
# Municipal Separate Storm Sewer System 2017-2018 Annual Report

VSMP General Permit No. VAR040087

This report is submitted to the Virginia Department of Environmental Quality (VDEQ) in accordance with annual reporting requirements described in 9VAC25-890-40 - General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, effective July 1, 2013. The report is for the annual report year spanning from July 1, 2017 – June 30, 2018.

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## CERTIFICATION

"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 ensure 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: Charles A. Nurnberger

Title: Vice President for Finance & Administration

Signature: Charles A. Nurnberger Date: 09/28/2018

# 1.0 ANNUAL REPORTING OVERVIEW

This report is consistent with the Thomas Nelson Community College (TNCC) MS4 Program Plan and meets the requirements of the VAR04 *General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s)*, referred to in the remainder of this report as the General Permit. The MS4 Program is intended to be subject to modifications throughout the 5-year permit cycle as part of an iterative process that seeks to improve the effectiveness of best management practices (BMPs). To facilitate the iterative process, measure(s) of effectiveness are incorporated for reporting of each BMP in Section 3.0.

## 1.1 Minimum Control Measures

The General Permit requires the TNCC Program Plan to include BMPs to address the requirements of six minimum control measures (MCMs) described in Section II of the General Permit. The MCMs are summarized as:

- MCM 1: Public Education and Outreach on Stormwater Impacts
- MCM 2: Public Involvement and Participation
- MCM 3: Illicit Discharge Detection and Elimination
- MCM 4: Construction Site Stormwater Runoff Control
- MCM 5: Post-construction Stormwater Management
- MCM 6: Pollution Prevention/Good Housekeeping for Operations

Section 3.0 of this report includes BMPs developed to explicitly address the General Permit requirements for each MCM. The title of each BMP is followed with a reference to the corresponding permit section. Each BMP included in the Program Plan includes the following information:

- A description of the BMP.
- A list of the necessary documentation to implement the BMP. This information is considered part of the Program and is readily available and updated, as necessary and consistent with the BMP schedule.
- The identification of the individual(s) responsible for implementation of the BMP.
- The objective of the BMP and the result expected from implementation of the BMP.
- An implementation schedule consistent with the General Permit.
- A description of the method(s) to be used to assess the effectiveness of the BMP.

## 1.2 Special Conditions for TMDLs

TNCC is subject to the Special Conditions for the Chesapeake Bay TMDL that requires the development and submission to the Virginia Department of Environmental Quality (DEQ), for its review and acceptance, a TMDL Action Plan. BMPs are provided for development and implementation of TMDL Action Plan. TNCC anticipates notification from DEQ in the case of any new TMDLs being developed that may result in an additional WLA. If a new WLA is assigned, TNCC will provide the TNCC public opportunity for participation in development of new TMDLs.

## 1.3 Annual Reporting

This report represents TNCC's compliance status for the reporting period spanning from July 1, 2017 through June 30, 2018. This report includes annual reporting forms in "fillable form" format. The annual completion of these forms provides all of the reporting requirements to satisfy the General Permit and include the:

- Cover sheet will be updated with the specific reporting year;
- Certification following the Table of Contents;
- "Annual Reporting – General Information" form on the following page; and
- The annual reporting form following each BMP in Section 3.0 completed annually.

Information compiled for the effectiveness of each BMP in Section 3.0 is utilized to evaluate and, if necessary, modify the corresponding BMP. Any modifications will be reported in the "Annual Reporting – General Information" form. Modification(s) to the Program made by TNCC will be done in accordance with the General Permit requirements

The General Permit requires certification of the annual report and is provided immediately after the Table of Contents of this document. Certification is required by a principle executive officer or a duly authorized representative. The duly authorized representative must have overall responsibility of the campus operations and written authorization must be provided to DEQ.

## 1.4 Annual Reporting – General Information Form

- The BMPs described in Section 3 are the stormwater activities that TNCC plans to undertake during the next reporting cycle.
- TNCC relies on the Virginia Community College System (VCCS) for implementation of BMP 4.1, 4.3, and 4.4 through the DEQ approved VCCS Annual Standards and Specifications for Erosion and Sediment Control and the VCCS Construction and Professional Services Manual.
- Completed Annual Reporting Forms for each BMP in Section 3 provide an assessment of the appropriateness of each BMP, progress towards achieving each measurable goal, and results of collected information analyzed for appropriate assessments and effectiveness of the BMP.

| | |
|---|---|
| Were modifications to the responsible individual of any program role or responsibility or specific BMP included in the Program that occurred during the reporting year? (yes/no) | ☒ Yes<br>☐ No |
| If yes, modifications are listed below (provide BMP # in Section 3 to reference modification rationale): ***N/A*** | |

| | | | |
|---|---|---|---|
| Number of new MS4 outfalls at Hampton campus: | ***0*** | Associated acreage by HUC6 for the Hampton campus outfalls added during the permit year: | ***N/A*** |
| Number of new MS4 outfalls at Historic Triangle campus: | ***0*** | Associated acreage by HUC6 for the Historic Triangle campus outfalls added during the permit year: | ***N/A*** |

| | |
|---|---|
| Based on a review of the reporting forms completed for the reporting year within Section 3 of this Program Plan, TNCC finds the college compliant with the permit conditions (yes/no): | ☒ Yes<br>☐ No |
| If no, listed below are additional BMPs and/or changes made to BMPs or measurable goals for any of the MCMs, including steps to address any deficiencies: N/A | |
| * For Program modifications listed above, follow the guidance in Section 1.4 * | |
| Does TNCC's MS4 directly discharge to waters that are identified as impaired in the 2010 § 305(b)/303(d) Water Quality Assessment Integrated Report? (yes/no) | ☐ Yes<br>☒ No |
| If yes, list the impaired waters and pollutant impairment: ***N/A*** | |
| Based on the water quality issues identified in BMP 1.2 and impairments identified above, does a review of the effectiveness of the BMPs listed in the program indicate they are appropriate? (yes/no) | ☒ Yes<br>☐ No |
| Please explain why they are effective for the impairments or identify potential modifications if not effective: ***BMPs address potential pollutants into the system and therefore are considered appropriate and effective based on the measure of effectiveness for each BMP provide in Section 3.0.*** | |

## 2.0 SCHEDULE FOR PERMIT CYCLE

As discussed in Section 1.0, each BMP described in Section 3.0 of the Program Plan includes an implementation schedule. Some of the BMPs require program documents or actions to address permit requirements. Table 1 lists some of these documents and actions with dates critical for assuring compliance with the General Permit. The Table is not intended to provide schedules for BMP implementation described for each BMP in Section 3.0; but only to assist with Program Plan implementation.

**Table 1.** Summary of critical items and deadlines for program implementation.

| BMP | Necessary Action | Status/Schedule |
|---|---|---|
| 2.2 | Public participation activities | ***4x annually*** |
| 2.1 | Post Annual Report on website | ***Within 30 days after submittal*** |
| 1.1, 1.2 | Provide for public participation for PEOP | ***Complete*** |
| 1.2 | Public Education/Outreach Plan (PEOP) | ***Complete*** |
| 1.2, 2.1, 3.5, 4.2 | Website postings (see BMPs for details) | ***Complete/Ongoing*** |
| 3.1 | Notification of MS4 Interconnections | ***Complete*** |
| 3.3 | Develop IDDE Program Manual | ***Complete*** |
| 3.5 | Written Training Programs | ***Complete*** |
| 6.2 | Identify high priority areas (see BMP 6.2) | ***Complete*** |
| 5.3 | Post-construction SWM Program Manual | ***Complete*** |
| 3.4, 6.1 | Good Housekeeping (GH) Program Manual | ***Complete*** |
| 6.5 | GH contract language for contractors | ***Complete*** |
| 6.3b | Pesticides/herbicides contract language | ***Complete*** |
| CB-SC.1 | Chesapeake Bay TMDL Action Plan | ***Complete*** |
| SC.1 | Rivanna River TMDL Action Plan | ***Complete*** |
| 3.1 | Storm sewer mapping/information table | ***Complete*** |
| 6.2 | Campus-Specific SWPPP | ***Complete*** |

## 3.0 PROGRAM PLAN BEST MANAGEMENT PRACTICES

This Section includes the BMPs that TNCC will implement to meet the requirements for each MCM and the applicable Special Conditions described in the General Permit.

### 3.1 Minimum Control Measures

**BMP 1.1 Public Participation for Education/Outreach Plan (Section II B.1.c.4)**

**Description:** Provide for public participation during public education and outreach program development through a survey distributed to students, faculty, and staff. The survey will be developed to assess the TNCC's public knowledge regarding stormwater with the intent of assisting with the selection of high priority water quality issues. Opportunity to provide written comment will also be available with the survey.

**Necessary documentation for implementation:** (1) Survey and survey results

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to include the public in the selection of water quality issues selected for Public Education and Outreach Plan.

**Implementation schedule**: An opportunity for public participation was provided via a survey distributed in the fall of 2014. Survey results were incorporated into the Public Education and Outreach Plan (BMP 1.2). A public survey will be distributed again in the fall of 2016 and the Public Education and Outreach Plan revised as necessary.

**Method to determine effectiveness:** Effectiveness will be measured by the number of individuals responding to the survey and the incorporation of survey results into the Public Education and Outreach Plan. A second survey, distributed in 2017, will be used to assess continued effectiveness of the Public Education and Outreach Plan.

**BMP 1.1 Annual Reporting Form**

| | |
|---|---|
| Dates that survey was distributed: | ***2014 & 2017*** |
| Number of surveys completed: | ***232 (2014) and 261 (2017)*** |
| Description of how survey results and responses were incorporated into the Program: ***Survey results were used to identify rationale behind three high priority water quality issues and determine relevant messages to target audiences, as described in BMP 1.2. Each of the surveys described in the BMP have been conducted, with the latter reported in the 2016-2017 annual report.*** | |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

### BMP 1.2 Develop Public Education and Outreach Program (Section II B.1.c.1-6)

**Description:** Identify three (3) high priority water quality issues contributed to by the discharge of stormwater. For each issue identified, provide

- Rationale for the selection of each issue;
- An identification and estimate of population size of the target audience who is most likely to have significant impacts on the water quality issue; and
- A relevant message and educational and outreach materials to convey the message for distribution to the target audience.

**Necessary documentation for implementation:** (1) Survey results from BMP 1.1; (2) Written Plan describing the rationale of the selection of each water quality issue, identification of target audience and estimated population, and relevant message; (3) Materials described in the written plan.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** Objectives are to convey relevant information to target audiences regarding water quality issues. The expected result is that the target audiences will have an increased knowledge of the water quality issues over time.

**Implementation schedule**: Outreach will be conducted a minimum of once a year to at least 20% of each target audience for each water quality issue identified in the written plan. A public survey to measure knowledge on the identified issues was conducted in the fall of 2014 and will be distributed again in the fall of 2016 to measure effectiveness.

**Method to determine effectiveness:** A public survey will be distributed via email to assess the effectiveness of the message delivered for each water quality issue, as noted in the implementation schedule. The survey will be distributed once every two years, as determined appropriate for a community college. Effectiveness will be measured by using a scoring system to compare results of the latest survey to the previous survey to determine if public knowledge regarding each water quality issue has increased.

## BMP 1.2 Annual Reporting Form

| | | | | |
|---|---|---|---|---|
| Has a written Public Education and Outreach Plan been developed? | | | | ☒ Yes ☐ No |
| If no, explain, is yes, summarize below: N/A since Plan developed | | | | |
| Water quality issue # | List of educational and outreach activities identified in Public Education and Outreach Plan Update | Target Audience | # people reached | Minimum % of target audience reached |
| ***1*** | ***Play slides on TV monitors throughout campuses from 1/2/18 – 6/30/18*** | ***Students, Faculty, and Staff*** | ***±3,000*** | ***±21%*** |
| ***2*** | ***Staff training for TMDLs and NMP*** | ***Ground Staff*** | ***18*** | ***100%*** |
| ***3*** | ***Staff training for GHPP and IDDE*** | ***Staff*** | ***18*** | ***100%*** |
| Water quality issue # | List of educational and outreach activities that will be conducted during the ***next*** reporting year | Target Audience | # people to be reached | Minimum % of target audience reached |
| ***1*** | ***PEOP brochure and website link distributed via email*** | ***Students, Faculty, and Staff*** | ***±2,793*** | ***20%*** |
| ***2*** | ***Staff training for TMDLs and NMP*** | ***Ground Staff*** | ***±18*** | ***100%*** |
| ***3*** | ***Staff training for GHPP and IDDE*** | ***Staff*** | ***±18*** | ***100%*** |

Necessary documents for implementation are not provided in the annual report, but will be retained for a minimum of 3 years and are available upon request.

## Measure of Effectiveness

| | |
|---|---|
| Average "knowledge" score from 2014 survey: | ***34% (Survey);*** |
| Average "knowledge" score from 2017 survey: | ***31% (Survey);*** |
| Has the "knowledge" score gone up over the permit cycle? | ☐ Yes (BMP effective)<br>☒ No (See below)<br>☐ N/A |
| If no, discuss potential ineffectiveness of the BMP (outreach materials, student retention time, etc.). ***As a 2-year college, student turnover may be the cause of consistent scores, instead of improvement. TNCC will be updating the PEOP consistent with the new permit in the upcoming year and may incorporate more frequent survey distribution to capture 2-year students.*** | |
| If no, Suggest BMP modifications to the Program Plan with rationale to increase effectiveness: ***N/A*** | |

## BMP 2.1 Public Involvement through web posting (Section II B.2.a.1-2)

**Description:** The following documentation will be maintained on the TNCC stormwater website:

- The latest version of this MS4 Program Plan; and
- Each of the annual reports developed within the permit cycle.

Public education and outreach materials developed for BMP 1.2 will include links to the Program Plan and Annual Reports.

**Necessary documentation for implementation:** (1) TNCC MS4 Program Plan; (2) TNCC MS4 Annual Reports; (3) Web address of posted materials; (4) Educational and outreach material from BMP 1.2

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** Objectives are to provide opportunity to the public to review TNCC MS4 Program documentation. Expected results are an increase in public knowledge of the BMPs implemented by TNCC to improve water quality from stormwater runoff.

**Implementation schedule**: The Program Plan will be posted on the TNCC website 30 days after approval from DEQ. Within 30 days of any modification to the Program Plan, the latest version will be posted. Annual reports will be posted on the web page within 30 days of submittal to DEQ, or by November 1st of each year.

**Method to determine effectiveness:** Same as BMP 1.2.

### BMP 2.1 Annual Reporting Form

| Web links to posted program material are provided below | |
|---|---|
| Program Plan link: | ***http://tncc.edu/about/environment/stormwater*** |
| Annual Report Link: | ***http://tncc.edu/about/environment/stormwater*** |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

## BMP 2.2 Public participation (Section II B.2.b)

**Description:** TNCC will participate, through promotion, sponsorship, or other involvement, in a minimum of four local activities annually.

**Necessary documentation for implementation:** (1) A list of public participation opportunities; (2) Documentation of participation.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to increase public participation to reduce stormwater pollutant loads; improve water quality; and support local restoration and clean-up projects, programs, groups, meetings, or other opportunities for public involvement. Measurable goals will include a measure or estimation of the number of people that participate in each local activity.

**Implementation schedule**: Public participation will be conducted a minimum of four times a year.

**Method to determine effectiveness:** Effectiveness will be determined by successful public turn-out to each event. Selection of specific events may be modified from year to year based public on turn-out.

## BMP 2.2 Annual Reporting Form

| Local activity | Type of TNCC MS4 Program participation (e.g. promotion, sponsorship, other) | Estimated # people reached | Summary of documentation that demonstrates participation[1] |
|---|---|---|---|
| ***10/5/17 Fall Fest Historic Triangle*** | ***Promotion during college activity*** | ***125*** | ***Copies of handouts distributed.*** |
| ***10/17/17 Fall Fest Hampton*** | ***Promotion during college activity*** | ***175*** | ***Copies of handouts distributed.*** |
| ***4/5/18 Spring Fest Historic Triangle*** | ***Promotion during college activity*** | ***100*** | ***Copies of handouts distributed.*** |
| ***4/12/18 Spring Fest Hampton*** | ***Promotion during college activity*** | ***150*** | ***Copies of handouts distributed.*** |

[1] Documentation is attached in Appendix A

## Measure of Effectiveness

| Local Activity | Rationalization of effectiveness or ineffectiveness |
|---|---|
| ***10/5/17 Fall Fest HT*** | ***Effective due to increased awareness of Stormwater issues by sharing information.*** |
| ***10/17/17 Fall Fest Hampton*** | ***Effective due to increased awareness of Stormwater issues by sharing information.*** |
| ***4/5/18 Spring Fest Historic Triangle*** | ***Effective due to increased awareness of Stormwater issues by sharing information.*** |
| ***4/12/18 Spring Fest Hampton*** | ***Effective due to increased awareness of Stormwater issues by sharing information.*** |

### BMP 3.1 Storm Sewer Map and Outfall Information Table (Section II B.3.a.1-5)

**Description:** TNCC will maintain an accurate storm sewer system map and information table. The map, at a minimum, will:

- Include the mapped location of all MS4 outfalls with a unique identifier that corresponds to the information table;
- Include the name and location of all waters receiving discharges from TNCC's MS4 outfalls and the associated sixth order hydrologic unit code (HUC) from Virginia's 6th Order National Watershed Boundary Dataset; and
- Be updated in the case of installation of new storm sewer or outfalls.

The information table, at a minimum, will include for each outfall the:

- Unique identifier;
- Estimated campus acreage served;
- Name of the receiving surface water and indication as to whether the receiving water is listed as impaired on the Virginia 2010 303(d)/305(b) list; and
- Name of any applicable TMDL or TMDLs.

The information table will be updated as new outfalls come on-line. TNCC will notify the City of Hampton and/or VDOT, where applicable, in writing, of any known physical connection to their MS4 regulated area or new interconnections that occur with new development.

**Necessary documentation for implementation:** (1) Storm sewer system map; (2) Outfall information table; (3) List of construction/development activity on campus; (4) Written notification of physical interconnections to the downstream MS4.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to maintain an up-to-date map of the storm sewer that provides a tool for IDDE procedures (see BMP 3.3). Expected results are that the mapping and the information table serves as a useful tool for tracking illicit discharges.

**Implementation schedule**: The storm sewer mapping and information table has been completed with the TNCC IDDE Program Manual. Subsequently, the map and information table will be updated annually at the end of each reporting year.

**Method to determine effectiveness:** Effectiveness will be determined based on its use as a tool for identifying illicit discharges.

## BMP 3.1 Annual Reporting Form

| Storm Sewer System Information Table |
| --- |
| Both the outfall reconnaissance inventory and stormwater facility inventory are up to date. There have been no changes to the inventories during this reporting period. |
| If interconnected MS4s, have the downstream MS4 been notified of the outfall? ☒ Yes ☐ No<br>If no, please explain why: ***N/A since interconnected MS4s have been notified*** |

Necessary documents for implementation are not provided in the annual report, but will be retained for a minimum of 3 years and are available upon request.

## Measure of Effectiveness

If any potential illicit discharges were identified or reported (refer to reporting for BMP 3.2 and 3.3), was outfall mapping used to address the issue: ***No illicit discharges were reported or identified during the reporting period from 7/1/17 – 6/30/2018.***

### BMP 3.2 Prohibit non-stormwater discharges (Section II B.3.b)

**Description:** TNCC will prohibit non-stormwater discharges into the storm sewer system through language provided within the Standards of Conduct for employees and the Student Handbook for students, each of which provide methods and procedures for reporting and corrective and disciplinary action. Students, faculty, and staff will be made aware of the methods and procedures for reporting and corrective and disciplinary action as part of the Public Education and Outreach Program described in BMP 1.2.

For effective prohibition of non-stormwater discharges from contractors operating on campus, refer to BMP 6.5.

**Necessary documentation for implementation:** (1) Standards of Conduct for employees; (2) Student Handbook; (3) A list of any instances of violation and summary of actions taken by TNCC.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to effectively prohibit non-stormwater discharge to the extent allowable under federal, state, or local law, regulation, or ordinance. Expected result is an effective deterrent for students, faculty, and staff from willingly introducing non-stormwater discharge to the MS4.

**Implementation schedule**: Implementation of the Standards of Conduct for employees and the Student Handbook for students will continue. The Public Education and Outreach Program will be implemented with the schedule described in BMP 1.2.

**Method to determine effectiveness:** Effectiveness will be determined based on the elimination or reduction in the number of reported or observed non-stormwater discharges committed by students, faculty, or staff. Effectiveness will also be based on implementation of methods and procedures in the Standards of Conduct for employees and the Student Handbook for students in response to reports.

### BMP 3.2 Annual Reporting Form

| Non-stormwater discharge violations | | | | |
|---|---|---|---|---|
| Total number of potential violations for reporting year: | | | | ***0*** |
| Violation # | Date of violation | Location of violation | Description of violation | Corrective or Disciplinary Action taken |
| ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** |
| ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** |
| ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** |

Necessary documents for implementation are not provided in the annual report, but will be retained for a minimum of 3 years and are available upon request.

### Measure of Effectiveness

| Non-stormwater discharge violations committed by students, faculty, or staff | |
|---|---|
| Total number of violations for reporting year 1: | ***0*** |
| Total number of violations for reporting year 2: | ***0*** |
| Total number of violations for reporting year 3: | ***0*** |
| Total number of violations for reporting year 4: | ***0*** |
| Total number of violations for reporting year 5: | ***0*** |
| Has the # of violations trended downward year to year or stayed at zero? | ☐ Yes (BMP effective)<br>☐ No (See below)<br>☒ N/A (See below) |
| If no, discuss potential cause of observed trend and determination if the BMP is ineffective. If deemed ineffective, suggest BMP modifications with rationale: ***No change, with no violations observed or reported.*** | |
| Were methods and procedures used where violations were determined to have occurred? | ☐ Yes<br>☐ No (See below)<br>☒ N/A (No violations) |
| If no, explain why and if modifications are necessary to the BMP to improve effectiveness: ***N/A*** | |

## BMP 3.3 Develop Illicit Discharge Detection and Elimination Procedures (Section II B.3.c)

**Description:** TNCC will develop and implement an Illicit Discharge Detection and Elimination (IDDE) Program Manual that includes written procedures to detect, identify, and address non-stormwater discharges, including illegal dumping, to the small MS4. Procedures will include written dry weather field screening methodologies that include field observations and field screening monitoring and that provide:

- A schedule of field screening activities to ensure all outfalls are screened annually;
- Methodologies to collect information such as time since the last rain, the quantity of the last rain, site descriptions (e.g., conveyance type and dominant watershed land uses), estimated discharge, and visual observations (e.g., order, color, clarity, floatables, deposits or stains, vegetation condition, structural condition, and biology);
- A time frame upon which to conduct an investigation to identify and locate the source of any observed continuous or intermittent non-stormwater discharges prioritized based on potential hazard to human health;
- Methodologies to determine the source of all illicit discharges shall be conducted with the required minimum investigations and timeframes per the college's General Permit;
- Mechanisms to eliminate identified sources of illicit discharges including a description of the policies and procedures for when and how to use legal authorities;
- Methods for conducting a follow-up investigation in order to verify that the discharge has been eliminated; and
- A mechanism to track all investigations to document, at a minimum, the date(s) that the illicit discharge was observed and reported; the results of the investigation; any follow-up of the investigation; resolution of the investigation; and the date that the investigation was closed.

**Necessary documentation for implementation:** (1) Illicit Discharge Detection and Elimination (IDDE) Manual; (2) Outfall information table; (3) Outfall screening schedule and field forms.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to establish effective methods and procedures for detecting, identifying, and addressing non-stormwater discharges, including illegal dumping, into the storm sewer. Expected results are effective response to reports of illicit discharge and detection of non-stormwater discharges during outfall screenings.

**Implementation schedule**: Annual outfall screening, as described in TNCC's IDDE Program Manual that includes the schedules, mechanisms, and procedures described in this BMP and the General Permit.

**Method to determine effectiveness:** Effectiveness will be determined based on the percentage of the reported and identified non-stormwater discharges that are eliminated.

## BMP 3.3 Annual Reporting Form

| Outfall Screening Record | |
|---|---|
| Total # of outfalls (refer to BMP 3.1): | ***13*** |
| Total # of outfalls screened during the reporting year: | ***13*** |
| If 100% of outfalls were not screened during the reporting year, explain why: ***N/A since 100% of outfalls screened*** | |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

## Measure of Effectiveness

| |
|---|
| Percentage of identified non-stormwater discharges during screening that are eliminated: ***N/A*** |
| Please provide rationale that describes if the percentage listed indicates the BMP is effective. If not, describe modifications to increase effectiveness: ***No non-stormwater discharges were identified during outfall screening.*** |

## BMP 3.4 Eliminate or minimize discharge of hazardous substances or oil (Section II B.3.e)

**Description:** TNCC will eliminate or minimize the potential for hazardous substance or oil in stormwater runoff through:

- The implementation of the methods, inspection schedules, and procedures in the TNCC Good Housekeeping/Pollution Prevention Program Manual described in BMP 6.1 and the Stormwater Pollution Prevention Plan described in BMP 6.2; and
- The expected measurable goals of the training component provided in BMP 6.3a for spill response, good housekeeping and pollution prevention for maintenance workers, and reporting illicit discharge.

**Necessary documentation for implementation:** (1) Good Housekeeping/Pollution Prevention Program Manual; (2) Training documentation.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective of the Good Housekeeping & Pollution Prevention Program Manual and associated training is to provide reference procedures, schedules, resource material and education to campus staff that result in daily operations that eliminate or prevent potential introduction of hazardous substances and oil to stormwater runoff. The expected result is the elimination of hazardous substances and oil spills and exposure.

**Implementation schedule**: The CSH Good Housekeeping/Pollution Prevention Program Manual and incorporated training program are complete. Training will be performed annually, per the Public Education & Outreach Plan.

**Method to determine effectiveness:** Effectiveness will be determined by each of the following:

1) Effectiveness will be measured by recurring issues related to campus staff activities identified during the annual comprehensive campus compliance evaluation beginning in the spring of 2015, as described in BMP 6.2. The Comprehensive Campus Compliance Evaluation Form provided in the Good Housekeeping and Pollution Prevention Manual will be completed and include physical field inspection of:
   - Locations where hazardous chemicals or oil are used or stored;
   - Locations were equipment or vehicles are stored or where vehicle or equipment maintenance occurs; and
   - Other areas with potential for hazardous substances or oil to be exposed to precipitation.
2) The number of hazardous substances or oils related illicit discharges reported or identified in the reporting forms for BMPs 3.2 and 3.3, respectively, that are found to originate from campus staff activities.

## BMP 3.4 Annual Reporting Form

| |
|---|
| No additional reporting necessary. |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

## Measure of Effectiveness

| | |
|---|---|
| Were any illicit discharges reported or identified in the reporting forms for BMPs 3.2 and 3.3 found to originate from staff activities? | ☐ Yes (See below)<br>☒ No (BMP effective) |
| If yes, describe how the BMP can be modified to improve effectiveness to specifically address the cause of the illicit discharge(s) or describe why modification is not necessary: ***N/A*** | |

### BMP 3.5 Facilitate public reporting of illicit discharges and provide response (Section II B.3.e)

**Description:** TNCC will promote, publicize, and facilitate public reporting of illicit discharges into or from MS4s with information describing an illicit discharge and contact information on the TNCC stormwater website. TNCC will investigate all reports using methods and procedures described in the TNCC IDDE Manual described in BMP 3.3. Tracking of reports will be recorded in the IDDE Tracking form in Appendix D of the TNCC IDDE Program Manual.

**Necessary documentation for implementation:** (1) Web address of posted material; (2) Completed IDDE Tracking Form for each incident.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to first educate the public to recognize an illicit discharge and provide contact information that allows for the reporting of an observed illicit discharge. The ultimate objective is track and eliminate reported illicit discharges.

**Implementation schedule**: Illicit discharge material and contact information is available on the website as of July 1, 2015. Response to illicit discharge reports will be on-going, occurring in response to reports per the IDDE Manual.

**Method to determine effectiveness:** Effectiveness will be measured percentage of illicit discharge reports closed (as will be documented in the IDDE Tracking Forms).

## BMP 3.5 Annual Reporting Form

| Illicit Discharge Reports | | | | |
|---|---|---|---|---|
| Total # of illicit discharge reports for the reporting year: | | | ***0*** | |
| Description of reported potential illicit discharge | Date observed and/or reported | Description of how the investigation was addressed | Resolution of the investigation | Close date |
| ***N/A, no reports*** | ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** |
| ***N/A, no reports*** | ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** |
| ***N/A, no reports*** | ***N/A*** | ***N/A*** | ***N/A*** | ***N/A*** |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

## Measure of Effectiveness

| Percentage of reported illicit discharge instances that have been closed: N/A |
|---|
| If not all reports have been closed, please provide the reason and any necessary modification to the BMP: ***No reports were made for the reporting period.*** |

### BMP 4.1 ESC compliance for land disturbance activities (Section II B.4.a-c3, c5 c6, e1-6)

**Description:** Regulated land disturbance activity on the TNCC campus is managed by the latest edition of DEQ approved Virginia Community College System's (VCCS) "Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management." Regulated land disturbance activities are those that disturb greater than 2,500 square feet except for the exceptions listed in the definition for "land disturbance activity" provided in the Definitions section of this document. The VCCS Annual Standards and Specifications provide for the following:

- Erosion and Sediment (ESC) plan approval by VCCS through recommendation of a VCCS contracted consultant. An approved plan is required prior to commencement of a regulated land disturbance activity and shall be compliant with the minimum standards listed in 9VAC25-840-40 of the Erosion and Sediment Control Regulations and the approved Annual Standards and Specifications.
- ESC inspection of land disturbance activities for compliance to the ESC Plan at least once every two weeks, within 48 hours of a runoff-producing event; and at project completion. Inspections shall be conducted by an individual with a current ESC Inspector's Certification from DEQ.
- Documentation for plan review and inspection procedures, by reference to laws, regulations, and the Virginia Erosion and Sediment Control Handbook (VESCH).
- A description of circumstances that allow the *VCCS Annual Standards and Specifications Project Manager* (VCCS AS&S Project Manager) to make changes to an approved plan when found inadequate to address ESC.

**Necessary documentation for implementation:** (1) VCCS Annual Standards and Specifications for Erosion and Sediment Control; (2) ESC Plan(s) approved by VCCS; (3) Documentation of ESC Inspector Certification; (4) Completed ESC Inspection Forms for each regulated project; (5) Notice to Comply and/or Stop Work Orders documentation and documentation of follow-up actions.

**Responsible individual for implementation:** VCCS AS&S Project Manager (ESC Plan approval and inspections); TNCC Facilities Director (Coordination with VCCS and obtaining information to determine effectiveness as described in this BMP).

**Objectives and expected results in meeting measurable goals:** The objective is to ensure ESC plans are prepared according to ESC Laws and Regulations, that ESC inspections are performed as specified in the regulations, and that correction or enforcement, when appropriate, occurs when inspections find deficiencies. The expected result is that all regulated land disturbance has an approved ESC plan, the appropriate number of inspections are performed, and a minimization of the number of recurring violations such as issued Notices to Comply and Stop Work Orders.

**Implementation schedule**: The implementation of this BMP will be on-going with all regulated land disturbance activities on campus.

**Method to determine effectiveness:** Effectiveness will be measured by the percentage of regulated land disturbance activities that have an approved ESC Plan, and the implementation of the required inspection schedule.

### BMP 4.1 Annual Reporting

| Annual Land Disturbance Activity Record |
|---|
| There were no regulated land disturbing activities that commenced or occurred during the reporting year on the TNCC campus. |

### Measure of Effectiveness

| | |
|---|---|
| Do inspections appear to have been conducted every 2 weeks and within 48 hours of a runoff producing event? | ☐ Yes (BMP effective)<br>☐ No (See below)<br>☒ N/A (No activities) |
| Describe program modifications to ensure inspections are conducted as required: ***N/A – No regulated land disturbance during the reporting year.*** | |

### BMP 4.2 Receive and respond to complaints regarding land disturbing activity (Section II B.4.c4)

**Description:** TNCC will promote to the public through the stormwater webpage information on land disturbance erosion and sediment controls and provide a contact number for reporting complaints regarding regulated land disturbing activities. TNCC will initiate investigation of all reports within 72-hours and address the issue with the construction site operator by requiring maintenance to ESC controls, or plan modifications, as necessary, in accordance with the Virginia Community College System's "Annual Standards and Specifications for Erosion and Sediment Control."

**Necessary documentation for implementation:** (1) Web address of posted material; (2) Land disturbance complaint/report tracking record with date, description, and resolution for each complaint.

**Responsible individual for implementation:** TNCC Facilities Director (Receiving and recording complaint); Certified ESC Construction Inspector (Assuring contractor implements ESC Plan); VCCS AS&S Project Manager (Approves ESC Plan modifications).

**Objectives and expected results in meeting measurable goals:** The objective is to educate the public to understand the purpose of ESC controls on a land disturbance activity, recognize the off-site impacts resulting from potential failure of ESC controls, and provide contact information that allows for the reporting of an off-site impact and ultimately the resolution of a reported issue.

**Implementation schedule**: Information regarding ESC controls for land disturbance activities and for reporting complaints on the website.

**Method to determine effectiveness:** Effectiveness will be measured by the percentage of resolved complaints that are reported by the public.

### BMP 4.2 Annual Reporting

| |
|---|
| There were no complaints from the public related to land disturbance activity during the reporting year. |

### Measure of Effectiveness

| | |
|---|---|
| Were all complaints resolved? | ☐ Yes (BMP effective)<br>☐ No (See below)<br>☒ N/A (no complaints) |
| Describe the reason for any unresolved complaint and any necessary program modifications to ensure complaints are resolved in the future. If no modifications are needed, provide rationale: ***N/A*** | |

## BMP 4.3 Ensure land disturbance activities secure VSMP General Permit (Section II B.4.c.7, d)

**Description:** Regulated land disturbance activity for stormwater management on the TNCC campus is managed by the latest edition of DEQ approved Virginia Community College System's "Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management." Regulated land disturbance activities are those that disturb greater than 2,500 square feet except for the exceptions listed in the definition for "land disturbance activity" provided in the Definitions section of this document. In addition to the above, and in absence of a VAR10, the Virginia Construction and Professional Services Manual (CPSM). The Annual Standards and Specifications require a Stormwater Pollution Prevention Plan (SWPPP) be developed and submission for the VSMP General Permit Registration Statement – Construction Activity Stormwater Discharge (VAR10) prior to land disturbance for any land disturbance activity equal to or greater than 1 acre. Through the development of the SWPPP, consistent with the VSMP General Permit, a pollution prevention plan will ensure implementation of appropriate controls to prevent non-stormwater discharges such as wastewater, concrete washout, fuels and oils, and other illicit discharges.

**Necessary documentation for implementation:** (1) VCCS Annual Standards and Specifications (Plan approval, VAR10 verification and SWPPP verification at the preconstruction meeting through VCCS Form LD-03); (2) Project-specific SWPPPs; (3) Project-specific General Permits for Construction Activity (VAR10).

**Responsible individual for implementation:** VCCS AS&S Project Manager; TNCC Facilities Director (Tracking required information for reporting)

**Objectives and expected results in meeting measurable goals:** The objectives are: (1) To provide a mechanism for assuring that VSMP General Permit coverage is obtained for all land disturbances exceeding 1-acre. The expected result is that coverage is obtained for all applicable land disturbances prior to commencement; (2) Ensure development and implementation of SWPPPs through the contractor's requirement to develop and implement the plan.

**Implementation schedule**: All regulated land disturbance activities that disturb greater than 1-acre will continue to obtain a VAR10 General Permit.

**Method to determine effectiveness:** Effectiveness will be determined based on: (1) all regulated land disturbance activity operating under VSMP General Permit coverage and a SWPPP, (2) the number of violations related to pollution prevention from a construction site identified in the reporting for BMP 3.2, 3.3, 3.5, and 4.2.

### BMP 4.3 Annual Reporting Form

| The # of regulated land disturbance activities during the reporting year: | | | ***0*** |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Regulated land disturbance activity description (should match 4.1 reporting column) | If greater than 1-acre, was VSMP General Permit coverage obtained? (yes/no) | If permit coverage is required, is a site-specific SWPPP available on site for the project? (yes/no) | Any illicit discharge reports from construction activities (see reporting for BMPs 3.2, 3.3, 3.5, 4.1 and 4.2? (yes/no) |
| ***N/A*** | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| ***N/A*** | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| ***N/A*** | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

### Measure of Effectiveness

| If no is answered in columns 2 or 3 above, explain why and actions taken to address the issue. Include rationale that describes if they BMP is ineffective, and if so, modification to the BMP to improve effectiveness: ***N/A*** | |
|---|---|
| Is yes answered in column 4? (yes/no) | ☐ Yes (See below)<br>☐ No (Effective BMP)<br>☒ N/A (No activity) |
| If yes, described the instance(s) and provide rationale if BMP modification is necessary, or not necessary, to improve the effectiveness of the BMP? ***N/A*** | |

## BMP 5.1 Compliance to post-construction SWM regulations (Section II B.5.a, b. d.1,2)

**Description:** TNCC will ensure post-construction stormwater management (SWM) for all regulated land disturbance activities over 2,500 square feet through VCCS plan approval in accordance with the VCCS Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management. approval from VCCS will ensure the SWM plan has been prepared per the VSMP Regulations that, in part, require that stormwater runoff controls:

- are designed and installed in accordance with the appropriate water quality and water quantity design criteria as required in Part II (9VAC25-870-40 et seq.) of 9VAC25-870; and
- Have an inspection and maintenance plan.

Implementation of this BMP will be accomplished through the verification of a VCCS approved stormwater management plan by the Associate Vice Chancellor prior to providing written approval that allows the start of the land disturbance.

TNCC will extract and retain a copy of SWM facility inspection and maintenance plans from the approved stormwater management plan for proposed stormwater management facilities to be used with the implementation of BMP 5.3.

**Necessary documentation for implementation:** (1) VCCS approved SWM Plans and Calculations; (2) SWM Facility Inspection and Maintenance Plans.

**Responsible individual for implementation:** VCCS AS&S Project Manager (verification of approved plan prior to approval to start land disturbance); TNCC Facilities Director (Tracking required information for reporting and obtaining inspection and maintenance plans for stormwater facilities)

**Objectives and expected results in meeting measurable goals:** The objective is to ensure regulated projects are in compliance with the VSMP Stormwater Management Regulations. The expected goal is that all regulated projects have VCCS approved SWM Plans with SWM facility inspection and maintenance plans.

**Implementation schedule**: The implementation of this BMP will be on-going with all regulated land disturbance activities.

**Method to determine effectiveness:** Effectiveness will be measured by: (1) all regulated land disturbance activities having a VCCS approved SWM Plan; and (2) all stormwater management facilities having inspection and maintenance plans.

## BMP 5.1 Annual Reporting

***There were no regulated land disturbance activities during the reporting year.***

### BMP 5.2 Stormwater management facility tracking and reporting (Section II B.5.e)

**Description:** TNCC will maintain an updated electronic database in Excel format of all known stormwater management (SWM) facilities that discharge into the MS4. The database will include:

- The SWM facility ID #;
- The stormwater management facility type;
- A general description of the facility's location, including the address or latitude and longitude;
- The acres treated by the facility, including total acres, as well as the breakdown of pervious and impervious acres;
- The date the facility was brought online (MM/YYYY);
- The sixth order hydrologic unit code (HUC) in which the stormwater management facility is located;
- The name of any impaired water segments within each HUC listed in the 2010 § 305(b)/303(d) Water Quality Assessment Integrate Report to which the stormwater management facility discharges;
- Whether the stormwater management facility is operator-owned or privately-owned;
- The date of the last inspection.

Upon final inspection of a newly constructed stormwater management facility, the facility will be included within the database.

**Necessary documentation for implementation:** (1) Updated SWM Tracking and Reporting Excel database; (2) Completed inspection checklist forms (see BMP 5.3)

**Responsible individual for implementation:** TNCC Facilities Director

**Objectives and expected results in meeting measurable goals:** The objective is to maintain an updated record of all of the SWM facilities. The expected result is that the list will be utilized to assist with implementation of BMP 5.3 and will be maintained as new SWM facilities come online.

**Implementation schedule**: The implementation of this BMP will be on-going as inspections are performed as specified for each BMP in the BMP database.

**BMP 5.2 Annual Reporting Form**

| Stormwater Management Facility Tracking and Reporting* | |
|---|---|
| Did any new SWM facilities come on-line during the reporting year? (yes/no) | ☐ Yes ☒ No |
| If yes, was the electronic database updated? (yes/no) | ☐ Yes ☐ No<br>☒ N/A (No facilities) |
| If no, explain why the database was not updated: ***N/A*** | |

**Measure of Effectiveness**

| | |
|---|---|
| Is the database complete to include all of the attributes for each new facility described above in this BMP? | ☐ Yes (BMP effective)<br>☐ No (See below)<br>☒ N/A (No facilities) |
| If no, describe the reason that the database is incomplete and provide rationale that determines whether or not the BMP needs to be modified to ensure completion of the data base: ***N/A*** | |

### BMP 5.3 Inspection, operation, and maintenance verification of SWM facilities (Section II B.5.c, d.3, 5)

**Description:** TNCC will perform long-term operations and maintenance of all stormwater facilities on campus utilizing the inspection and maintenance plans obtained from implementation of BMP 5.1. Where inspection and maintenance plans are not available from approved SWM plans, TNCC will utilize BMP-specific inspection and maintenance instruction from the Virginia Stormwater Management Handbook or the TNCC Post-Construction Stormwater Manual. Inspections will be performed either:

- As dictated on the schedule provided on the inspection and maintenance plans; or
- A minimum of once annually, whichever are the more frequent criteria.

Inspections will be performed using the BMP inspection and maintenance checklist, corresponding with the type of BMP, as provided in either the TNCC Post-Construction Stormwater Manual or the latest edition of the Virginia Stormwater Management Handbook. The checklists provide lists of potential issues and methods to address the issue. Necessary maintenance identified during inspections will be conducted in a timely manner as indicated on the checklist or no later than the next scheduled inspection.

**Necessary documentation for implementation: (**1) BMP Database described in BMP 5.2; (2) BMP- specific Inspection and Maintenance Plan; (3) Completed BMP Specific inspection and maintenance checklist from either the TNCC Post-Construction Stormwater Manual or the Virginia Stormwater Management Handbook

**Responsible individual for implementation:** TNCC Facilities Director

**Objectives and expected results in meeting measurable goals:** The objective is to ensure the intended function of all SWM facilities through long-term maintenance. The expected result is completed inspection forms in accordance with the schedule described in the description above.

**Implementation schedule**: The implementation of this BMP will be on-going as inspections, operations and maintenance are performed for each facility.

### BMP 5.3 Annual Reporting

| |
|---|
| Total # of inspections: ***2, representing an annual inspection for each BMP in the college's database. No new BMPs were brought online during the reporting year; therefore no electronic database is included with this reporting.*** |

### Measure of Effectiveness

| | |
|---|---|
| Do dates in the database indicate that inspections were performed as required for each BMP for the reporting year? | ☒ Yes (BMP effective)<br>☐ No (See below) |
| Describe the reason for inspections that were not performed and provide rationale that determines whether or not the BMP needs to be modified to ensure completion of inspections: ***N/A – Inspections were performed*** | |
| Do dates in the database indicate that maintenance was performed, where necessary, in a timely manner? | ☒ Yes (BMP effective)<br>☐ No (See below)<br>☐ N/A (See below) |
| Describe the reason for that maintenance was not performed in a timely manner (e.g. minor repair needed that does not affect function of the facility) and provide rationale that determines whether or not the BMP needs to be modified to ensure completion of inspections: ***BMP inspections were performed in May of the reporting year. Necessary maintenance was limited to trash removal which was promptly performed. None of the items noted during inspections appear to be causing illicit discharges (i.e. sediment discharge) nor preventing function of the facilities.*** | |

### BMP 6.1 Pollution Prevention Procedures for Operations & Maintenance Activities (Section II B.6.a)

**Description:** TNCC will develop and implement comprehensive written procedures for good housekeeping and pollution prevention for daily operations and equipment maintenance within the TNCC Good Housekeeping/Pollution Prevention Program Manual. At a minimum the written procedures will include procedures that include the following goals:

- Prevent illicit discharges;
- Ensure the proper disposal of waste materials, including landscape waste;
- Prevent discharge of vehicle wash water to the storm sewer;
- Prevent the discharge of wastewater to the storm sewer;
- Require best management practices to filter water pumped from maintenance activities;
- Require best management practices to prevent pollutants in runoff from stored and stockpiled materials (e.g. soil stockpiles and salt storage);
- Prevent pollutant discharge from leaking college automobiles and equipment;
- Ensure application of materials, such as pesticides, is conducted in accordance with manufacturer's specifications.

Effective implementation will be supported with a campus-specific Stormwater Pollution Prevention Plan (SWPPP) as described in BMP 6.2, evaluated with a campus compliance evaluation as described for the measure of effectiveness for BMP 3.4, and the Pollution Prevention training described in BMP 6.3a.

**Necessary documentation for implementation:** (1) TNCC Good Housekeeping/Pollution Prevention Program Manual; (2) Campus-specific SWPPP; (3) Training documentation; (4) Completed Comprehensive Campus Evaluation form. All documentation is incorporated into the TNCC Good Housekeeping/Pollution Prevention Program Manual.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to minimize or prevent pollutant discharges from campus operations and maintenance activities. The expected result is campus staff adherence to the TNCC Good Housekeeping/Pollution Prevention Manual during daily activities.

**Implementation schedule**: The Good Housekeeping/Pollution Prevention Program Manual is complete. Training will be provided annually, with the initial training performed in the spring of 2015. Campus evaluations will be performed with the schedule described in BMP 6.2.

### BMP 6.1 Annual Reporting Form

| | |
|---|---|
| Has a Good Housekeeping/Pollution Prevention Program Manual been developed? (yes/no) | ☒Yes ☐No |
| If no, explain why: ***N/A*** | |

### Measure of Effectiveness

| |
|---|
| See measure of effectiveness for BMP 3.4 |

### BMP 6.2 Campus Stormwater Pollution Prevention Plan (Section II B.6.b)

**Description:** TNCC will develop and implement a campus-specific Stormwater Pollution Prevention Plan (SWPPP) that identifies areas on campus having a potential for the discharge of chemicals and other materials in stormwater. The SWPPP will include:

- Mapping that identifies all outfalls, direction of flows, existing source controls, and receiving water bodies;
- A discussion and checklist of potential pollutants and pollutant sources;
- A discussion of all potential non-stormwater discharges;
- Written procedures, or reference to written procedures, designed to reduce and prevent pollutant discharge;
- A description of the applicable training described in BMP 6.3;
- Procedures to conduct an annual comprehensive campus compliance evaluation; and
- An inspection and maintenance schedule for site specific source controls. The date of each inspection and associated findings and follow-up shall be logged in each SWPPP.

The SWPPP will provide instruction for updates, as necessary, to reflect changes on campus, modifications to operations and maintenance procedures, or short-comings resulting in a reportable spill. Inspection forms will be completed in accordance with the prescribed schedule within the SWPPP and maintained on file with the Buildings and Grounds Supervisor.

**Necessary documentation for implementation:** (1) TNCC Good Housekeeping/Pollution Prevention Program Manual; (2) Campus Specific SWPPP; (3) Completed annual comprehensive site compliance evaluation. All documentation is incorporated into the TNCC Good Housekeeping/Pollution Prevention Program Manual.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective and expected result is to minimize or prevent pollutant discharges from campus facilities through adherence to the campus specific SWPPP.

**Implementation schedule**: TNCC has incorporated areas of campus with potential for the discharge of chemicals and other materials in stormwater into a campus-wide SWPPP. The annual comprehensive campus compliance evaluation will be completed in the spring of each year beginning in 2015.

**Method to determine effectiveness:** Effectiveness will be measured by: the results of the annual comprehensive campus compliance evaluation. Measure of effectiveness for this BMP will be the same as described for BMP 3.4.

### BMP 6.2 Annual Reporting Form

| Stormwater Pollution Prevention Plan | |
|---|---|
| Did any changes on campus that could potentially affect stormwater runoff occur during the reporting year (e.g. new outfalls, facilities)? (yes/no) | ☐ Yes ☒ No |
| If yes, are the changes reflected in the SWPPP? (yes/no) | ☐ Yes<br>☐ No<br>☒ N/A |
| If the changes were not reflected, explain why: ***N/A, no changes*** | |

### Measure of Effectiveness

| Results from Comprehensive Campus Evaluation | |
|---|---|
| Total number of recurring items originating from campus activities identified Spring 2016: | ***0*** |
| Total number of recurring items originating from campus activities identified Spring 2017: | ***0*** |
| Total number of recurring items originating from campus activities identified Spring 2018: | ***0*** |
| Has the # of recurring items trended downward or remained at zero from year to year? | ☒ Yes (BMP Effective)<br>☐ No (See below) |
| If no, discuss the specific recurring items and describe how the BMP can be modified to improve effectiveness to specifically address recurring items (e.g. improved training, improved inspection form) or describe why modification is not necessary: ***N/A*** | |
| Were any illicit discharges reported or identified in the reporting forms for BMPs 3.2 and 3.3 found to originate from campus staff activities? | ☒ Yes (BMP Effective)<br>☐ No (See below) |
| If yes, describe how the BMP can be modified to improve effectiveness to specifically address the cause of the illicit discharge(s) or describe why modification is not necessary: ***N/A*** | |

## BMP 6.3a Employee Good Housekeeping/Pollution Prevention Training Plan (Section II B.6.d)

**Description:** TNCC will incorporate a written training plan into its Good Housekeeping/Pollution Prevention and IDDE Program Manuals, including a schedule of training events. The Program Manuals will serve as the training material and include Appendices to document training and list relevant staff for the following specific training:

- Annual training to relevant field personnel in the recognition and reporting of illicit discharges. Training will utilize the IDDE Manual described in BMP 3.3; and
- Annual training to relevant employees in good housekeeping and pollution prevention practices that are to be employed during road and parking lot maintenance and around maintenance and operations facilities. Training will utilize the TNCC Good Housekeeping/Pollution Prevention Program Manual described in BMP 6.1.

The plan will also require the following:

- Training or certification in spill response for emergency response employees.
- Training or certification for applying pesticides and herbicides in accordance with the Virginia Pesticide Control Act (§3.2-3900et seq. of the Code of Virginia) for employees performing applications.

Training required by the General Permit that is not applicable to TNCC includes the following:

- Training to employees in and around recreational facilities; and
- Certifications as required under the Virginia Erosion & Sediment Control Law (See BMPs 4.1 and 4.3).

**Necessary documentation for implementation:** (1) Training documentation or appropriate certifications for employees; (2) TNCC IDDE Manual; (3) TNCC Good Housekeeping/Pollution Prevention Program Manual.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to ensure effective training on the procedures provided in the Good Housekeeping/Pollution Prevention and IDDE Program Manuals and to have them carried out during employee daily operations. The expected result is well trained employees that minimize pollutant discharge through good housekeeping practices and IDDE screening and source identification and elimination.

**Implementation schedule**: The written training plan is complete and incorporated into the TNCC Good Housekeeping/Pollution Prevention and IDDE Program Manuals. Training and certification requirements will occur annually.

**Method to determine effectiveness:** Effectiveness will be measured by the results of a "Knowledge Check" quiz that will be taken by each employee that takes the training. The "Knowledge Check" quiz in provided in the Appendix of the Good Housekeeping/Pollution Prevention Program Manuals.

### BMP 6.3a Annual Reporting Form

| Training Plan | |
|---|---|
| Has the TNCC annual written training plan been developed? (yes/no) | ☒Yes ☐No |
| **Training & Certifications** | |
| Has employee training been provided? (yes/no) | ☒Yes ☐No |
| If no, explain: ***N/A*** | |
| Date of latest training to relevant field personnel in the recognition and reporting of illicit discharges: | ***7/19/2018*** |
| Number of employees that participated in the latest training in the recognition and reporting of illicit discharges: | ***18*** |
| Date of last training to relevant employees in good housekeeping and pollution prevention practices: | ***7/19/2018*** |
| Number of employees that participated in the latest training in good housekeeping and pollution prevention practices: | ***18*** |
| Do the number of individuals reported above that participated in training represent all employees that conduct daily activities that could potentially affect stormwater runoff? (yes/no) | ☒Yes ☐No |
| If no, explain: ***N/A*** | |
| Did any employees apply pesticides and herbicides? (yes/no) | ☒Yes ☐No |
| If yes, identify the employee and their certification: ***Marla Latimer (category 3A, 3B, 6) # 35606 and Billy Alvis #113767*** | |
| Provide a summary of the training or certification program provided to emergency response employees that includes training in spill response: ***Emergency and spill response instruction is provided in the training program and incorporated into Program documentation, specifically the campus SWPPP.*** | |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

### Measure of Effectiveness

| | |
|---|---|
| Did scores from the "Knowledge Check" quiz improve from the previous training? (yes/no) | ☐ Yes (BMP effective)<br>☐ No (See below)<br>☒ N/A |
| If no, describe modifications to the BMP to increase effectiveness (e.g. training frequency, training material, etc.): ***Updated training was provided during the reporting year that included a revised quiz, resulting in the inability to provide consistent comparison to previous training quiz results. Instead, training is considered effective due to participation and an average passing grade of 75% correct response.*** | |

### BMP 6.3b Contractor Certification for Pollution Prevention (Section II B.6.d.4)

**Description:** TNCC will require, through contract language, the certification for contractors applying pesticides and herbicides in accordance with the Virginia Pesticide Control Act (§3.2-3900et seq. of the Code of Virginia). Contract language will require contractors to provide proof of the appropriate certification prior to contract execution.

**Necessary documentation for implementation:** (1) Contract language; (2) Proof of certifications.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objectives are to ensure the proper application of pesticides and herbicides. The expected result is that contractors used by the college will have appropriate certifications for application of pesticides and herbicides.

**Implementation schedule**: TNCC will develop and begin implementation of contract language by July 1, 2016.

**Method to determine effectiveness:** Effectiveness will be measured by evaluation of trends in confirmed reports of illicit discharge related to herbicides and pesticides.

### BMP 6.3b Annual Reporting

| | |
|---|---|
| Number of contracts executed during the reporting year that includes application of pesticides and herbicides? | ***3*** |
| Was proof of certification provided for each contract that includes the application of pesticides and herbicides? (yes/no) | ☒ Yes ☐ No<br>☐ N/A (no contracts) |
| If no, explain: | ***N/A*** |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

### Measure of Effectiveness

| | |
|---|---|
| Were any illicit discharges related to herbicides and pesticides application by contractors reported or identified in the reporting forms for BMPs 3.2 and 3.3? | ☐ Yes (See below)<br>☒ No (BMP effective) |
| If yes, describe how the BMP can be modified to improve effectiveness to specifically address the cause of the illicit discharge(s) or describe why modification is not necessary:<br>***N/A*** | |

### BMP 6.4 Turf and Landscape Management (Section II B.6.c)

**Description:** TNCC is regulated under §10.1-104.4 of the Code of Virginia and therefore will continue to implement DEQ approved and campus-specific Nutrient Management Plan (NMP) prepared a Certified Nutrient Management Planner. Fertilizer application records will be maintained with each application using the application record provided in the Nutrient Management Plan (NMP).

In addition, TNCC will not apply any deicing agent containing urea or other forms of nitrogen or phosphorus to parking lots, roadways, and sidewalks, or other paved surfaces.

**Necessary documentation for implementation:** (1) TNCC Nutrient Management Plan; (2) Completed Fertilizer Application Record; (3) Ingredients of deicers used on campus.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to avoid excessive application of nutrients where applied on campus. The expected results are reduction of downstream impacts from nutrient loads.

**Implementation schedule**: The NMP will continue to be implemented.

**Method to determine effectiveness:** Effectiveness will be measured by the implementation of the NMP through completion of the application record and periodic updates to the NMP to make necessary adjustments based on soils conditions.

### BMP 6.4 Annual Reporting Form

| | | |
|---|---|---|
| Were nutrients used during the reporting year? | ☒ Yes<br>☐ No | If no, no further reporting necessary for this BMP |

| | |
|---|---|
| Total acreage of lands where nutrient management plans are required: | ***31.3*** |
| Acreage of lands upon which nutrient management plans have been | ***31.3*** |
| Date of last NMP update: | ***July 27, 2018*** |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

### Measure of Effectiveness

| | |
|---|---|
| Was the NMP's fertilizer application record maintained and in adherence to the NMP? (yes/no) | ☒ Yes (BMP effective)<br>☐ No (See below) |
| If no, describe how the BMP can be modified to improve effectiveness. Provide rationalization for modification or if modification is deemed unnecessary: ***N/A*** | |

### BMP 6.5 Contractor Safeguards for Program Consistent Measures and Procedures (Section II B.6.e)

**Description:** TNCC will improve existing contract language that references sections within the TNCC Good Housekeeping/Pollution Prevention Program Manual to require campus contractors use appropriate control measures and procedures for stormwater discharges, when applicable. Oversight will be provided through periodic inspections. Contract language will require contractors to address items identified during inspections within a time period appropriate to prevent the potential of non- stormwater discharges. The contract language will also allow the college to stop-work, address the problem, and recoup cost for the remedy from the contractor.

Contract language described in this BMP is not intended for regulated land disturbance activity addressed with BMPs 4.1, 4.2, and 4.3.

**Necessary documentation for implementation:** (1) TNCC Good Housekeeping/Pollution Prevention Program Manual; (2) Completed inspection forms; (3) Contract language.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective and expected result is to minimize or prevent pollutant discharges from contractor activities.

**Implementation schedule**: By July 1, 2016, TNCC will develop and execute contract language to require contractors to use appropriate control measures and procedures for stormwater discharges.

**Method to determine effectiveness:** Effectiveness will be measured by the inspection results specific to work performed by contractors, the responsiveness of contractors to address observed issues, and reported illicit discharges originating from contracted work on campus.

### BMP 6.5 Annual Reporting

| | |
|---|---|
| Has contract language, as described above, been included in contracts with all contractors where the work performed could require appropriate control measures and procedures for stormwater discharges? This does not include regulated land disturbance activity addressed with BMPs 4.1, 4.2, and 4.3 (yes/no) | ☒Yes ☐No |
| If no, explain: ***Contract procurement is transitioning to a centralized VCCS "Shared Services" system. The college will be working with the Shared Services regarding contract language to be incorporated into all future contracts.*** | |
| Were bi-weekly inspections performed to ensure oversight? (yes/no) | ☐Yes<br>☐No<br>☒N/A (no contracts) |
| If no, explain: ***N/A*** | |

### Measure of Effectiveness

| | |
|---|---|
| Were any illicit discharges related to contracted work on campus (other than regulated land disturbance activity) reported or identified in the reporting forms for BMPs 3.2 and 3.3? | ☐ Yes (See below)<br>☒ No (BMP effective) |
| If yes, describe how the BMP can be modified to improve effectiveness to specifically address the cause of the illicit discharge(s) or describe why modification is not necessary: ***N/A*** | |

## 3.0 Special Conditions for the Chesapeake Bay TMDL

### BMP CB-SC.1 Chesapeake Bay TMDL Action Plan (Section I C.2)

**Description:** TNCC will develop a phased Chesapeake Bay Action Plan that incorporates public comment and includes:

- A review of the Program Plan BMPs described in Section 3.1 for consistency with the TMDL and for the purpose of identifying necessary modifications;
- An estimate of the annual POC loads discharged from the existing sources as of June 30, 2008, based on the 2009 progress run;
- An estimate of the total reductions necessary to reduce the annual POC loads from existing sources to the L2 implementation level;
- The means and methods that will be utilized to implement sufficient reductions from existing sources equal to 5.0% of the estimated total reductions necessary;
- Mechanism to address any modification to the TMDL or watershed implementation plan that occurs during the term of this state permit as part of its permit reapplication and not during the term of this state permit;
- An estimate of the expected costs to implement the requirements of this special condition during the state permit cycle;
- An opportunity for receipt and consideration of public comment regarding the draft Chesapeake Bay TMDL Action Plan; and
- A draft second phase Chesapeake Bay TMDL Action Plan designed to reduce the existing pollutant load by an additional 35%

The Action Plan development will consider DEQ's Chesapeake Bay Action Plan Guidance. Additional BMPs will be included in this Section of the Program Plan to include the identified means and methods.

**Necessary documentation for implementation:** (1) Chesapeake Bay TMDL Action Plan; (2) Documentation of public participation; (3) TNCC Program Plan updates, as necessary.

**Responsible individual for implementation:** TNCC Buildings and Grounds Supervisor

**Objectives and expected results in meeting measurable goals:** The objective is to achieve reductions required by the Chesapeake Bay TMDL for sediment, phosphorus, and nitrogen. The expected result is the development of a TMDL Action Plan.

**Implementation schedule**: The Chesapeake Bay Action Plan was developed by July 1, 2015. The schedule developed in the Action Plan will be implemented thereafter.

### BMP CB-SC.1 Annual Reporting Form

| **Chesapeake Bay TMDL Action Plan** | |
|---|---|
| Has the TNCC Chesapeake Bay TMDL Action Plan been developed? | ☒ Yes<br>☐ No |
| If no, please explain and provide expected date of completion: ***N/A*** | |
| Method to receive and consider public comment, including dates: ***The Action Plan was posted on TNCC's stormwater webpage for approximately 14 days. An email was sent to students, faculty, and staff with a link to where comments could be provided.*** | |
| Date of Action Plan submittal to DEQ: ***The Action Plan was submitted to DEQ on October 1, 2015.*** | |
| Does quantification demonstrate the selected means and methods in the completed Action Plan can achieve the required reductions? | ☒ Yes<br>☐ No |

Necessary documents for implementation are not provided in the annual report, but will be retained on file for 3 years.

### Measure of Effectiveness

| | |
|---|---|
| Does quantification demonstrate street sweeping can achieve the required reductions in the required time frames? | ☒ Yes<br>☐ No |
| If no, explain how the Action Plan can be modified to achieve the required reductions in the required time frames: ***See BMP CB-SC.2*** | |

### BMP CB-SC.2 Chesapeake Bay TMDL Action Plan Implementation (Section I B.5.b)

**Description:** On an annual basis, TNCC will report progress on the implementation of the Chesapeake Bay TMDL Action Plan and associated quantification of total suspended solids (TSS), total phosphorus (TP), and total nitrogen (TN) reductions. In addition to continued implementation of TNCC's MS4 Program BMPs, measurable goals to achieve the reductions as described in TNCC's Chesapeake Bay TMDL Action Plan are summarized below:

| Measurable Goal | Progress Towards Measurable Goal |
|---|---|
| Written materials for: (1) tracking the weight of material collected with street sweeping; (2) collection of variables related to the sweeping event for analysis purposes; (3) instruction for collection and sampling of swept material for laboratory analysis. | ***Sweeping data collection form and sampling protocol have been developed. Staff was participating VCCS colleges were instructed on use of the documentation which was conveyed to a street sweeper contractor. Hy-Tech Sweeping contractor used regenerative-air and vacuum sweepers at the Hampton campus, with hoppers filled multiple times.*** |
| Compile samples of swept material for laboratory analysis of particle size distribution (characterization for TSS); total phosphorus, and total nitrogen. Measurable goal is assessment of variables collected from street sweeping operations and laboratory analysis. | ***Laboratory results and collected variables from sweeping operations from participating colleges were accessed to: (1) identify ideal times, in relation to rainfall, to perform sweeping to maximum pollutant reductions; (2) identify the best performing sweeper type; and (3) quantify reductions for TSS, along with the TP and TN constituency associated with TSS-associated particles.*** |
| Determination of the estimated number of annual sweeping instances necessary to achieve the required reductions per the Chesapeake Bay TMDL and MS4 General Permit. | ***Based on: (1) measure of total weight of street material collected with annual sweeping activity at TNCC and (2) the assessment and analysis of laboratory results of samples from the 6 participating MS4s, estimates of TSS, TP, and TN reductions were developed for quantifying reductions.*** |

**Necessary documentation for implementation:** (1) TMDL Action Plan; (2) Documentation of sweeping activities; (3) Street sweeping sampling forms and chain of custody documentation to laboratory; (4) Laboratory results; (5) Compilation and assessment of collected data; (6) Computations for quantification of reductions based on documented sweeping information.

**Responsible individual for implementation:** TNCC Facilities Manager

**Objectives and expected results in meeting measurable goals:** The objective and expected result is to achieve pollutant reductions required by the MS4 General Permit.

**Implementation schedule**: Continued annual sweeping and quantification of TSS, TP, and TN collected through the activity. The number of instances of sweeping throughout each reporting year will be dependent on those necessary to achieve the required reductions.

**Method to determine effectiveness:** Effectiveness will be determined by the quantitative computation of pollutant reductions using approved or scientifically supportable methods.

### BMP CB-SC.1B Annual Reporting

| **Chesapeake Bay Action Plan** | |
|---|---|
| Were the required reductions for the permit cycle achieved within the reporting year (5.0% of the estimated total reductions necessary)? | ☒ Yes<br>☐ No |
| If no, please explain and provide expected date of completion: ***N/A – reductions achieved as described below as the measure of effectiveness.*** | |

### Measure of Effectiveness

| | |
|---|---|
| Does quantification demonstrate implementation of the TNCC Chesapeake Bay TMDL Action Plan achieves the required reductions for the permit cycle? | ☒ Yes<br>☐ No |
| If no, explain how the Action Plan can be modified to achieve the required reductions in the required time frames: ***N/A – reductions achieved as described below.*** | |

Required TSS, TP, and TN reductions to be achieved annually by the end of the permit cycle are provided in the following Table, as computed in the TNCC Chesapeake Bay TMDL Action Plan.

**Table CB-1. Required reduction in annual pollutant loads to be achieved within permit cycle (5% of total).**

| Pollutant | Reductions Required (lbs/yr) Historic Triangle Campus[1] | Reductions Required (lbs/yr) Hampton Campus |
|---|---|---|
| Nitrogen (TN) | 0.56 | 1.75 |
| Phosphorus (TP) | 0.15 | 0.53 |
| TSS | 67.93 | 191.97 |

[1] As noted in TNCC's DEQ-approved Phase I Chesapeake Bay Action Plan, 100% of the required reductions for the Historic Triangle campus are addressed with a regional retention BMP.

For the purposes of this reporting year, the mass loading approach (MLA) provided in the DEQ Chesapeake Bay TMDL Special Condition Guidance (DEQ Guidance) is used to quantify TSS, TP, and TN reductions achieved during the reporting year, as summarized in the following Table:

***Table CB-2.*** **Quantification of reductions achieved with TNCC's 2017-2018 sweeping efforts.**

| *Wet Weight[1]* | *Dry Weight[2]* | *TSS[3]* | *TP[4]* | *TN[5]* |
|---|---|---|---|---|
| ***39,442*** | ***27,609.4*** | ***8,282.82*** | ***27.61*** | ***69.02*** |

***[1] Based on conversion from volume estimates collected in hoppers and density of 1.5 g/cm³***

***[2] 70% of wet weight per DEQ Guidance MLA method.***

***[3] 30% of dry weight per DEQ Guidance MLA method.***

***[4] 0.1% of dry weight per DEQ Guidance MLA method.***

***[5] 0.25% of dry weight per DEQ Guidance MLA method.***

✓ Reductions achieved for TSS, TP, and TN exceed the reductions required. Therefore, the BMP is considered effective and will be continued annually. Analysis of measured results support achievement of required reductions.

**Appendix A – Public Participation Activity Documentation**

**(In Support of BMP 2.2 Reporting)**

# After the Storm

## A Citizen's Guide to Understanding Stormwater

EPA 833-B-03-002

January 2003



**For more information contact:**

**or visit**
**www.epa.gov/npdes/stormwater**
**www.epa.gov/nps**

## What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

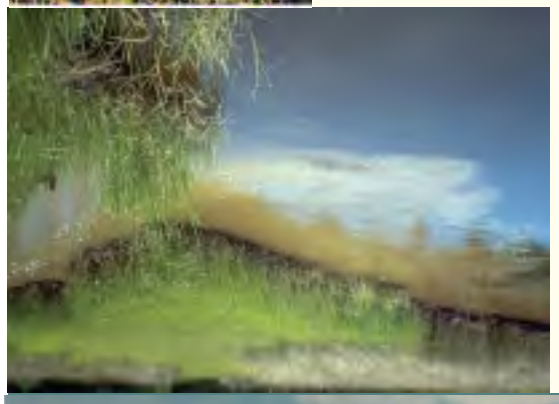
Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

## Why is stormwater runoff a problem?

## The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.



- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.

- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

# Stormwater Pollution Solutions

## Residential

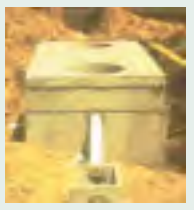
*Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.*

### Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

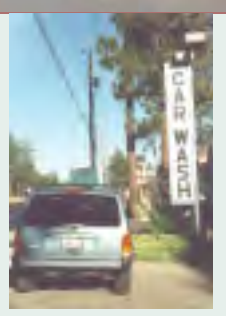
### Septic systems



Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

### Auto care




Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

### Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.


*Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.*

## Residential landscaping

**Permeable Pavement**—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

**Rain Barrels**—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

**Rain Gardens and Grassy Swales**—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

**Vegetated Filter Strips**—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

## Commercial

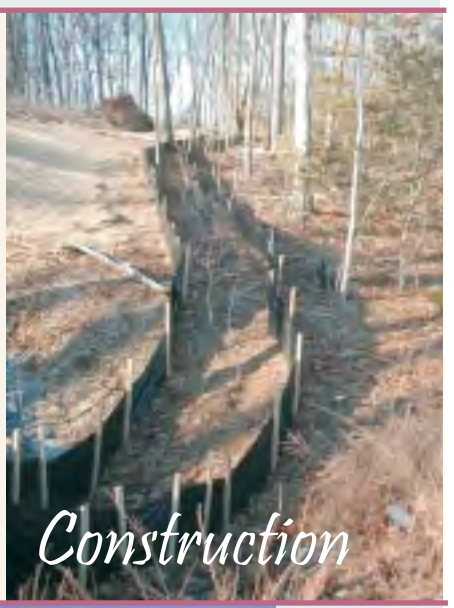
Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

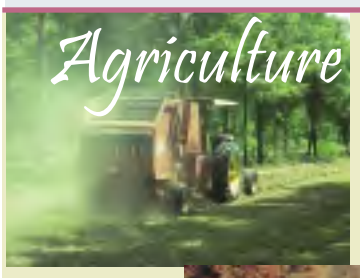
- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

## Construction

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

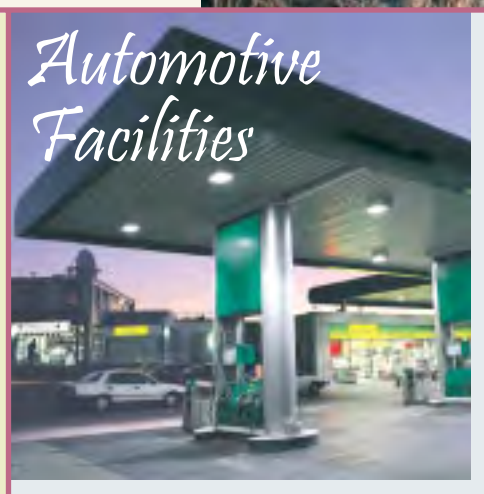




## Agriculture

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.



## Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

## Forestry

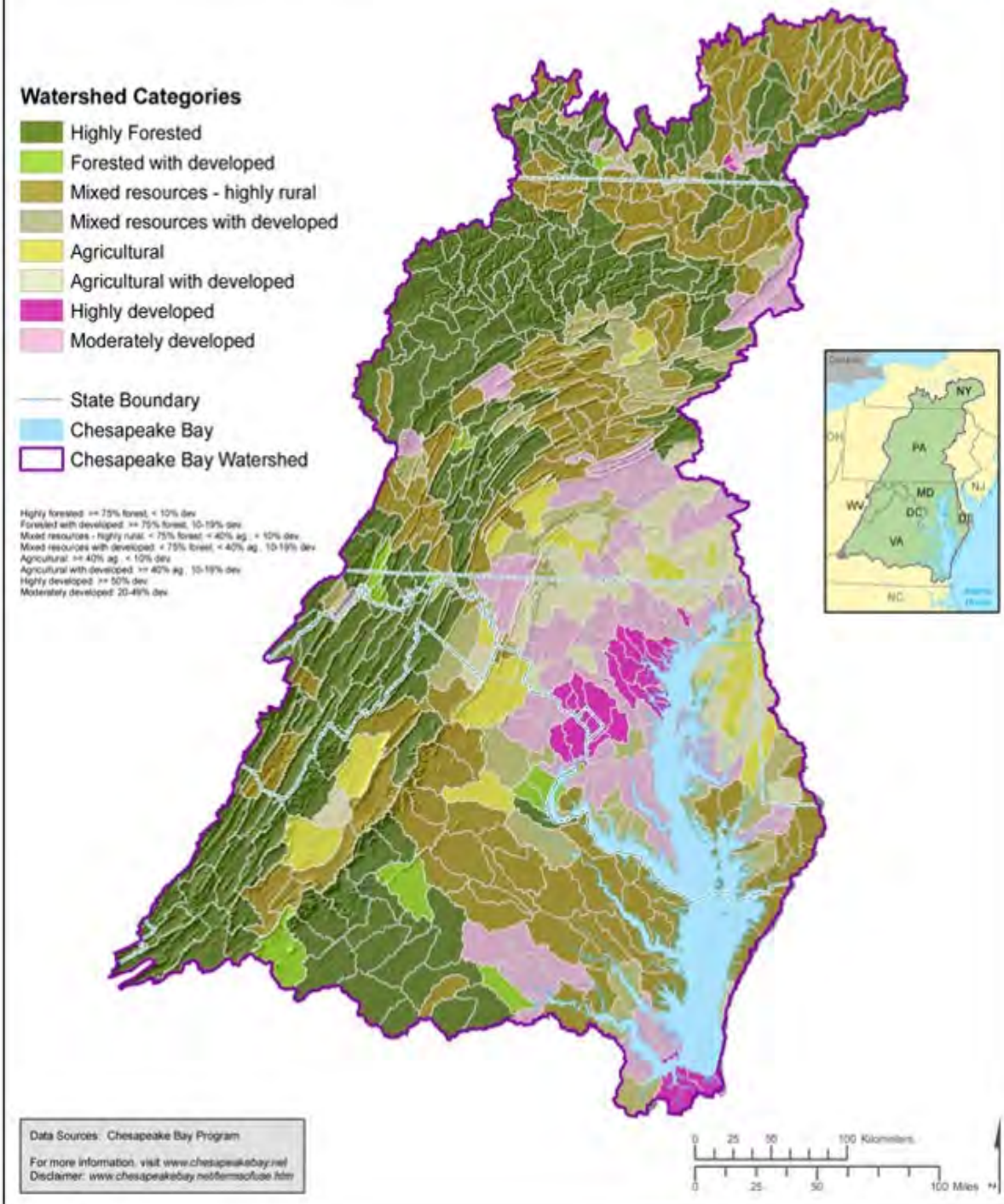
Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.

# Classification of Watersheds

Based on 2000 Land Cover

Chesapeake Bay Program
*A Watershed Partnership*




Data Sources: Chesapeake Bay Program

For more information, visit www.chesapeakebay.net
Disclaimer: www.chesapeakebay.net/termsofuse.htm

Created by HW, 2/1/08

UTM Zone 18N, NAD 83

# HOME SWEET FRAGILE HOME


THE TIME TO CLEAN UP OUR WATERWAYS ..... IS NOW!

Nutrient Impairment
Bacteria Impairment
Nutrient and Bacteria Impairment
Not Impaired for Nutrients or Bacteria

## OUR IMPAIRED WATERWAYS

MAJOR OFFENDING POLLUTANTS

**PHOSPHOROUS**

**NITROGEN**

- AGRICULTURAL OPERATIONS — from fertilizer, feed lots, animal waste
- WASTEWATER FACILITIES — from treatment and discharge
- AIR POLLUTION — from power plants and vehicle exhaust
- URBAN AND SUBURBAN RUNOFF — from roadways, development, residential/commercial lawn fertilizers
- SEPTIC SYSTEMS — resulting from backups and failures

**BACTERIA**

- SEWAGE DISCHARGE FROM BOATERS
- PET & WILDLIFE WASTE
- SEPTIC SYSTEMS
- SANITARY SEWER OVERFLOWS