provide to their volunteers and each car wash patron once their vehicle is washed. Once the event concludes, a report of how many cars were washed is generated and reported to NREA staff. This report helps to identify how many brochures were distributed to car wash patrons. During this report period, no car washes were reported to NREA staff. NREA intends update the task to make regular contact with car wash sponsors, as well as the MFCU staff to ensure better communication is present for notification of car washes.

Goal #4: Provide public outreach and education to community during Earth Day
(New goal added for the 2014-2015 reporting cycle)

Task: Provide general stormwater awareness and information during earth day via face-to-face interaction.

Status: During Earth Day events, NREA had an information booth set up to provide outreach and education to the public at the base exchange. Stormwater handouts were distributed which discussed basic stormwater awareness as well as car washing and vehicle



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maintenance on base. The Enviroscape training tool was also on display and used as a visual aid; demonstrating the effects precipitation and runoff have on erosion and overall storm-water management.

3.1.2 BMP Compliance

MCBQ is in partial compliance with this BMP. Further emphasis needs to be focused on publishing at least one storm water article in the base newspaper. Additionally, further coordination with the Navy Credit Union on base should be initiated to ensure all car washes are reported and tracked as required.

3.1.3 BMP Appropriateness

This BMP is appropriate for the target audience. Further development of the BMPs would ensure better public outreach throughout MCBQ and ensure more consistent coverage in the storm water training program.

3.1.4 Goals Progress

This goal is currently being met; however, areas of improvement that have been identified and discussed will be implemented during the next reporting cycle.

3.2 PUBLIC INVOLVEMENT/PARTICIPATION

The Public Involvement/Participation minimum control measures consists of BMPs that focus on involving employees, residents, contractors and active duty personnel in development and implementation of the CSWMAP.

3.2.1 Current BMP and Goals

Base wide involvement with storm water program implementation is a challenging goal. MCBQ involves its facilities staff in understanding and reporting incidents involving storm water non-compliance, water and sewer leaks, and area wide clean-up operations.



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Goal #1: Roadside Clean-up

Area wide cleanings are conducted routinely by base personnel as part of area beautification. Bi-weekly street sweeping is also conducted. This helps to minimize and eliminate debris from being discharged into the waters of the Commonwealth.

Tasks: Routine details of Base personnel are utilized not only for cleaning, but their duty offers a chance for public awareness for those that pass-by when it is occurring.

Status: This activity is ongoing year-round.

Goal #2: Earth Day Shoreline Clean-up Activity

Tasks: Enlist the aid of Marine volunteers in the cleaning of excess trash and debris from around the installation waterfront.

Status: During Earth Week activities, volunteers participated in shoreline cleanup activities.

Goal #3: Earth Day Area Beautification (New goal added for the 2014-2015 reporting cycle)

Task: Coordinate for a public recreation area on the base to do general area clean up and beautification.

Status: NREA acquired an area on base known as Whiskey Gulch. This area was provided to NREA for the purpose of beautification and public outreach and awareness. NREA plans to create sitting areas, a meditation garden, walking trails, group use area, flower and plant gardens utilizing rain harvesting systems and several raingardens for public education of storm water. During Earth Day 2015, NREA and several volunteer groups began cleaning the area and preparing for the rain gardens, plant/flower gardens, etc.

3.2.2 BMP Compliance

MCBQ is currently in compliance with this BMP.



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3.2.3 BMP Appropriateness

This BMP is appropriate for the target audience.

3.2.4 Goal Progress

This goal is currently being met.

3.3 ILLICIT DISCHARGE DETECTION AND ELIMINATION

Maps have been developed for both the east and west side of the base. These maps are maintained on site at the NREA office. The search for illicit discharges is always ongoing basewide.

3.3.1 Current BMP and Goals

Goal #1: Conduct illicit discharge surveys of the base.

Tasks:

- Completed illicit discharge survey of the Mainside outfalls in 2009.
- Conduct illicit discharge survey of the West Side outfalls in 2012/2013.

Status:

The latest complete survey was completed in September 2013.

Goal #2: Investigate and eliminate any discovered illicit discharges.

Tasks:

- Determine the cause of the illicit discharge.
- If needed, investigate actions to remove and/or repair the illicit discharge from the system.



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- Track all findings and resolutions for the reporting period.

Status:

During the 2014-2015 reporting cycle, one major illicit discharge was discovered and remedied. NREA staff was reporting repeated concentrations of Total Residual Chlorine (TRC) in a monitored outfall throughout the summer of 2014. After much investigation, it was discovered that the disinfecting of portable water tanks was being completed on the loading dock area of the health clinic which drained into the storm water system. The practice was stopped and the TRC problems were corrected. This incident also provided an excellent opportunity for NREA to conduct some one-on-one training with members of the MCBQ community.

3.3.2 BMP Compliance

MCBQ is currently in compliance with this BMP.

3.3.3 BMP Appropriateness

This BMP is appropriate for the minimum control measures because it will lead to the identification and elimination of any further identified illicit discharges.

3.3.4 Goal Progress

This goal is completed.

3.4 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

The current construction site runoff minimum control measures consist of BMPs focusing on the reduction of pollutants in storm water from certain construction activities.



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3.4.1 Current BMP and Goal

All construction sites at MCBQ above 2,500 square feet are evaluated to determine whether they require an approved Erosion and Sediment Control (E&SC) Plan. All construction sites that have one acre or greater of disturbed ground are required to obtain a Storm Water Construction General Permit from the Virginia Department of Environmental Quality (DEQ), which includes development of a SWPPP. All plans must be submitted to and approved by NREA.

Goal #1: Continue to monitor and inspect all construction site activity that is over one acre, or requires an erosion and sediment control plan.

Tasks:

- Continue to inspect sites for E&SC and storm water pollution prevention controls.
- Ensure that all new construction activity requiring an E&SC Plan comply with applicable submission/approval requirements, and that all new construction activity > 1 acre obtain a DEQ storm water construction permit and develop an approved Storm Water Management Plan (SWMP) before any land disturbing activities take place.

Status: Program checks are in place to ensure that the goal is met. During this reporting period, no sites were found to have begun work without the approved permit and plans. Some notices of violation (NOV) and warning letters were issued by MCBQ during the report period. NOVs result from a contractor's failure in addressing noted deficiencies within an acceptable time frame. Current NOV origination at MCBQ occurs at the NREA level. Subsequent NOVs for the same discrepancy are signed and enforced at the command level, if they occur. No command NOVs were issued for this period.

3.4.2 BMP Compliance

MCBQ is currently in compliance with this BMP for all NREA approved construction sites.



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3.4.3 BMP Appropriateness

This BMP is appropriate for the minimum control measures because it helps minimize erosion from construction sites and limit sediment runoff.

3.4.4 Goal Progress

This goal is ongoing. Copies of all construction site permits and SWPPPs are maintained by NREA for sites greater than one acre in area. Additional goals have been prepared that will lead to greater consistency in controlling construction site runoff.

3.5 POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT.

The Post-Construction Storm Water Management minimum control measures consists of stormwater BMPs focusing on the prevention or minimization of water quality impacts from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development that discharges into the small MS4.

3.5.1 Current BMP and Goal

Completed construction sites are inspected by NREA to ensure all development is complete and follows the Base SWPPP guidelines.

.Goal #1: Continue to inspect (annually) stormwater BMPs from new development and re-development.

Tasks:

- Add any new stormwater BMPs to the schedule, as they are completed.
- Conduct annual inspections of stormwater BMPs.



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- Note any problems and put in repair ticket for maintenance work if necessary.
- Perform follow-up inspections as necessary.

Status:

NREA inspected only the new stormwater BMPs that were added to our inventory during the 2014-2015 reporting cycle. All existing stormwater BMPs were not inspected during this reporting cycle. NREA intends to add to this goal the task of ensuring all stormwater BMPs are updated and added to the base inventory. This will help to ensure they are readily available for inspection and repair.

3.5.2 BMP Compliance

MCBQ is in partial compliance with this BMP. Although all stormwater BMPs were not inspected this reporting cycle, all new stormwater BMPs that were installed during this reporting cycle were inspected once their installation was completed and placed into operation. It should also be noted that MCBQ currently has a contract action to have all stormwater BMPs inspected and inventoried during the 2015-2016 reporting cycle.

3.5.3 BMP Appropriateness

This BMP is appropriate for the minimum control measures.

3.5.4 Goal Progress

This goal is ongoing and dependent on the number of active construction activities. Additional goals will lead to greater consistency in controlling construction site runoff.

3.6 POLLUTION PREVENTION/GOOD HOUSEKEEPING

The Pollution Prevention/Good Housekeeping minimum control measures consist of BMPs that focus on training and on the prevention or reduction of pollutant runoff from municipal operations.



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3.6.1 Current BMP and Goal

Good housekeeping procedures are outlined in the SWPPP. These procedures include vehicle and aircraft maintenance, fueling operations, material storage, painting procedures, outdoor maintenance, and recycling.

3.6.2 BMP Compliance

MCBQ is currently in compliance with this BMP.

3.6.3 BMP Appropriateness

This BMP is appropriate for the minimum control measures because it will lead to improved operations and reductions in storm water contamination.

3.6.4 Goal Progress

The Pollution Prevention/Good Housekeeping goal is ongoing.



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4. ADDITIONAL INFORMATION COLLECTED

This section is a summary of the results of the information collected to assist the Water Program Manager in implementing the MS4 program.

4.1 PUBLIC EDUCATION AND OUTREACH

For this reporting period, additional BMPs were implemented to expand upon previous goals for public outreach opportunities. NREA believes the additional BMPs were beneficial for their first reporting cycle and will continue to be expanded upon. Additional training for base personnel and construction site personnel is being planned to incorporate the changing landscape of storm water management and Low Impact Design (LID). NREA also plans to provide additional general stormwater awareness training to reach more of the ever changing Marine population that resides on MCBQ.

4.2 ILLICIT DISCHARGE DETECTION AND ELIMINATION

A Stormwater Management Systems Inspection was completed in June of 2013. The results indicated a need for maintenance at numerous stormwater BMP's throughout the installation. Maintenance on the identified stormwater BMP's is a priority for MCBQ, however, the ability to address these maintenance needs is dependent on available funding. Additionally, a complete inventory of stormwater BMPs will be completed this reporting cycle. This inventory will enable NREA to better track and report stormwater BMPs and their maintenance moving forward in other reporting cycles.

4.3 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

Between July 2014 and June 2015, Quantico had a total of 21 active permitted construction sites, totaling 163.03 acres of disturbed area. These sites are listed in the following table and defined by the site name, disturbed acres and their Hydrologic Unit Code (HUC).



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Active Construction Sites July 2013 - June 2014		
Site Name	Disturbed Acres	HUC
Consolidated Elementary School	21.4	PL54
MCU Addition	17.3	PL53
Upshur WWTP	16.9	PL53
Fuller Road Substation	18.3	PL53
Embassy Security	14.9	PL55
DSS Addition	9	PL55
Heritage Center Parkway	11.09	PL52
MCAF BEQ & Dining Facility	6.7	PL53
Russell Road Widening	8.9	PL53
TBS, Phase V	12.5	PL55
WTBn Mess Hall	5.2	PL53
TBS, LZ-6	2.4	PL55
Game Check Station Trailers	0.4	PL53
DASR Installation	2.2	PL53
OCS Obstacle Course	0.06	PL53
P614, Electric Substation	1.0	PL54
Liversedge Hall	0.7	PL54
RR Landfill Swale	0.7	PL53
Stadium Substation	0.01	PL53
Poynter Street Drainage	0.1	PL53
Hochmuth Hall Parking Lot	0.9	PL53
Total Acres	150.66	



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4.4 POST CONSTRUCTION SITE STORM WATER MANAGEMENT

Between July 2014 and June 2015, 25 new storm water management facilities were installed at Quantico. These structures are as follows:

NEW STORM WATER MANAGEMENT FACILITIES JULY 2014- JUNE 2015		
Site Name:	HUC:	New SW Management Facilities
MCU Addition	PL53	2 grassed swales, 5 bio-retention
TBS Dining	PL55	Grassed swale
MCAF BEQ/Dining	PL53	2 rain gardens, pervious pavers
Consolidated Elementary School	PL54	3 Bio-retention, grassed swale, stormtech chambers
DSS Addition	PL55	Grassed swale
Heritage Center Parkway	PL52	2 grassed swales
Upshur WWTP	PL53	3 grassed swales, 4 bio-retention



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5. BMPs AND GOALS FOR 2015-2016

The following section identifies the MS4 BMPs and their associated timeframe for implementation. MCBQ is not relying on other government entities or participating in any qualifying local programs to satisfy any of its permit obligations. MCBQ goals remain the same. Staff continually improves and expands the BMPs and other initiatives. Some of these initiatives are: adding more public involvement to the education program, providing additional on-site awareness training presentations to contractors and base personnel, and publishing stormwater awareness articles will facilitate awareness of stormwater issues.

In keeping with the Chesapeake Bay Strategic Plan Initiatives, the installation intends to begin identifying and prioritizing stormwater BMP retrofits for our older structures dating to pre-1995 to help in meeting our waste load allocations in the future. MCBQ, with other DOD facilities located in the local area, will be involved in the Total Maximum Daily Load (TMDL) reduction program; however, this effort is dependent on available resources.