VirginiaTech

**Site & Infrastructure Development**
230 Sterrett Drive (0529)
Blacksburg, Virginia 24061
Phone: (540) 231-1788
*www.sid.vt.edu*

September 25, 2013

Dr. Sherwood G. Wilson
Vice President for Administrative Services
248 Burruss Hall
Blacksburg, VA 24061

Dear Dr. Wilson:

Please find attached the Virginia Tech 2013 Municipal Separate Storm Sewer System (MS4) Annual Report Response prepared by Virginia Tech Facilities Services – Site and Infrastructure Development (SID) Department for submission to the Virginia Department of Environmental Quality (DEQ). This report is Virginia Tech's formal summary of compliance with the Virginia Stormwater Management Program Permit Regulations for Phase II MS4s.

Virginia Tech is located within the 3,500-acre Stroubles Creek watershed. It is the goal of Virginia Tech's MS4 program to prevent any non-stormwater discharges into Stroubles Creek. DEQ, the governing state agency, regulates MS4s under section 4VAC50-60-1240 of the Virginia Administrative Code. As a condition of the MS4 permit program, Virginia Tech is required to develop and implement its own stormwater management program to protect the Stroubles Creek watershed. Virginia Tech has developed and maintained such a program since 2003. The attached 2013 MS4 Annual Report Response is submitted to DEQ for an evaluation of the Virginia Tech MS4 program's compliance with the permit regulations, including progress towards achieving measurable goals and identifying best management practices.

Your signature on the attached 2013 MS4 Annual Report Response supports the Virginia Tech stormwater management program under the aforementioned regulations. Please feel free to contact me if you require any additional information.

Sincerely,

Chuck Dietz, P.E.
Stormwater Compliance Manager
Virginia Tech – Site & Infrastructure Development

Enclosure

cc: Kim Briele, Associate Director of Engineering Operations
Mark Helms, Director of Facilities Operations

MS4 Annual Report 2013

**VIRGINIA TECH MS4 2013 ANNUAL REPORT SUBMISSION**
*NPDES PHASE II*: SMALL MS4 (Municipal Storm Sewer System)

VPDES PERMIT NO. VAR 040049
EFFECTIVE DATE: JULY 1, 2008
EXPIRATION DATE: JUNE 30, 2013

Submittal Date: October 1, 2013

Site & Infrastructure Development
230 Sterrett Drive (0529)
Blacksburg, VA 24060

# VIRGINIA TECH

**Small Municipal Separate Strom Sewer System**
**(MS4 Program)**

**Annual Report for:**

**July 1, 2012 through June 30, 2013**

VPDES PERMIT NO. VAR 040049

ORIGINAL ISSUE: MARCH 31, 2009

Submittal Date: October 1, 2013

Submitted to:

Department of Environmental Quality (DEQ)

DEQ Blue Ridge Regional Office

3019 Peter's Creek Road

Roanoke, Virginia 24019

**Authorized Program Signature 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 assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering this 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.

9-25-13

Dr. Sherwood G. Wilson
Vice President for Administrative Services
Virginia Tech

Date

# MS4 Annual Report Response Submission 2013

## Table of Contents

**Minimum Control Measure No. 6: Pollution Prevention/Good Housekeeping**

BMP 6.1.1: Spill Prevention, Control, and Countermeasure Plan
BMP 6.1.2: Educate Staff on Vehicle and Equipment Washing
BMP 6.1.3: Personnel Training
BMP 6.2.1: Parking Lot and Street Cleaning
BMP 6.2.2: Road Maintenance and Repair
BMP 6.3.1: Storm Drain System Intake Cleaning
BMP 6.4.1: Hazardous Materials and Chemical Storage and Management
BMP 6.4.2: Salt Storage and Application
BMP 6.4.3: Oil and Antifreeze Recycling
BMP 6.5.1: Pesticide and Fertilizer Application
BMP 6.5.2: Maintenance of Landscaped Areas
BMP 6.5.3: Nutrient Management Plan
BMP 6.5.4: General Maintenance and Upkeep
Status of Compliance with Permit Conditions for MCM6

**Program Evaluation Summary for Permit Registration # VAR040049**

**Appendix A –** MS4 Registration Statement

**Appendix B –** Annual Characterization

**Appendix C –** BMP Summary

**Appendix D –** Summary of Illicit Discharges

**Appendix E –** List of Regulated Land-Disturbing Activities

## Minimum Control Measure No. 1: Public Education and Outreach

### BMP 1.1.1: Stormwater Website.

**Goal:** Provide information to the public on Stormwater, Stormwater Management, Erosion and Sediment Control, and components of the MS4. In addition to stormwater information, the website will provide links to activities that are related to improving stormwater quality to promote public education. The stormwater website will also include links to general information regarding TMDLs and local watershed health.

**Schedule and Evaluation:** Virginia Tech has established an updated website and multiple social media sites and will update the content of each as necessary.

**Responsible Party:** Virginia Tech Site & Infrastructure Development.

**Necessary Documents:** Pages from the stormwater website and social media sites.

**Measurable Goals:** Complete success of this BMP will be seen upon student, staff, and faculty awareness in minimizing contamination of stormwater. Continue to modify and improve the website through user feedback. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it promotes public education and awareness.

**Items to be Reported in Annual Report:** Pages from the stormwater website and social media sites.

**Required Modifications:** TBD.

**Response:** In order to boost public outreach and involvement, Virginia Tech has created Facebook, Tumblr, and Twitter accounts. These mediums are used to connect with government agencies, stormwater professionals, other MS4s, VT students and staff, Town of Blacksburg groups, and stormwater organizations. Information is shared about stormwater current events, recent technology, and general surface water knowledge. On a local scale, Virginia Tech is able to advertise stormwater-related student projects, environmental non-profits, and campus happenings like the installation of a new post-construction stormwater facility and pet waste stations. To date, the Facebook page has received 54 “likes” (24 more than last year), 30 people “follow” the Twitter page, and 5 people “follow” the Tumblr page. Virginia Tech will continue to use social media as a forum to solicit feedback from stakeholders via comments, surveys, etc. All public outreach materials, training presentations, and the illicit discharge business card contain links to these social media sites as well as the Virginia Tech stormwater website.

### BMP 1.1.2: Water Conservation Practices.

**Goal:** Provide annual reports of water consumption to the public.

**Schedule and Evaluation:** Virginia Tech will continue to provide water consumption reports on an annual basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Operations.

**Necessary Documents:** Quarterly water usage invoices, annual reports and repair logs.

**Measurable Goals:** Complete success of this BMP will be seen upon finalization of the development of a water, storm, and sanitary sewer system model to better quantify the consumption and impact of water in these three systems. Finalization of the University's sanitary sewer infiltration and inflow (I&I) study to identify, prioritize, and eliminate future sanitary sewer capacity issues and potential overflows. Continue to seek opportunities to implement water conservation projects on campus. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** Based on a third party evaluation, this BMP may require further modifications to better comply with permit requirements. VT will further assess the BMPs appropriateness and modify as necessary.

**Items to be Reported in Annual Report:** Annual water consumption summary and Water System Repair Log.

**Required Modifications:** TBD.

**Response:** Virginia Tech continues to manage water consumption by repairing water lines and improving plumbing fixtures. According to the Blacksburg, Christiansburg, and VPI Water Authority, Virginia Tech consumed approximately 400,967 thousands of gallons of water from December 2012 to March 2013. This number shows a difference of 19,456 gallons from the last annual report submission.

Virginia Tech Site & Infrastructure Development engaged the services of an engineering consultant to develop a domestic water model for campus.

Virginia Tech, in conjunction with the Town of Blacksburg and the Sanitation Authority, performed an I&I study to determine the inflow and infiltration in the major trunk lines.

**Documentation Provided:**

i. Water System Repair Log
ii. Summary of water consumption
iii. Sanitary Sewer System Repair Log (See BMP 3.2.4)
iv. Stormwater System Repair Log (See BMP 3.3.1)

## BMP 1.1.3: Proper Disposal of Hazardous Waste.

**Goal:** Provide information and training to University staff regarding the proper disposal of hazardous waste.

**Schedule and Evaluation:** Continue to post proper disposal method information on Virginia Tech stormwater-related websites on a continuous basis during each permit cycle. Status: *on-going.*

**Responsible Party:** Virginia Tech Environmental Health and Safety.

**Necessary Documents:** Examples of Hazardous Waste Procedures and training material.

**Measurable Goals:** Continue to post disposal procedures and information on website for University staff. Continue providing training opportunities on their website for University staff and personal exposure and area monitoring to identify and quantify biological and chemical contaminants in the work environment. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it promotes public education and awareness.

**Items to be Reported in Annual Report:** Location and Point of Contact for Training and hazardous waste disposal awareness documentation and summary.

**Required Modifications:** TBD.

**Response:** Environmental Health & Safety (EHS) currently provides a written plan for each of the University labs (chemical, radiological, and biological) that outlines disposal procedures. EHS provides guidance on written plans as needed.

EHS contact information for training can be found on the EHS Website (www.ehss.vt.edu).

The various waste items EHS receives are stored appropriately in Virginia Tech's Materials Management Facility until they are shipped out with the appropriate Hazmat vendor for recycling and/or proper disposal.

**Documentation Provided:**

i. Sample Training Log: Laboratory Safety Class
ii. Chemical Hygiene Plan
iii. Hazardous Chemical Communication and Management Plan
iv. Lead Hazard Control Program
v. Hazardous Communication Plan for (Department) Template
vi. Laboratory Inspection Checklist

### BMP 1.1.4: Recycling and Trash Management.

**Goal:** Provide educational literature and information on an annual basis to the University regarding recycling and trash management.

**Schedule and Evaluation:** Continue to properly educate the University on recycling and trash management during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services and Virginia Tech Environmental Health and Safety.

**Necessary Documents:** Documentation of events that focus on recycling and trash management as well as annual recycling achievements.

**Measurable Goals:** Continue to notify and reinforce the proper recycling and trash disposal plan to University community through a program that is available on the Office of Energy & Sustainability website (http://www.facilities.vt.edu/sustainability/) and Spectrum newspaper. Continue to provide recycling literature on the Virginia Tech Recycling website (http://www.facilities.vt.edu/sustainability/recycle/) for public access and post historical and up-to-date data on recycling efforts on their "sustainability" website for public education and outreach. Continue to support the annual "Y-Toss" that is implemented through the YMCA. This function is aimed at keeping the campus clean and reducing waste that is placed into our landfills by collecting items that would typically be "tossed" by residents leaving for the summer (http://www.vtymca.org/Home.asp). Continue to participate in an event titled, "RecycleMania!," where the University community is encouraged to recycle items that would normally be disposed of in a traditional manner (http://facilities.vt.edu/physicalplant/depts.asp?value=recycling). Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it promotes public education and awareness.

**Items to be Reported in Annual Report:** Recycling and educational outreach documentation and summary.

**Required Modifications:** TBD.

**Response:** Virginia Tech Recycling continues to increase the amount of recycled material annually. Virginia Tech also continues to participate in the RecycleMania! Program facilitated by the Office of Energy and Sustainability. During the week of RecyleMania! this permit cycle, Virginia Tech recycled 22.729% and ranked 185$^{th}$ out of 273 participating schools. More information about Recyclemania! 2013 can be found on the Recyclemania! Website (http://www.recyclemaniacs.org/scoreboard/participating-schools/list?geo_aa=VA&node_id=9868).Virginia Tech continues to offer information to help educate the community about recycling on the VT Recycle webpage (http://facilities.vt.edu/bgh/recycle/). A link to the VT Recycle webpage can also be accessed through the Site & Infrastructure Development webpage.

Virginia Tech provides services for the proper disposal of waste such as chemical waste, radioactive waste, biological waste, regulated medical waste, batteries and monitors, fluorescent tubes and light ballasts, thermometers, and sharps. These services are provided through Environmental Health and Safety (EHS). Waste removal procedures and online pick-up forms are available on the EHS Website at www.ehss.vt.edu/programs/waste_removal. The various waste items EHS receives are appropriately stored in Virginia Tech's Materials Management Facility until they are shipped out with the appropriate HazMat Vendor for recycling and/or proper disposal. Additional recycling initiatives this permit cycle include multiple projects funded by the Office of Energy and Sustainability Green RFP. These student-led projects include an increase in outdoor recycling bins, battery and ink cartridge recycling, and water bottle refill stations which encourage the use of reusable

containers rather than plastic bottles. More information about the Green RFP Program can be found on the Office of Energy and Sustainability Website: http://www.facilities.vt.edu/sustainability/greenrfp.asp.

Refer to the Virginia Tech Recycling Rate Report for Calendar Year 2012 for YToss 2013 results.

More information regarding Virginia Tech's recycling efforts are available on the Virginia Tech Recycling website: www.facilities.vt.edu/sustainability/recycle

**Documentation Provided:**

i. Virginia Tech Recycling Rate Report for Calendar year 2011
ii. Comprehensive Waste Management Plan for Virginia Tech dated July 15, 2011
iii. Annual Report on Campus Sustainability at Virginia Tech – 2012

## BMP 1.2.1: Partnership with Local Jurisdictions on Public Education.

**Goal:** Work with the Town of Blacksburg to promote sustainability and public education.

**Schedule and Evaluation:** Continue to participate in local stakeholder meetings to extend public education on an annual basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Meeting minutes and sample presentations.

**Measurable Goals:** Continue to be active in the stakeholder meetings to promote sustainability and public education on stormwater issues. Seek additional methods to collaborate on outreach opportunities. Continue to monitor the effectiveness of this BMP on a routine basis. Status: *on-going.*

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it promotes public education and awareness.

**Items to be Reported in Annual Report:** Meeting minutes and sample presentations.

**Required Modifications:** TBD.

**Response:** Virginia Tech has continued its regular partnership with the Town of Blacksburg during the street festival, Steppin' Out, that took place August 3-4, 2012. Outreach material displayed includes an Enviroscape display, a local watershed map, an aquatic etymology collection, and brochures/stickers provided by the Department of Conservation and Recreation. Goodie bags were distributed to children and many local teachers containing a stormwater-related activity book, coloring book, and bookmark. The Town of Blacksburg and Virginia Tech representatives were present to interact and answer questions from the local community.

Virginia Tech also joined with the Town of Blacksburg to hold a booth at the Blacksburg Farmer's Market for Sustainability Week 2012. This event helped educate the town and the University about sustainability issues and the need for community involvement. The booth consisted of informational materials, displays, and children's activities

Virginia Tech and the Town of Blacksburg have met approximately five times during the year to discuss collaborative public outreach initiatives and grant opportunities for the Stroubles Creek TMDL Implementation Plan. These meetings have served to collaborate on events such as Steppin' Out, Sustainability Week, and Greeks Giving Back.

A stormwater pollution prevention advertisement was placed in the New River Stage program, a local play that was performed from August 11-21, 2013. This same advertisement and 3 others were each displayed approximately 3 times during the daily 30-minute previews at The Lyric Theatre in Blacksburg, VA. A TMDL and pet waste station public service announcement was broadcasted over 90.7 WUVT, the student-run radio station at Virginia Tech, from September 10$^{th}$-24$^{th}$, 2012 at the frequency of twice every hour. The Collegiate Times, the student-run newspaper at Virginia Tech, also covered the pet waste stations and Virginia Tech's stormwater program in an article that was published February 6, 2013. Since the article, 13 more pet waste stations have been installed on campus, 3 by request of Virginia Tech staff members. These mediums impact both the campus community and the surrounding Blacksburg community. The radio station also broadcasts into the greater New River Valley.

Virginia Tech has also made a greater effort to partner with academic departments on campus to engage students and staff members about stormwater management and local watershed health. Four presentations and two stormwater facility tours took place spanning four different academic departments. The Site & Infrastructure Development department also acted as professional mentors to a student group working on a sediment removal plan for the Virginia Tech Duck Pond.

A student intern presented two stormwater lectures for classes in the Biological Systems Engineering (BSE) Department. The purpose of these presentations was to raise awareness of Virginia Tech's Stormwater Management Program.

On April 19, 2013 Site & Infrastructure Development gave a presentation to 15 children at the Child Development Center for Learning & Research in Wallace Hall. The presentation included an Enviroscape demonstration, a coloring activity and a story about the water cycle. The children were given goodie bags containing a brochure, bookmark, and activity book.

## Documentation Provided:

i. Sustainability Week 2012 Article
ii. Sustainability Week 2012 Event Calendar
iii. Sustainability Week 2012 Photos and Narrative
iv. Steppin' Out Photos and Narrative (2012)
v. Steppin' Out Photos and Narrative (2013)
vi. Stormwater Presentations
vii. BSE Senior Studio final deliverables
viii. Human Development event Photos and Narrative
ix. Pet Waste Station Installations Photos and Narrative

## BMP 1.3.1: Pollution Prevention Programs

**Goal:** Educate University staff on existing Pollution Prevention programs and pursue additional green initiatives.

**Schedule and Evaluation:** Continue to develop programs for University staff on proper pollution prevention and reduction measures during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Educational outreach documentation.

**Measurable Goals:** Continue to develop reoccurring sessions for University staff and students to educate them on the proper pollution prevention and reduction. Virginia Tech has implemented several programs in an effort to reduce pollution prevention on campus such as, (1) recycling, (2) environmental awareness programs, and (3) green engineering. Continue to implement a plan to detect potential sources of pollution at stormwater inlets and outfalls. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** Minor modifications were made to this BMP during the permit cycle to effectively promote public education and awareness. Based on a third party evaluation, this BMP may require further modifications to better comply with permit requirements. VT will further assess the BMPs appropriateness and modify as necessary.

**Items to be Reported in Annual Report:** Educational outreach documentation.

**Required Modifications:** TBD.

**Response:** Virginia Tech continues to participate in recycling, environmental awareness programs, and green engineering. Information regarding recycling events on campus can be found under BMP 1.1.4.

Virginia Tech received a Silver Rating in the “Sustainability Tracking Assessment and Rating System” (STARS). STARS is a self-reporting system that measures the sustainability performance of colleges and universities. Stormwater-related submissions include efforts to improve snow and ice removal, maintain native plants and wildlife habitats, continue ‘Tree Campus USA’ campus forestry practices, and implement multiple transportation alternatives that mitigate runoff from vehicle contaminants. Virginia Tech continues to pursue higher points according to the standards set forth in the STARS program. In earning higher points, Virginia Tech may be able to reach the Gold Rating for sustainability in higher education.

In the Princeton Review’s “Guide to 322 Green Colleges,” Virginia Tech achieved the “Green Honor Roll” comprised of only 16 colleges that received the highest score. In 2009, the Board of Visitors approved “The Virginia Tech Climate Action Commitment Resolution,” which created the Office of Energy and Sustainability, established targets for the reduction of greenhouse gas emissions, emphasized energy

efficiency, and committed the institution to pursue LEED Silver certification or better for all new construction and major renovation projects.

Virginia Tech installed over 25 pet waste stations around campus in high-pedestrian areas. Each station has a sign promoting water quality through pollution prevention. The stations have been advertised at The Lyric Theatre in downtown Blacksburg and on WUVT 90.7, the student-run radio station.

**Documentation provided:**

i. Documentation for STARS
ii. Documentation for Green Honor Roll

## BMP 1.3.2: Campus Outreach through Table Cards.

**Goal:** Educate University students and staff about stormwater issues and pollution prevention through the use of table cards.

**Schedule and Evaluation:** Continue to develop and distribute table cards at campus dining facilities to educate the campus on stormwater issues and proper pollution prevention during each permit cycle. Status: *on-going.*

**Responsible Party:** Virginia Tech Site & Infrastructure Development.

**Necessary Documents:** Educational outreach documentation.

**Measurable Goals:** Continuing to develop and distribute table cards routinely throughout the permit cycle to educate students, staff, and faculty on stormwater and MS4 issues. Table cards will be placed in all dining facilities at least one time throughout the permit cycle. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it promotes public education and awareness.

**Items to be Reported in Annual Report:** Educational outreach documentation.

**Required Modifications:** TBD.

**Response:** Virginia Tech distributed table cards to approximately 2,538 tables during the permit cycle. Each table card remained for a total of one week before it was removed. According to the average daily transactions in each dining hall, anywhere from 6,670 to 1,094 students enter Virginia Tech dining halls each day. A general stormwater awareness table card and another Stroubles Creek, TMDL-focused table card were distributed during this annual report cycle

Virginia Tech currently has reservations for table card distribution at each campus dining hall for the upcoming 2013-2014 academic year.

**Documentation Provided:**

i. Example of table cards to be used in dining facilities.

## BMP 1.4.1: Environmental Compliance.

**Goal:** Continue to ensure all environmental permitting is obtained.

**Schedule and Evaluation:** Continue to ensure all permits are obtained on an annual (as needed) basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Environmental Health and Safety and Virginia Tech Facilities Services.

**Necessary Documents:** VSMP Permits and other related permits.

**Measurable Goals:** Continue to ensure that Virginia Tech has obtained necessary environmental permits. Continue to monitor the effectiveness of this BMP on a routine basis. Status: *on-going*.

**Assessment of Appropriateness:** Minor modifications were made to this BMP during the permit cycle to effectively promote public education and awareness. Based on a third party evaluation, this BMP may require further modifications to better comply with permit requirements. VT will further assess the BMPs appropriateness and modify as necessary.

**Items to be Reported in Annual Report:** VSMP Permits and other related permits.

**Required Modifications:** TBD.

**Response:** Virginia Tech obtains and maintains all necessary permits required for the MS4, Industrial, Agricultural, and Construction activities that occur on campus. Provided is a copy of permits and registration statements for the required permits. For further information, contact Rob Lowe (rlowe@vt.edu) for Industrial permits, Dwight Paulette (Kentland@vt.edu) for Agricultural permits, and Site & Infrastructure Development for Construction permits.

In addition, Virginia Tech is currently seeking funding for an updated site evaluation of the Virginia Tech Power Plant which holds a VAR05 Industrial Permit.

**Documentation Provided:**

i. VAR04 Permit
ii. VAR040049 Registration Statement for Virginia Tech MS4
iii. Department of Conservation and Recreation Permit Fee Form
iv. VAR050508: Virginia Tech Industrial Permit for Power Plant
v. VAR050760: Industrial Permit for Virginia Tech Airport
vi. VPG100013: Animal Feeding Operations Permit
vii. VSMP VAR10 Coverage Letters from Active Construction Sites

## Status of Compliance with Permit Conditions for MCM 1

Virginia Tech has implemented a public education program that addresses permit requirements. Pollution prevention and local water quality (particularly Stroubles Creek) have been a focus of all outreach materials. The varied audiences reached during

events and the diverse mediums used to provide educational materials, all comply with permit conditions. Forming a partnership with the Town of Blacksburg has been valuable in achieving our program goals and complying with permit conditions. Based on a third party evaluation, the above BMPs may require modification to better comply with permit requirements. VT will further assess the appropriateness and modify as necessary.

## Minimum Control Measure No. 2: Public Involvement and Participation.

### BMP 2.1.1: Stormwater Website.

**Goal:** Provide information on Stormwater, Stormwater Management, Erosion and Sediment Control, and components of the MS4. In addition to stormwater information, the website will provide links to the annual report for the MS4 program, SWPPP inspection reports, reports for illicit discharges, and inspections for BMPs.

**Schedule and Evaluation:** Virginia Tech is updating the website that will be available by July 19, 2010. Status: *complete.* The information will continue to be added to the website as it becomes available. Status: *on-going.*

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** MS4, MS4 Annual Report, Virginia Tech Annual Standards and Specifications, Inspection Reports, Illicit Discharge Reports, and other associated documents.

**Measurable Goals:** Complete success of this BMP will be seen upon student, staff, and faculty involvement in minimizing contamination of stormwater. Continue to modify and improve the website through user feedback. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it promotes public involvement and public input.

**Items to be Reported in Annual Report:** Printouts from webpages and agendas of activities.

**Required Modifications:** TBD.

**Response:** In order to boost public involvement and participation, Virginia Tech has created Facebook, Tumblr, and Twitter accounts. These mediums are used to connect with government agencies, stormwater professionals, other MS4s, VT students, Town of Blacksburg groups, and stormwater organizations. Information is shared regarding stormwater current events, technology and general knowledge. On a local scale, Virginia Tech is able to advertise stormwater-related student projects, environmental non-profits, and campus happenings like the installation of a new post-construction stormwater facility and pet waste stations. 54 people have “liked” the Facebook page (24 more than last year), 30 people “follow” the Twitter page, and 5 people “follow” the Tumblr page. Virginia Tech would like to continue to use these as mediums to solicit feedback from stakeholders via comments, surveys, etc. All public outreach materials, training presentations, and the illicit discharge business

card contain the links to these social media sites as well as the Virginia Tech stormwater website.

The Virginia Tech stormwater management webpage contains a Vault link which is used by project personnel to access project information. Virginia Tech is currently evaluating its methods of public access to all inspection reports during the coming year.

A comment box was also created on the stormwater website to encourage feedback from viewers. An anonymous comment/suggestion option is also available. Information regarding Virginia Tech's stormwater public comment box can be found at www.sid.vt.edu.

### BMP 2.1.2: Stream Clean-Up and Other Areas.

**Goal:** Continue to monitor linear feet of stream cleaned on an annual basis and roadways/parking lots cleaned after major University events.

**Schedule and Evaluation:** Continue to develop a report that tracks the total linear feet and tonnage of clean-up on campus on an annual basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Stream clean-up and roadway/parking lot cleaning records.

**Measurable Goals:** Accomplish at the minimum two of the following activities to eliminate the potential impacts on the stormwater system and turf areas: 1) Stream clean-up event campus-wide; 2) Site & Infrastructure Development adopts Stroubles Creek and maintains it yearly; 3) Student organizations help clean Lane Stadium after events; 4) Students and Faculty team up with VT Recycling; 5) Household hazardous waste pickup at the end of the spring semester; 6) Environmental Coalition leads clean-up after events. Continue working on the development of an accurate account of stream cleaning footage and, in conjunction with the Stroubles Creek TMDL Implementation Plan, investigate riparian buffers. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** Minor modifications were made to this BMP during the permit cycle to effectively promote public involvement and public input. Based on a third party evaluation, this BMP may require further modifications to better comply with permit requirements. VT will further assess the BMPs appropriateness and modify as necessary.

**Items to be Reported in Annual Report:** Linear footage/volume of stream, parking lot, and roadway records.

**Required Modifications:** TBD.

**Response:** Virginia Tech continues to minimize trash and debris from entering Stroubles Creek by collecting trash and debris from roadways, parking lots, and

grassy areas after sporting events. Roadways and parking lots are cleaned by a street sweeper before and after each sporting event. Students and faculty volunteer with VT Recycling to help maintain the program. A copy of the street sweeper log has been provided under BMP 6.2.1.

Virginia Tech is dedicated to keeping Stroubles Creek clean and managing the following activities to ensure trash and pollutants do not reach the waterways:

1. Stream clean-up events
2. Students and faculty team up with VT Recycling during large-scale events
3. The Environmental Coalition leads clean-up after events like Relay for Life

Virginia Tech reapplied for the Adopt-A-Stream program through the Department of Conservation and Recreation this year and received approval in adopting 1.2 miles of Stroubles Creek on October 24, 2012. The official signs were received and installed 2 months later. The first official stream clean-up events took place on May 3 and May 10, 2013. Seven employees collected (3) 42 gallon bags and (5) 39 gallon bags over the course of the 2 days. Virginia Tech hopes to involve other student organizations and groups to assist in more frequent clean-ups throughout the year. The table cards on display at Virginia Dining Halls advertise the opportunity for organizations to participate in stream clean-ups.

Additional recycling initiatives this permit cycle include multiple projects funded by the Office of Energy and Sustainability Green RFP. These student-led projects include an increase in outdoor recycling bins, battery and ink cartridge recycling, and water bottle refill stations which encourage the use of reusable containers rather than plastic bottles. More information about the Green RFP Program can be found on the Office of Energy and Sustainability Website: http://www.facilities.vt.edu/sustainability/greenrfp.asp.

**Documentation Provided:**

i. Adopt-A-Stream Documentation
ii. Photos and Narrative of Stroubles Creek Restoration Project.
iii. Stream Clean-up Documentation

## BMP 2.1.3: Storm Drain Marking.

**Goal:** Mark all storm drain inlets with Duracast markers.

**Schedule and Evaluation:** Mark 8 to 10 inlets by November 2010 and 8 to 10 additional inlets by June 2011. Status*: complete*. Continue to mark inlets as SID staff and volunteers are able. Status: *on-going*.

**Responsible Party:** Virginia Tech Site & Infrastructure Development.

**Necessary Documents:** Markers, photographs, and map(s) of the inlet locations.

**Measurable Goals:** Continue to monitor for illicit discharges at the outfalls. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it promotes public involvement and public input.

**Items to be Reported in Annual Report:** Proofs of Storm drain markers and map of storm drains.

**Required Modifications:** TBD.

**Response:** Virginia Tech donated storm drain markers to the Town of Blacksburg during The Big Event. As a result, 93 storm drains were marked in the Town of Blacksburg including a high traffic commercial area and an apartment complex where many Virginia Tech students live. 73 Storm drain markers were also donated to the Town of Blacksburg for Greeks Giving Back, a similar student-led volunteer event. Each year, storm drain markers are continually monitored and replaced on the Virginia Tech campus due to damages. Additionally, approximately 40 markers have been added to new or overlooked storm drains on the Virginia Tech campus this annual report cycle.

**Documentation Provided:**

i. Copy of Storm Drain Marker
ii. Big Event Narrative and Photos
iii. Big Event Tally Sheet
iv. Big Event summary worksheet
v. Greeks Giving Back – map of marked storm drains
vi. Map of Stormwater Inlets that have been marked.

**Status of Compliance with Permit Conditions for MCM2**

Virginia Tech has implemented a public involvement program that addresses permit requirements. Information is accessible and well-advertised to the local community via the stormwater website, social media outlets, and all public education material. Partnerships and sponsorship with academic departments, students, and the Town of Blacksburg has been valuable in achieving our program goals and complying with permit conditions. Based on a third party evaluation, the above BMPs may require modification to better comply with permit requirements. VT will further assess the appropriateness and modify as necessary.

## Minimum Control Measure No. 3: Illicit Discharge Detection and Elimination.

### BMP 3.1.1: Trace and Remove Illicit Discharges.

**Goal:** Track notices of violation for surface discharges and develop methods of elimination.

**Schedule and Evaluation:** Continue to report, trace, and respond to illicit discharges annually during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Environmental Health and Safety and Virginia Tech Facilities Services

**Necessary Documents:** Stormwater System Repair Log, Summary of Illicit Discharges Reports, Copy of TMDL Implementation Plan, Notifications to downstream MS4s, Virginia Tech IDDE Program, and Virginia Tech IDDE SOP.

**Measurable Goals:** This BMP will be measured by continuing to monitor the effectiveness of the established procedures for reporting and tracing illicit discharges and enforcement policies. Continue to implement additional methods for detecting, recording, and eliminating illicit discharges. Continue to monitor the effectiveness of this BMP on a routine basis. Status: *on-going.*

**Assessment of Appropriateness:** Modifications were made to this BMP during the permit cycle to effectively regulate illicit discharges and maintains stormwater infrastructure. Based on a third party evaluation, this BMP may require further modifications to better comply with permit requirements. VT will further assess the BMPs appropriateness and modify as necessary.

**Items to be Reported in Annual Report:** Stormwater System Repair Log, Summary of Illicit Discharges Reports, Copy of TMDL Implementation Plan, Notifications to downstream MS4s, Virginia Tech I DDE Program, and Virginia Tech IDDE SOP.

**Required Modifications:** TBD.

**Response:** Through ORI inspections, online reporting, and a partnership with Environmental Health and Safety, Virginia Tech is able to trace and remove illicit discharges. Individuals can report spills and illicit discharges on the Environmental Health and Safety webpage: www.ehss.vt.edu/report_issue.

Site & Infrastructure Development is currently developing various Standard Operating Procedures (SOPs). These procedures include an Outfall Reconnaissance Inventory (ORI) SOP and an Illicit Discharge Detection and Elimination (IDDE) SOP. The ORI SOP will regularize the process of inspection and documentation for investigations. The IDDE SOP will assist in the investigation, trace, and removal of illicit discharges. Both of these documents are part of the greater Virginia Tech IDDE Program document that incorporates all aspects of IDDE materials developed to date.

Please see Appendix D for a summary of illicit discharges that occurred during the 2012-2013 reporting cycle.

Outfall Reconnaissance Inventory (ORI) information is provided under BMP 3.2.3. Illicit discharges are investigated when reported.

Virginia Tech utilizes testing equipment to aid in water quality testing, ORI investigations, and Illicit discharges investigations. Other tools include GIS to map and track illicit discharges and VAULT document management system to maintain accurate documentation of all illicit discharges.

**Documentation Provided:**

i. Upper Stroubles Creek Watershed TMDL Implementation Plan
ii. Letter to Town of Blacksburg
iii. Letter to VDOT

## BMP 3.2.1: Inventory Regulated Stormwater Outfall Locations.

**Goal:** Continue to update existing comprehensive database and mapping and identify stormwater outfalls and develop annual maintenance and inspection program for tracking illicit discharges.

**Schedule and Evaluation:** Continue to update and identify stormwater outfalls on an annual basis or on an as-needed basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Survey data, map(s), mapbook pages, and photographs.

**Measurable Goals:** This BMP is measured by continuing to provide maintenance on all stormwater outfalls, as well as pipes and structures, on campus. Continue updating maintenance forms to address and mitigate concerns and corrective actions taken as required. Continue developing and calibrating a stormwater model that will analyze the entire campus system and keep a record of illicit discharges and actions taken. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it regulates illicit discharges and maintains stormwater infrastructure. Based on a third party evaluation, this BMP may require further modifications to better comply with permit requirements. VT will further assess the BMPs appropriateness and modify as necessary.

**Items to be Reported in Annual Report:** Map of outfalls, inspection reports, and illicit discharge inventory report and summary.

**Required Modifications:** TBD.

**Response:** All known outfalls leading into the creek have been assigned a specific identification number for inspection purposes. The numbers are written on each outfall pipe. Virginia Tech maintains a database with all inspection dates and inspection notes to ensure that all outfalls are properly monitored and inspected each permit cycle.

41 outfalls were inspected this year. During ORI Investigations, Virginia Tech discovered 8 potentially new outfalls, which will be further investigated. If it is determined that any of these pipes need to be classified as an MS4 outfall, the current outfall inventory, database, and inspection schedule will be updated accordingly.

Maps of all known outfalls are located in the Virginia Tech Site & Infrastructure Development Department office.

Virginia Tech Site & Infrastructure Development (SID) staff and interns have been working towards the development and calibration of a campus stormwater model. At this time the model is incomplete. SID is currently working with the Office of

University Planning to incorporate a campus stormwater master plan and model as a layer in the 2016 Campus Master Plan update. Virginia Tech will provide progress updates on this effort in the applicable annual reports during the 2013-2018 MS4 Permit Cycle.

**Documentation Provided:**

i. Outfall Reconnaissance Inventory Maps

## BMP 3.2.2: Inspection of Stormwater Outfalls for Dry Weather Discharge.

**Goal:** Inspect all stormwater outfalls on an annual basis during dry weather and identify illicit discharges and mitigation techniques.

**Schedule and Evaluation:** Continue to inspect and track all stormwater outfalls on an annual basis during dry weather conditions or as-needed basis during each permit cycle. Inspect at least 25% of the outfalls annually and inspect critical areas as designated by BMP 3.2.2 yearly. Status: *on-going*. Substantial Completion: *December 2009.*

**Responsible Party:** Virginia Tech Facilities.

**Necessary Documents:** Inspection Reports, Photographs, Outfall Reconnaissance Inventory database, and other documents as necessary.

**Measurable Goals:** This BMP will be measured by visual inspection, on a routine basis. Any unusual indicators will be documented at the outfalls. This BMP will require documentation and mitigation of any evident illicit discharges that are encountered in a timely manner. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it regulates illicit discharges and maintains stormwater infrastructure.

**Items to be Reported in Annual Report:** Inspection reports, dry weather discharges, and mitigation methods.

**Required Modifications:** TBD.

**Response:** All known outfalls leading into the creek have been assigned a specific identification number for inspection purposes. The numbers are written on each outfall pipe. Virginia Tech maintains a database with all inspection dates and inspection notes to ensure that all outfalls are properly monitored and inspected each permit cycle.

41 outfalls were inspected this year. During ORI Investigations, Virginia Tech discovered 8 potentially new outfalls, which will be further investigated. If it is determined that any of these pipes need to be classified as an MS4 outfall, the current outfall inventory, database, and inspection schedule will be updated accordingly. Inspection reports of outfalls are available in the Virginia Tech Site & Infrastructure Development Office.

**Documentation Provided:**

i. 2013 Outfall Reconnaissance Reports

## BMP 3.2.3: Locate Priority Areas or Operations for Illicit Discharges.

**Goal:** Development of a map delineating the priority areas on campus with unique pollution prevention schemes.

**Schedule and Evaluation:** Continue to update and identify priority areas, mapping, and documentation on an annual or as-needed basis during each permit cycle. Status: *on-going*. Substantial Completion: *November 2009*.

**Responsible Party:** Virginia Tech Environmental Health and Safety and Virginia Tech Facilities Services.

**Necessary Documents:** Map and report of critical areas susceptible to illicit discharges.

**Measurable Goals:** This BMP is measured by monitoring and assessing campus to identify areas of immediate concern that require a unique pollution prevention scheme. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it regulates illicit discharges and maintains stormwater infrastructure.

**Items to be Reported in Annual Report:** Priority area map and documentation summary.

**Required Modifications:** TBD.

**Response:** In order to prepare for the upcoming 2013-2018 MS4 permit cycle and properly evaluate areas of concern around the Virginia Tech campus, a check sheet was created to rank the facilities on campus. With the completion of this sheet by the manager of each facility, Virginia Tech hopes to determine which facilities or facility groups will be required to develop a SWPPP. Aerial maps and impervious surface calculations have been established for all potential priority areas. A GIS layer has also been created to track all priority areas and their associated ranking. All areas that do not need a SWPPP, according to the check sheets, will then be considered IDDE Priority Areas and will be monitored for potential stormwater pollution. Facilities determined to need a SWPPP will be inspected/monitored based on established SWPPP requirements for the individual facility. During the 2013-2018 MS4 permit cycle, progress updates on this effort will be provided in each annual report.

## BMP 3.2.4: Inspect and Repair Sanitary Sewer to Prohibit Illicit Discharges.

**Goal:** Inspect and document existing problems with the sanitary sewer system and develop mitigation strategies.

**Schedule and Evaluation:** Continue to inspect and track all problems within the sanitary sewer system on a reoccurring basis during the permit cycle. Status: *on-going* (performing flow monitoring).

**Responsible Party:** Virginia Tech Facilities Operations.

**Necessary Documents:** Sanitary Sewer System Repair Log.

**Measurable Goals:** This BMP will be measured by continuing to expand and improve the field data on the sanitary sewer system by assessing (visually) conditions of the pipe and manhole structures for defects that could lead to illicit discharges from the system. Virginia Tech has purchased eight area velocity flow meters that will assist the staff with quantifying the volumes of sewage at critical points along campus, which will aid in determining areas the need immediate attention to prevent potential illicit discharges. A campus-wide Inflow and Infiltration study (I&I) has begun, which will assist the University in accurately identifying illicit discharge prone areas. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it regulates illicit discharges and maintains stormwater infrastructure.

**Items to be Reported in Annual Report:** Inspection and repair reports and summaries.

**Required Modifications:** TBD.

**Response:** A log sheet of repairs and maintenance performed on the sanitary sewer system has been provided dated June 28, 2012 thru June 13, 2013.

**Documentation Provided:**

i. Sanitary Sewer System Repair Log

### BMP 3.2.5: Maintain In-House 24/7 Repair/Response Crew for Sanitary Sewer Issues.

**Goal:** Continue to respond to sanitary sewer problems and update utilities infrastructure database in a timely manner.

**Schedule and Evaluation:** Continue to respond to sanitary sewers issues as they arise and update utility database on a reoccurring basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Operations.

**Necessary Documents:** Maintenance and repair reports.

**Measurable Goals:** This BMP will be measured by continuing to report and address all sanitary sewer problems in a timely manner to prevent exposure of the sewage to campus. Continue to document all overflow issues on campus and delineate the location of the problem and the corrective measures. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it regulates illicit discharges and maintains stormwater infrastructure.

**Items to be Reported in Annual Report:** Maintenance and repair summary.

**Required Modifications:** TBD.

**Response:** Facilities crews are on call in the evenings and on weekends in case of an emergency sanitary sewer issue. If an issue arises, Virginia Tech Police Department notifies the crew of the issue, and they will fix the issue. See documentation provided under BMP 3.2.4 for sanitary sewer repairs.

### BMP 3.3.1: Illicit Discharge Reporting by Staff and Students.

**Goal:** Continue to publicize Environmental Health & Safety contact numbers for illicit discharge reporting.

**Schedule and Evaluation:** Continue to provide reporting options on a daily basis for University community during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Environmental Health and Safety.

**Necessary Documents:** Contact numbers and reporting documentation.

**Measurable Goals:** This BMP will be measured by continuing to utilize EHS as the primary contact for reporting discharges that are witnessed by staff and students. Seek alternative methods for raising awareness. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it provides a response mechanism for illicit discharges and maintains stormwater infrastructure.

**Items to be Reported in Annual Report:** Documented reports of illicit discharges and mitigation efforts.

**Required Modifications:** TBD.

**Response:** Summary reports of illicit discharges have been provided in Appendix D. The summary includes a description of the illicit discharge and as how the issue was corrected. Through the use of table cards, Virginia Tech is able to educate students and staff on how to report illicit discharges to Environmental Health and Safety (EHS) and the importance of reporting issues. Individuals can also report spills and illicit discharges on the EHS webpage: www.ehss.vt.edu/report_issue. This website link and further information regarding illicit discharges are available on the

recently modified Site & Infrastructure Development website (www.sid.vt.edu). A business card was created and distributed to staff members that attended "MS4 Stormwater Training" sessions about reporting illicit discharges. The card includes the aforementioned contact information as well as illicit discharge indicators. Additionally, training material included a section about helping employees identify illicit discharge indicators and providing information about how to report illicit discharges and spills.

**Documentation Provided:**

i. Example of Table Cards
ii. EHS Illicit Discharge Reporting webpage
iii.

**Status of Compliance with Permit Conditions for MCM 3**

Virginia Tech has implemented an illicit discharge detection and elimination (IDDE) program that addresses permit requirements. An outfall map is available at the Site & Infrastructure Development Department office. An IDDE regulatory mechanism is underway with the completion of an Illicit Discharge University policy. Standard operating procedures have been established. Priority areas and all reported illicit discharges have been mapped and are updated as needed. In addition, all downstream interconnections have been properly notified. Based on a third party evaluation, the above BMPs may require modification to better comply with permit requirements. VT will further assess the appropriateness and modify as necessary.

## Minimum Control Measure No. 4: Construction Site Stormwater Runoff.

### BMP 4.1.1: Provide Guidance to Project Managers in University Planning, Design, and Construction Services on Appropriate ESC and SWM Requirements.

**Goal:** Continue to provide Project Managers of University projects with clear guidance on ESC and SWM requirements.

**Schedule and Evaluation:** Continue to provide ESC and SWM guidance on all University projects as the projects are developed during each permit cycle. Pre-construction meetings are held for all projects requiring ESC and SWM submittals. Status: *on-going*.

**Responsible Party:** Virginia Tech Site & Infrastructure Development.

**Necessary Documents:** Virginia Tech Annual Standards and Specifications (VTAS&S), Virginia Tech ESC-SWPPP Inspection Procedure, and other documentation as determined.

**Measurable Goals:** This BMP will be measured by continuing to review and advise project managers on University projects to ensure completeness of the Erosion & Sediment Control measures and Stormwater compliance in accordance with the Virginia Tech Annual Standards and Specifications. The Virginia Tech Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management are located on the Virginia Tech Stormwater Management website for access by Project Managers and the public.

http://www.facilities.vt.edu/pdc/project/esc_swm.asp. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it regulates runoff from construction site activities.

**Items to be Reported in Annual Report:** Inspection reports, information about land-disturbing projects, and other documentation deemed necessary.

**Required Modifications:** TBD.

**Response:** The Virginia Tech Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management are located on the Stormwater Management website for access by Project Managers and the public. (http://www.facilities.vt.edu/pdc/project/esc_swm.asp) A copy of the VT Annual Standards and Specifications is available on the Virginia Tech Site & Infrastructure Development website (www.sid.vt.edu). A list of current/proposed projects is included in Appendix E.

Employees from the Site & Infrastructure Development Department gave a presentation and held a Q&A session for project managers in University Planning about the basic functions of the Department and the process of approval for new projects.

Virginia Tech is still working under the 2012 VTAS&S since the 2013 VTAS&S has not been approved due to new a Standards and Specifications template that is being created by DCR (now DEQ).

**Documentation Provided:**

i. List of Current/Proposed Projects (See Appendix E)
ii. Approval of VT Annual Standards and Specifications for ESC & SWM
iii. VT Annual Standards and Specifications for ESC & SWM
iv. Virginia Tech Site & Infrastructure Development Presentation to University Design and Construction (UDC)

## BMP 4.2.1: Construction Site Inspections for ESC and SWM Compliance.

**Goal:** Continue to provide ESC and SWM plan review, inspections, and compliance.

**Schedule and Evaluation:** Projects under construction or reviewed by DCR prior to July 1st, 2009will remain with DCR. Projects starting on and after July 1st, 2009 will be reviewed by Virginia Tech Site & Infrastructure Development Department. This is performed throughout the duration of the project. Virginia Tech is working through the budget process to designate two positions for these responsibilities. Status: *completed.*

**Responsible Party:** Virginia Tech University Design and Construction.

**Necessary Documents:** Sample Inspection reports, Notices, Land Disturbance Application Form, Virginia Tech ESC-SWPPP Inspection Procedure, and other associated documents.

**Measurable Goals:** This BMP will be measured by continuing to accompany DCR evaluation of the Virginia Tech Annual Standards and Specifications. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it regulates runoff from construction site activities.

**Items to be Reported in Annual Report:** Inspection report summary, annual report, summary of compliance issues, and associated documents.

**Required Modifications:** TBD.

**Response:** Virginia Tech University Design and Construction Department has been issued the responsibility by the Department of Conservation and Recreation to inspect all of the campus projects as of July 1st, 2009. Stormwater Pollution Prevention Plan inspection reports for campus projects are available in the Virginia Tech Site & infrastructure Development office.

**Documentation Provided:**

i. ESC-SWM Inspection Report Template
ii. SW Construction Site Inspection Report Template
iii. Summary of Total Number of Inspections performed each year
iv. Summary of Total Number of Repeat Violations Per Project Per Year
v. Virginia Tech Land Disturbance Application Form
vi. Refer to BMP 4.1.1 for additional Information.

### BMP 4.3.1: Construction Site Operators Need to Control Waste at Construction Sites to Avoid Adverse Impacts to Water Quality.

**Goal:** Continue conducting periodic inspections for each construction project to ensure that water quality impacts are not present.

**Schedule and Evaluation:** Continue with periodic inspections in accordance with VSMP permitting, where applicable. Require that all University projects greater than 1-acre in disturbed area to develop and maintain a SWPPP on-site during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Sample Inspection reports, Virginia Tech ESC-SWPPP Inspection Procedure, and SWPPP Narratives.

**Measurable Goals:** This BMP will be measured by continuing to conduct periodic inspections for each construction project on campus, whether being constructed by in-house forces or convention contractors in accordance with VSMP permitting. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it regulates runoff from construction site activities.

**Items to be Reported in Annual Report:** Inspection summaries and updated SWPPP summaries.

**Required Modifications:** TBD.

**Response:** A copy of each project's SWPPP and SWPPP inspection reports for all projects on campus that require a VSMP Permit are available at the Site & Infrastructure Development office upon request.

### BMP 4.4.1: Project Stakeholder Meetings.

**Goal:** Continue to review and comment on all capital projects on campus to address erosion and sediment control and stormwater-related issues prior to construction.

**Schedule and Evaluation:** Continue to review and comment on all capital projects as they are developed during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Project comment record and summary.

**Measurable Goals:** Continue to review and provide feedback on all Capital Projects to ensure that Erosion & Sediment Control and Stormwater Management issues are addressed in an effective manner. Continue to work with the Stroubles Creek TMDL Implementation Plan, which traverses campus in two areas. The TMDL stakeholders consist of DCR, Town of Blacksburg, Virginia Tech staff and concerned citizens. Continue developing Environmental Impact Reports for areas on campus that have been identified as sensitive for review and approval by the regulating agencies. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it promotes public involvement and public input.

**Items to be Reported in Annual Report:** Project comment record and summary.

**Required Modifications:** TBD.

**Response:** The Virginia Tech Site & Infrastructure Development department continues to review and provide feedback on all Virginia Tech University Design and Construction projects to ensure that stormwater and Erosion & Sediment Control issues are addressed in an effective manner.

**Status of Compliance with Permit Conditions for MCM4**

Virginia Tech has implemented an erosion and sediment control program that addresses permit requirements. Based on a third party evaluation, the above BMPs may require modification to better comply with permit requirements. Virginia Tech will further assess the appropriateness and modify as necessary.

## Minimum Control Measure No. 5: Post-Construction Stormwater Management in New Development and Re-Development.

### BMP 5.1.1: Watershed Master Plan for Future Development and Re-Development.

**Goal:** Ensure that all development and redevelopment projects fall under the guidelines of the Master Plan for campus. Finalize the development of a campus-wide stormwater management master plan for existing and future build-out conditions.

**Schedule and Evaluation:** Continue to provide input on all development and redevelopment in accordance with the Master Plan during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Approved Master Plan.

**Measurable Goals:** This BMP will be measured by following the approved Master Plan that addresses the impacts to the existing watershed in conjunction with the future build-out plan. The Master Plan has identified specific BMP's and LID techniques along the portions of campus marked for future development as well as design guidelines. Continue investigating the feasibility of retrofitting existing facilities and sites with better BMPs and LID techniques. Stormwater management sub-models are being developed as part of the SWM review process. Gain approval from DEQ on the stormwater management master plan. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it plays a role in the design and maintenance of post-construction stormwater management facilities and encourages low impact development.

**Items to be Reported in Annual Report:** TBD.

**Required Modifications:** TBD.

**Response:** Virginia Tech continues development in accordance with the current Master Plan set forth in 2006. Provided is the 2006 Master Plan, along with 2009 Amendments and the HABB1 Precinct addition. The latest versions of the Virginia Tech Master Plan, Amendments, and Updates can be found on the Virginia Tech Office of University Planning Website (http://www.facilities.vt.edu/oup/).

## BMP 5.2.1: O&M Program for Structural Stormwater Controls.

**Goal:** Match inventory of controls with O&M program and develop checklists for inspectors to ensure consistency and completeness during inspections.

**Schedule and Evaluation:** Continue to develop inspection checklists by the end of year of the second permit cycle. Continue inspecting and implementing corrective actions to adhere to O&M program during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Site & Infrastructure Development.

**Necessary Documents:** Inventory report, inspector checklists, and O&M documents.

**Measurable Goals:** Continue to update the comprehensive survey of the campus stormwater facilities in an effort to further develop an accurate stormwater model for the University. This BMP will be measured by continuing to conduct thorough inspections of the facilities in an effort to address any deficiencies or required maintenance (i.e., sediment removal, debris clean-up, etc.). As part of the overall stormwater modeling plan, routine inspections will be scheduled (wet/dry) to assess the functionality of the facility and make recommendations for repairs or maintenance. To better facilitate the incorporation of inspection reports and data with the University GIS and stormwater model, inspection sheets will be developed in a manner consistent with the requirements of the databases. Continue documenting storm events on an occurrence basis. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it plays a role in the maintenance of post-construction stormwater management facilities and encourages low impact development.

**Items to be Reported in Annual Report:** TBD.

**Required Modifications:** TBD.

**Response:** Last year's O&M modifications have continued to perform well. Slight changes are made to inspection reports and ArcGIS mapbook pages when deemed necessary. A comprehensive Stormwater Management Facility (SWMF) binder is utilized on inspections that includes plan sets, landscaping photos, and inspection protocol.

Site & Infrastructure Development has developed an SOP for inspections of SWMFs around campus. This SOP will help to ensure that proper inspection procedures are followed. This will in turn help to ensure that the SWMFs around campus continue to function as designed.

Virginia Tech Site & Infrastructure Development (SID) staff and interns have been working towards the development and calibration of a campus stormwater model. At this time the model is incomplete. SID is currently working with the Office of University Planning to incorporate a campus stormwater master plan and model as a layer in the 2016 Campus Master Plan update. Virginia Tech will provide progress

updates on this effort in the applicable annual reports during the 2013-2018 MS4 Permit Cycle.

**Documentation Provided:**

i. Summary of O&M for all BMPs
ii. SWMF Inspection Forms
iii. Outfall Reconnaissance Inventory Field Sheet
iv. Outfall Reconnaissance Inventory (Manhole)
v. Sanitary Sewer Pipe Replacement Check sheet
vi. Sanitary Sewer Manhole Replacement Check sheet

## BMP 5.2.2: Stormwater Management Facilities Mapping.

**Goal:** Continue to update existing facility inventory database and mapping showing maintenance on facilities, stormwater conveyance and control structures, and receiving surface water bodies. Status: *on-going*. Substantial Completion: *September 2009*. Continual updates: *on-going*.

**Schedule and Evaluation:** Continue to update facility inventory database on a monthly basis and a project-by-project basis during each permit cycle.

**Responsible Party:** Virginia Tech Site & Infrastructure Development.

**Necessary Documents:** Project stormwater record report (as-built) documentation.

**Measurable Goals:** This BMP will be measured by continuing to update and improve the comprehensive survey of the stormwater management infrastructure on campus for integration into a stormwater model and GIS geo-database. The University is currently in the process of reviewing and revising the stormwater management methods on campus to ensure that the University meets the current DEQ SWM Regulations and addresses the needs of the watershed. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it plays a role in the maintenance of post-construction stormwater management facilities and encourages low impact development.

**Items to be Reported in Annual Report:** SWM Mapping.

**Required Modifications:** TBD.

**Response:** A map of the stormwater management facilities (SWMF) is available in the Virginia Tech Site & Infrastructure Development office. This map is updated as new SWMFs come online from new projects. Mapbook pages, created in ArcGIS, have also been created and updated for each SWMF to assist inspectors and maintenance staff during the inspection and maintenance process. These mapbook pages include storm inlets, storm drains discharging to the facility, and endwalls.

Virginia Tech Site & Infrastructure Development (SID) staff and interns have been working towards the development and calibration of a campus stormwater model. At this time the model is incomplete. SID is currently working with the Office of University Planning to incorporate a campus stormwater master plan and model as a layer in the 2016 Campus Master Plan update. Virginia Tech will provide progress updates on this effort in the applicable annual reports during the 2013-2018 MS4 Permit Cycle.

**Documentation Provided:**

i. Existing BMP Location Map with corresponding maps of individual BMP's

## BMP 5.2.3: Inspections of Stormwater Management Facilities.

**Goal:** Inspect stormwater facilities on an annual basis and identify any maintenance issues.

**Schedule and Evaluation:** Continue to inspect facilities on an annual basis along with the maintenance inspections per the O&M Handbook. Inspect at least 25% each year. Status: *on-going*.

**Responsible Party:** Virginia Tech Site & Infrastructure Development.

**Necessary Documents:** Inspection Reports, photographs and other documents as necessary.

**Measurable Goals:** This BMP will be measured by inspecting on a routine basis and documenting any necessary maintenance required. This BMP will require documentation and remedy of any needed maintenance. Continue to monitor the effectiveness of this BMP on a regular basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it plays a role in the maintenance of post-construction stormwater management facilities.

**Items to be Reported in Annual Report:** SWMF Inspection Reports.

**Required Modifications:** TBD.

**Response:** The majority of Virginia Tech Stormwater Management Facilities (SWMFs) have been inspected for maintenance and proper functionality. Virginia Tech has successfully incorporated the SWMF inspections into the current work order system. This system allows for improved communication between the Virginia Tech Grounds department and Site & Infrastructure Development as well as improved tracking of inspections and maintenance activities. Work orders are automatically generated each month to ensure proper inspection frequency. As a result of inspections, two SWMFs on Virginia Tech property are undergoing landscaping redesign by the University's Landscape Architect.

Inspection reports are available in the Site & Infrastructure Development office upon request.

**Documentation Provided:**

i. SWMF Inspection Reports

### BMP 5.3.1: Green Parking.

**Goal:** Evaluate and install, where applicable, grass pavers in different areas on campus.

**Schedule and Evaluation:** Continue to evaluate opportunities for grass paver installation on a project-by-project basis during each permit cycle. Virginia will construct/retrofit green parking as opportunities present themselves. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Photographs of existing green parking.

**Measurable Goals:** This BMP will be measured by adhering to the Master Planning efforts and review/assign different BMPs and LID techniques that may include grass pavers, if applicable, to pertinent areas. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it encourages low impact development.

**Items to be Reported in Annual Report:** Photographs of existing green parking.

**Required Modifications:** TBD.

**Response:** Virginia Tech offers green parking where applicable. Due to high traffic flow in certain areas, the areas available are minimal. Photographs of green parking on campus have been provided.

**Documentation Provided:**

i. Photographs of VT Green Parking at Architecture Demonstration and Research Building
ii. Photographs of VT Green Parking at War Memorial Gym
iii. Photographs of VT Green Parking by Shanks Hall

## Status of Compliance with Permit Conditions for MCM5

Virginia Tech has implemented a post-construction stormwater management program that addresses permit requirements. Our program includes regular inspection and maintenance of post-construction facilities and documentation/tracking procedures set forth in a standard operating procedure. Based on a third party evaluation, the above BMPs may require modification to better comply with permit requirements. VT will further assess the appropriateness and modify as necessary.

## Minimum Control Measure No. 6: Pollution Prevention/Good Housekeeping for Virginia Tech Facility Operations.

### BMP 6.1.1: Spill Prevention, Control, and Countermeasure Plan.

**Goal:** Maintain documentation of existing and publicly accessible SPCC Plans for petroleum storage on main campus and research farms adjacent to campus.

**Schedule and Evaluation:** Continue to update policies and procedures as necessary. Status: *on-going*.

**Responsible Party:** Virginia Tech Environmental Health and Safety.

**Necessary Documents:** Contact information for Policy and Procedures for Spill Prevention, Control and Countermeasures.

**Measurable Goals:** This BMP will be measured by maintaining the current required EPA SPCC Plan that covers all petroleum storage on the main campus as well as research farms adjacent to campus. EHS currently maintains full documentation of each individual SPCC Plan for all pertinent sites on and off Virginia Tech's main campus. EHS inspects and tracks spills on a per occurrence basis. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Contact information for plans within Virginia Tech.

**Required Modifications:** TBD.

**Response:** Virginia Tech currently maintains SPCC Plans; a list of these can be found at Environmental Health and Safety during normal business hours. Spill Control Supplies are stocked on site and EHS provides training for departments that have petroleum tanks. Virginia Tech also has a Spill Contractor to utilize in the event of a spill. When a spill is reported, EHS gathers as much information as possible from the person reporting the spill. EHS then dispatches a staff member with spill supplies to evaluate the spill and perform the necessary spill response procedures. If additional resources are needed, the responders request additional assistance. If needed, EHS can callin outside help and contact regulatory authorities.

**Documentation Provided:**

i. Emergency Contact List
ii. Preparedness Statement
iii. General Response Procedure
iv. Sample inspection forms
v. Photographs of Spill Prevention

### BMP 6.1.2: Educate Staff on Vehicle and Equipment Washing.

**Goal:** All departments that own vehicles or conduct equipment and container washing are educated in the policy.

**Schedule and Evaluation:** Continue to educate University staff on an annual basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Site & Infrastructure Development and Environmental Health & Safety.

**Necessary Documents:** Education and participation records.

**Measurable Goals:** This BMP will be measured by educating the Physical Plant Grounds Department regarding storm sewer inlet protection for vehicle wash-down areas. Fleet Services continues to provide wash-down areas within their facility that are connected to the sanitary sewer system via floor drains and employ an oil-water separator. Continue enforcing that all approved wash-down areas must connect and drain into the sanitary sewer system. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Education, participation, and inspection summaries.

**Required Modifications:** TBD.

**Response:** In order to best comply with the requirements set forth in MCM 6, Virginia Tech condensed all training topics into one generalized presentation entitled, "MS4 Stormwater Training." The training shows employees how to best prevent stormwater pollution while performing job tasks. Another area of the training involves helping employees identify illicit discharge indicators and provides information on how to report illicit discharges and spills. The training has been incorporated into the existing EHS training rotation. In total, 427 employees have been trained using this presentation from July 1, 2012 to June 30, 2013. All applicable Virginia Tech employees will receive this training every two years.

### BMP 6.1.3: Personnel Training.

**Goal:** Record annual training schedules and attendance for University staff.

**Schedule and Evaluation:** Continue to document training schedules and attendance on an annual basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Site & Infrastructure Development and Environmental Health & Safety.

**Necessary Documents:** Training and participation records.

**Measurable Goals:** This BMP will be measured by developing a training schedule to educate University staff by demonstrating the effects of pollution prevention on water quality. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Training and participation summary.

**Required Modifications:** TBD.

**Response:** In order to best comply with the requirements set forth in MCM 6, Virginia Tech condensed all training topics into one generalized presentation entitled, "MS4 Stormwater Training." The training shows employees how to best prevent stormwater pollution while performing job tasks. Another area of the training involves helping employees identify illicit discharge indicators and provides information on how to report illicit discharges and spills. The training has been incorporated into the existing EHS training rotation. In total, 427 employees have been trained using this presentation from July 1, 2012 to June 30, 2013. All applicable Virginia Tech employees will receive this training every two years.

A training presentation has also been created and implemented for Virginia Tech Dining Services employees. An employee from the Site & Infrastructure Development Department provided an initial training presentation to the managers and directors of Virginia Tech Dining Services. The stormwater training for Dining Services will be incorporated into the current new employee training. In time, all new Virginia Tech Dining Services employees will receive stormwater pollution prevention training.

### BMP 6.2.1: Parking Lot and Street Cleaning.

**Goal:** Track maintenance program and clean parking lots/roads on an annual basis.

**Schedule and Evaluation:** Continue maintaining and cleaning parking lots and roadways on a periodic basis and immediately after significant events (i.e., football games, commencement, etc.) during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Operations.

**Necessary Documents:** Maintenance and cleaning records.

**Measurable Goals:** This BMP will be measured by ensuring parking lots and roadways are maintained on a periodic basis and immediately after significant events on campus. Continue monitoring the parking lots and roadways on a daily basis between different departments that work around campus on a daily basis. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Maintenance and cleaning records and summary.

**Required Modifications:** TBD.

**Response:** Virginia Tech continues to maintain streets and parking lots by sweeping them as needed as well as before and after sporting events. A log showing dates and locations of street sweeping has been provided. A total of approximately 22,200 pounds was collected from September 2012 through July 2013

**Documentation Provided:**

i. Street Sweeper Log

### BMP 6.2.2: Road Maintenance and Repair.

**Goal:** Educate all departments that handle road maintenance about policies and procedures.

**Schedule and Evaluation:** Continue to educate University staff on an annual basis during permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Education and participation records.

**Measurable Goals:** This BMP will be measured by educating departments regarding storm sewer inlet protection for repairing and marking roads. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Education and participation records.

**Required Modifications:** TBD.

**Response:** In order to best comply with the requirements set forth in MCM(6), Virginia Tech condensed all training topics into one generalized presentation entitled, "MS4 Stormwater Training." The training shows employees how to best prevent stormwater pollution while performing job tasks. Another area of the training involves helping employees identify illicit discharge indicators and provides information on how to report illicit discharges and spills. The training has been incorporated into the existing EHS training rotation. In total, 427 employees have been trained using this presentation from July 1, 2012 to June 30, 2013. All applicable Virginia Tech employees will receive this training every two years.

### BMP 6.3.1: Storm Drain System Intake Cleaning.

**Goal:** Track maintenance program and clean storm sewer inlets on an annual basis.

**Schedule and Evaluation:** Continue maintaining and cleaning storm sewer inlets on an annual basis or immediately after identification of problem prone areas during each permit cycle. Inspect and clean at least 25% per year. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Operations and Site & Infrastructure Development.

**Necessary Documents:** Maintenance and cleaning records.

**Measurable Goals:** This BMP will be measured by developing and maintaining a list of structures and storm sewer inlets that require attention (i.e., cleaning, repair, etc.) and develop a mitigation plan for corrective action. Provide routine inspection and documentation on a routine basis. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Maintenance and cleaning summary.

**Required Modifications:** TBD.

**Response:** Virginia Tech is working to perform storm sewer system inlet cleaning as much as possible. The Virginia Tech Mechanical Utilities Department routinely cleans the storm drains around campus. The Utilities Department has a vacuum truck that aids in the cleaning of storm drain inlets. This year approximately 3 cubic yards of trash and debris was removed from the storm drains around campus.

**Documentation Provided:**

i. Photographs of the Virginia Tech Vacuum Truck

### BMP 6.4.1: Hazardous Materials and Chemical Storage and Management.

**Goal:** Document locations and methods of hazardous material storage and inspect storage facilities annually.

**Schedule and Evaluation:** Inspect and monitor hazardous waste facilities on a monthly basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Environmental Health and Safety.

**Necessary Documents:** Inspection and monitoring records.

**Measurable Goals:** This BMP will be measured by inspecting hazardous waste facilities at least monthly and maintaining an inspection report. Laboratories and chemical stock rooms are inspected on an annual basis and recorded. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Inspection and monitoring summary.

**Required Modifications:** TBD.

**Response:** Virginia Tech currently inspects hazardous waste facilities weekly and maintains a report for each respective facility. Laboratories and chemical stock rooms are inspected and recorded on an annual basis. Virginia Tech has built a Materials Management Facility for storage and proper disposal of hazardous materials. Inspection and monitoring records are kept on file by the Virginia Tech Environmental Health and Safety Department.

**Documentation Provided:**

i. Photographs of Chemical Storage (In Lab)
ii. Photographs of Chemical Storage (Disposal with Secondary Containment)

### BMP 6.4.2: Salt Storage and Application.

**Goal:** Document application locations and methods of salt storage with annual inspections. If possible, reduce the amount of salt application.

**Schedule and Evaluation:** Document application areas and record winter application volumes during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Operations.

**Necessary Documents:** Application and location records.

**Measurable Goals:** Virginia Tech has partnered with the Town of Blacksburg to successfully construct a joint salt storage facility. This BMP will be measured by ensuring that the facility and any subsequent runoff from the salt storage will be collected and distributed into the sanitary sewer system. Continue to look at alternative methods to reduce salt application. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Facility inspection and salt application records.

**Required Modifications:** TBD.

**Response:** A spreadsheet is provided that outlines the application and location of the salt and salt brine that was used on campus from December 2012 to March 2013.

**Documentation Provided:**

i. Salt Application History Log

### BMP 6.4.3: Oil and Antifreeze Recycling.

**Goal:** Document oil and antifreeze recycling amounts in accordance with program.

**Schedule and Evaluation:** Documentation on a daily basis (as required) during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Fleet Services Department.

**Necessary Documents:** Recycling summary.

**Measurable Goals:** This BMP will be measured by maintaining documentation of the volume of oil and antifreeze properly recycled annually. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Recycling summary.

**Required Modifications:** TBD.

**Response:**
According to the Virginia Tech Recycling Rate Report for Calendar year 2012, the oil and antifreeze recycling rates are as follows:
- **Used oil**: 8.07 tons
- **Used oil filters**: 1.36 tons
- **Used Antifreeze**: 0.00 tons

### BMP 6.5.1: Pesticide and Fertilizer Application.

**Goal:** Inspect facilities on an annual basis and record inspection results. Develop a database of all applicators that are EPA licensed. Maintain accurate and up-to-date applicator database.

**Schedule and Evaluation:** Inspection on an annual basis or as required during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Athletics Department, Virginia Tech Golf Course, Virginia Tech College of Agriculture and Life Sciences, Virginia Tech Grounds Department, Virginia Tech Department of Horticulture (Hahn Garden), Virginia Tech Department of Recreational Sports.

**Necessary Documents:** Documentation of products and Certified Applicators.

**Measurable Goals:** This BMP will be measured by continuing to plant new trees and shrubs; renovating old landscaping sites; mowing and trimming campus turf; applying fertilizer and pesticides; pruning the campus collection of trees and shrubs; and installing and maintaining over 200 perennial and annual flowerbeds in accordance with application guidelines. Applicators, for different departments of

campus, are certified and adhere to guidelines and measures. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it contributes to campus pollution prevention.

**Items to be Reported in Annual Report:** Documentation of products and Certified Applicators.

**Required Modifications:** TBD.

**Response:** There are six groups on campus that are responsible for applying pesticides and fertilizers as needed: Agricultural Operations, Virginia Tech Athletics, Virginia Tech Golf Course, Virginia Tech Grounds Department, Peggy Lee Hahn Garden Pavilion, and Virginia Tech Recreational Sports. Each department is responsible for maintaining Certification for Applicators and a list of products used.

In order to best comply with the requirements set forth in MCM 6, Virginia Tech condensed all training topics into one generalized presentation entitled, “MS4 Stormwater Training.”. The training shows employees how to best prevent stormwater pollution while performing job tasks. Another area of the training involves helping employees identify illicit discharge indicators and provides information on how to report illicit discharges and spills. The training has been incorporated into the existing EHS training rotation. In total, 427 employees have been trained using this presentation from July 1, 2012 to June 30, 2013. The training material includes information about responsible use of pesticide/fertilizer application and applicable spill response procedures. All applicable Virginia Tech employees will receive this training every two years.

**Documentation Provided:**

i. List of Certified Applicators
ii. Virginia Tech Agriculture Operations List of Products
iii. Virginia Tech Athletic Department List of Products
iv. Virginia Tech Golf Course List of Products
v. Virginia Tech Grounds Department List of Products
vi. Peggy Lee Hahn Garden Pavilion List of Products
vii. Virginia Tech Recreational Sports List of Products

### BMP 6.5.2: Maintenance of Landscaped Areas.

**Goal:** Track volumes of compost and mulch application.

**Schedule and Evaluation:** Track volumes on an application basis during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Services.

**Necessary Documents:** Application Area Maps.

**Measurable Goals:** This BMP will be measured by inspecting and maintaining landscaped areas on a regular basis to prohibit the potential for soil erosion and

debris entry into the stormwater sewer system. Continue to monitor and develop alternative methods to compost and mulch applications and provide recommendations for action. Continue to monitor the effectiveness of this BMP on a routine basis.

Continue monitoring the conversion of 13 areas of campus (approximately 35 acres) from regularly maintained turf grass lawn to low maintenance native grass meadows and wildflowers in an effort to create biodiversity, aid stormwater management, and reduce fossil fuel use.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it plays a role in campus pollution prevention.

**Items to be Reported in Annual Report:** Application Area Maps.

**Required Modifications:** TBD.

**Response:** Virginia Tech continues to maintain the landscaped campus through several different methods. Current projects include reforestation of areas and planting of wildflower gardens each year depending on funding and weather. According to the annual recycling rate report, 150 tons of waste wood (chipped or mulched) was recycled and over 250 tons of yard waste (composted or mulched) was recycled. All these materials were collected from daily landscaping activities.

Virginia Tech has been awarded Tree Campus USA for the fifth consecutive year by the Arbor Day Foundation. The award honors colleges and universities for effective campus forest management and for engaging staff and students in conservation goals. (http://www.vtnews.vt.edu/articles/2013/03/030113-vpas-treecampususa.html)

Virginia Tech hopes to allow three native meadows to naturally convert to a reforested land area. If so, new informational signs will be installed to educate visitors of the stormwater benefits of natural forest cover.

**Documents Provided:**

i. Tree Campus USA 2008 article
ii. Tree Campus USA 2010 article
iii. Tree Campus USA – Virginia Tech Tops Nation in Tree Planters, Wins Free Trees 2010 Article
iv. Tree Campus USA 2011 article
v. Tree Campus USA 2012 Article
vi. Tree Campus USA 2013 Article
vii. Photographs of Green Roofs
viii. Photographs of Native Meadows

### BMP 6.5.3: Nutrient Management Plan.

**Goal:** Continue to update and evaluate existing plan as needed for operations.

**Schedule and Evaluation:** Periodic review, update, and evaluation of existing plan during each permit cycle. Status: *on-going*.

**Responsible Party:** Virginia Tech Athletics Department, Virginia Tech Golf Course, Virginia Tech College of Agriculture and Life Sciences, Virginia Tech Grounds Department, Virginia Tech Department of Horticulture (Hahn Garden), Virginia Tech Department of Recreational Sports.

**Necessary Documents:** Updated Nutrient Management Plan (as applicable).

**Measurable Goals:** This BMP will be measured by ensuring that the current plan is up-to-date and continues to be effective. Continue to monitor the effectiveness of this BMP on a routine basis.

**Assessment of Appropriateness:** This BMP is effective in addressing discharges into Stroubles Creek as it plays a role in campus pollution prevention.

**Items to be Reported in Annual Report:** Updated Nutrient Management Plan.

**Required Modifications:** TBD.

**Response:** Copies of the Nutrient Management Plans for the non-agricultural areas are available in the Site & Infrastructure Development Office.

### BMP 6.5.4: General Maintenance and Upkeep.

**Goal:** Continue to do general maintenance on campus that will improve stormwater.

**Schedule and Evaluation:** Perform tasks that will improve the stormwater system and help reduce pollutants from entering the waterways. Status: *on-going*.

**Responsible Party:** Virginia Tech Facilities Operations.

**Necessary Documents:** List of projects on campus that will improve stormwater.

**Measurable Goals:** This BMP will be measured by documenting any maintenance done on campus that prevents pollutants from entering the stormwater system. Continue to monitor the effectiveness of this BMP on a routine basis.

**Items to be Reported in Annual Report:** Photographs of improvements.

**Required Modifications:** TBD.

**Response:** Virginia Tech re-seeds and mulches across campus to maintain the grass which helps reduce the amount of runoff. Certain inlets are protected year-round to reduce the amount of sediment that reaches the waterway. Also, in ditches where erosion has been an issue, Virginia Tech has installed check dams to reduce the velocity of the flow on those slopes.

Each year Virginia Tech has aerated and re-seeded the drillfield on campus as well as other areas where necessary.

**Status of Compliance with Permit Conditions for MCM6**

Virginia Tech has implemented a pollution prevention/good housekeeping program that addresses permit requirements. The stormwater training program aims to address pollution prevention techniques and procedures for staff which includes all listed materials relevant to campus operations. The IDDE program priority areas overlap with MCM(6) and are regularly under evaluation and inspection for spills and/or illicit discharges. Based on a third party evaluation, the above BMPs may require modification to better comply with permit requirements. VT will further assess the appropriateness and modify as necessary.

## Program Evaluation Summary for Permit Registration #VAR040049

Below is a list of all updates and modifications made to the program this permit cycle per DCR request and voluntarily:

- On September 27, 2010 Virginia Tech notified, in writing, downstream regulated MS4s to which Virginia Tech is physically interconnected. Letters were sent to VDOT and the Town of Blacksburg. See BMP 3.1.1 for more information.

- **2011 Report Cycle:**

    - Virginia Tech has updated the names of the Departments and Responsible Parties to better reflect reorganizations of associated departments. Please see 2011 Annual Report for more information.
    - Virginia Tech has changed the name of BMP 2.1.3 from "Storm Drain Stenciling" to "Storm Drain Marking. Stencils are no longer used to mark storm drains, instead Duracast markers are currently being used to mark Storm Drains. Please see BMP 2.1.3 for more information.
    - Virginia Tech found an error in numbering and changed BMP 6.1.4 to BMP 6.1.3
    - Virginia Tech removed "Virginia Tech teams up with Good Will for Handicapped individuals to help pick up trash on campus" from the list of Measureable Goals for BMP 2.1.2. This event no longer occurs. Virginia Tech is currently seeking other opportunities that will replace this one. Please see BMP 2.1.2 for more information.
    - Virginia Tech surpassed the goals set in the Schedule and Evaluation section of BMP 2.1.3. A goal was set to mark 16-20 inlets by June of 2011. Virginia Tech was able to mark over 300 inlets by June 2011. See BMP 2.1.3 for more information.
    - Under BMP 3.5.1, Virginia Tech was able to find funding for students to perform Illicit Discharge Detection and Elimination as well as secure funding to purchase water quality sampling equipment. See BMP 3.5.1 for more information.
    - As of June 2011, Virginia Tech Site & Infrastructure Development hired two Water Resources Engineers that assist with and manage stormwater-related programs.

- **2012 Report Cycle:**

    - Virginia Tech has added "Environmental Coalition leads clean-up after events" to the list of Measurable Goals for BMP 2.1.2. Please see BMP 2.1.2 for more information.
    - Virginia Tech purchased additional Duracast storm drain markers in order to continue to meet the measureable goals set forth in BMP 2.1.3. Please see BMP 2.1.2 for more information.
    - Virginia Tech was able to mark approximately 390 inlets by June 2012. Please see BMP 2.1.3 for more information.
    - Virginia Tech Purchased 40 pet waste stations for campus. The stations will be installed next to existing trash receptacles. With the help of the Virginia Tech Sign Shop, signs were made to address how pet waste can negatively impact stormwater. These pet waste stations will be used to educate and engage the public in stormwater pollution prevention. Please see BMP 1.2.1 for more information.
    - Virginia Tech purchased a Photometer to assist with field investigations. Please see BMP 3.1.1 for more information.
    - Virginia Tech purchased two Enviroscape models to aid in and improve upon public outreach efforts. The Enviroscape models will be used throughout the year to educate the public about stormwater pollution prevention. See BMP 1.2.1 for more information.

- **2013 Report Cycle:**

    - For BMP 1.1.1:
        - Virginia Tech modified the language in both the "Necessary Documents" and "Items to be Reported in Annual Report" sections to reflect the addition of social media sites that have recently been incorporated into the MS4 Program. Please see BMP 1.1.1 for more information.
        - Virginia Tech modified the language in the "Measurable Goals" section to establish better reflect MCM 1 program goals. Please see BMP 1.1.1 for more information.
    - For BMP 1.2.1:
        - Virginia Tech removed language from the "Measurable Goals" section because the previously mentioned events/meetings no longer exist.
    - For BMP 1.3.1:
        - Virginia Tech changed the title of this BMP to *Pollution Prevention Programs* to better reflect the goals of the BMP. Please see BMP 1.3.1 for more information.
        - Virginia Tech modified the language in multiple sections of this BMP to satisfy recommendations stated in the third party evaluation of the Virginia Tech MS4 Program. Please see BMP 1.3.1 for more information.
    - For BMP 1.3.2, Virginia Tech modified the language in the "Schedule and Evaluation" section in order to further clarify that table cards are distributed in campus dining facilities. Please see BMP 1.3.2 for more information.

- For BMP 1.4.1, Virginia Tech modified language in the “Schedule and Evaluation” section and “Measurable Goals” section to satisfy the recommendations stated in the third party evaluation of the Virginia Tech MS4 Program. Please see BMP 1.4.1 for more information.
- For BMP 2.1.2, Virginia Tech modified the language in multiple sections of this BMP to better reflect language used in the Stroubles Creek TMDL Implementation Plan. Please see BMP 2.1.2 for more information.
- For BMP 2.1.3, Virginia Tech modified the language in the “Responsible Party” section to more accurately who manages and performs the BMP actions. Please see BMP 2.1.3 for more information.
- For BMP 2.2.1:
    - In effort to satisfy the recommendation stated in the third party evaluation of the Virginia Tech MS4 Program, the language of multiple sections was modified and the BMP was moved to MCM 4 and renamed *BMP 4.4.1: Project Stakeholder Meetings*. Please see BMP 4.4.1 for more information.
- BMPs 3.1.1 and 3.3.1 were merged to create one BMP. This merged BMP incorporates elements from the original BMPs and is entitled *BMP 3.1.1 Trace and Remove Illicit Discharges.* This change was made to satisfy recommendations stated in the third party evaluation of the Virginia Tech MS4 Program. Please see BMP 3.1.1 for more information.
- As a result of the merge of BMP 3.1.1 and BMP 3.3.1, *BMP 3.4.1 Illicit Discharge reporting by Staff and Students* is now BMP 3.3.1. Please see BMP 3.3.1 for more information.
- For BMP 6.1.3, Virginia Tech modified the language in the “Measurable Goals” section to better convey the intent and goals of the BMP. Please see BMP 6.1.3 for more information.
- For BMP 6.3.1, Virginia Tech modified language in the BMP to use more appropriate terminology. Please see BMP 6.3.1 for more information.
- In an effort to better satisfy the MS4 General Permit requirements, Virginia Tech added “Assessment of Appropriateness” and “Status of Compliance” sections/items to this year’s annual report. Please see the annual report portion of this submission for more information.
- Virginia Tech utilized a third party to evaluate its MS4 Program during Year 5 of this permit cycle. The “Municipal Stormwater Program Evaluation Guidance,” Environmental Protection Agency EPA-833-R-07-003 was used during the evaluation. The results of this evaluation will be kept on file and made available during audits and inspections. Virginia Tech’s MS4 Program will be further adjusted based on the third party evaluation recommendations. Any modifications made as a result of these recommendations will be stated in the applicable annual reports during the 2013-2018 MS4 Permit Cycle.
- As a result of the third party evaluation of Virginia Tech’s MS4 Program, the following BMPs have been removed:
    - BMP 1.5.1: Funding and Staffing Needs for MCM 1
    - BMP 2.3.1: Funding and Staffing Needs for MCM 2
    - BMP 3.5.1: Funding and Staffing Needs for MCM 3
    - BMP 4.4.1: Funding and Staffing Needs for MCM 4

- BMP 5.4.1: Funding and Staffing Needs for Program
- BMP 5.5.1: Funding and Staffing Needs for MCM 5
- BMP 6.6.1: Funding and Staffing Needs for MCM 6

The BMPs listed above were developed as a means to seek funding for program implementation. The MS4 General Permit states that failure to provide adequate funding is not an acceptable explanation for failure to meet permit conditions. With this considered, and since the above BMPs do not meet any of the specific requirements of the MS4 General Permit, they have been removed.

## Other Information Pursuant to VAR04 Section II E 3

- *Section II E 3 b – Status of compliance with permit conditions, an assessment of the appropriateness of the identified best management practices and progress towards achieving the identified measurable goals for each of the minimum control measures;*
    - The progress towards achieving the identified measurable goals for each of the minimum control measures is included in this annual report submission.
    - In an effort to better satisfy the MS4 General Permit requirements, Virginia Tech added "Assessment of Appropriateness" and "Status of Compliance" sections/items to this year's annual report. Please see annual report portion of this submission for more information.
- *Section II E 3 c – Results of information collected and analyzed, including monitoring data, if any, during the reporting period*
    - During the 2013-2018 MS4 Permit Cycle, Virginia Tech will be evaluating BMPs to determine if any data obtained can be used to improve the program.
- *Section II E 3 e – A change in any identified best management practices or measurable goals for any of the minimum control measures including steps to be taken to address any deficiencies;*
    - Changes that were made to any BMPs or measurable goals are addressed in the above Program Evaluation.
- *Section II E f – Notice that the operator is relying on another government entity to satisfy some of the permit obligations;*
    - Virginia Tech does not currently relying on another government entity to satisfy any of the permit obligations.
- *Section II E g – The approval status of any programs pursuant to Section II C of the progress towards achieving full approval of these programs;*
    - No existing program has required the implementation of any minimum control measures associated with Section II B.
- *Section II E h – Information pursuant to Section I B 9;*
    - Please see **Appendix B** for Annual Characterization.
- *Section II E i – The number of illicit discharges identified and the narrative on how they were controlled or eliminated pursuant to Section II B f*
    - Please see **Appendix D** for a summary of illicit discharges.
- *Section II E j – List of Regulated land-disturbing activities data tracked under Section II 4 c;*
    - Please see **Appendix E** for list of regulated Land-disturbing activities

- *Section II E k – Table of all known permanent stormwater management facilities*
    - Please see **Appendix C** for summary of all known permanent stormwater management facilities.
- *Section II E l – A list of any new or terminated signed agreement between the operator and any applicable third parties where the operator has entered into an agreement in order to implement minimum control measures or portions of minimum control measures;*
    - Virginia Tech does not have any signed agreements with a third party to implement any of the minimum control measures.
    - Please see item *Section II E 3 b* above regarding a third party performing Virginia Tech MS4 Program Evaluation.
- *Section II E 3 m – Copies of any written comments received during a public comment period regarding the MS4 Program Plan or any modifications;*
    - Virginia Tech did not hold any public comment periods during the 2012-2013 Report Cycle.
    - A comment box was added to the Virginia Tech MS4 Website in June 2012. No comments were received

**Appendix A –** MS4 Registration Statement

DCR
Department of Conservation & Recreation

# VSMP GENERAL PERMIT REGISTRATION STATEMENT FOR STORMWATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS [VAR04]

(Please Type or Print All Information)
(The applicable fee specified in Form DCR 199-145 must additionally be submitted to the address given in that form to obtain coverage)

1. Regulated Small MS4

Name: VIRGINIA TECH VAR040049

Type: ☐ City ☐ County ☐ Incorporated Town ☐ Unincorporated Town ☒ College or University ☐ Local School Board ☐ Military Installation ☐ Transport System ☐ Federal or State Facility ☐ Other

Location (County or City): MONTGOMERY COUNTY

2. Regulated Small MS4 Operator

Name: VIRGINIA TECH (ATTN CRAIG S. MOORE)

Address: 28 STERRETT FACILITIES

City: BLACKSBURG State: VA Zip: 24061

3. Hydrologic Unit Code(s) as identified in the most recent version of Virginia's 6th Order National Watershed Boundary Dataset currently receiving discharges or that have potential to receive discharges from the regulated small MS4:
NE59

4. Attach a description of the estimated drainage area, in acres, served by the regulated small MS4 discharging to any impaired receiving surface waters listed in the most recent Virginia 305(b)/303(d) Water Quality Assessment Integrated Report, and a description of the land use of each such drainage area.

5. Any TMDL waste loads allocated to the regulated small MS4 (this information may be found at http://www.deq.state.va.us/tmdl/develop.html): STROUBLES CREEK, BENTHIC TMDL WBID: N22R, POLLUTANT: SEDIMENT, WLA: 233.15 TONS/YR

6. The name(s) of any regulated physically interconnected MS4s to which the regulated small MS4 discharges.
DISCHARGES DIRECTLY INTO A RECEIVING WATER (STROUBLES CREEK.)

7. A copy of the MS4 Program Plan that includes: SEE PLAN

a. A list of BMPs that the operator proposes to implement for each of the stormwater minimum control measures and their associated measurable goals pursuant to 4VAC50-60-1240, Section II B; that includes:

i. A list of the existing policies, ordinances, schedules, inspection forms, written procedures, and other documents necessary for BMP implementation; and

ii. The individual, department, division, or unit responsible for implementing the BMP;

b. The objective and expected results of each BMP in meeting the measurable goals of the stormwater minimum control measures;

c. The implementation schedule including any interim milestones for the implementation of a proposed new BMP; and

d. The method that will be utilized to determine the effectiveness of each BMP and the program as a whole.

8. List all existing signed agreements between the operator and any applicable third parties where the operator has entered into an agreement in order to implement minimum control measures or portions of minimum control measures.

9. The name, address, telephone number and e-mail address of either the principal executive officer or ranking elected official as defined in 4VAC50-60-370.

MS. LYNN EICHHORN, 65 STERRETT FACILITIES COMPLEX
540-231-9900, eichhorn@vt.edu

10. The name, position title, address, telephone number and e-mail address of any duly authorized representative as defined in 4VAC50-60-370.

[redacted]

11. 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 assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."

Print Name: LYNN EICHHORN Title: Executive Director

Signature: [signature] Date: 3/31/09

For Department of Conservation and Recreation Use Only

Accepted/Not Accepted by: _____ Date: _____

Basin _____ Stream Class _____ Section _____ Special Standards _____

**Appendix B –** Annual Characterization

VirginiaTech

**Site & Infrastructure Development**
230 Sterrett Drive (0529)
Blacksburg, Virginia 24061
*www.sid.vt.edu*

September 25, 2013

**2013 Annual Characterization - Stroubles Creek TMDL in the Virginia Tech MS4 Regulated Area**

This is a summary of the actions taken by Virginia Tech (VT) during the last permit year to ensure the VT MS4 Program is consistent with the requirements of the Benthic Total Maximum Daily Load (TMDL) for Stroubles Creek and its associated sediment waste load allocation (WLA).

VT completed the 2013 annual characterization of the stormwater discharged and the associated sediment loading from the VT regulated MS4 area within the Stroubles Creek watershed that has an approved TMDL. Stormwater discharged and pollutant loading was estimated using the Watershed Treatment Model (WTM) and the *VT Watershed Characterization Tools: Reference Manual & Guide to Annual Characterization Development* (Guide). The Guide required VT to use the following spatial datasets for generating input for the WTM:

- Stroubles Creek TMDL Watershed
- VT MS4 regulated area
- Detailed land use data created and maintained by VT
- SSURGO soils data
- Drainage areas to structural best management practices (BMPs)
- Riparian buffers
- Streams

Geoprocessing assisted with generating data input for the WTM to allow for estimation of primary and secondary source loads and reductions achieved by BMPs. Supplemental information included the determination of the annual rainfall for the reporting year using the National Oceanic and Atmospheric Administration (NOAA) Gage ID: 440766, located in Blacksburg, Virginia.

Characterization of sediment loadings also included an assumed reduction achieved by VT's MS4 Core BMPs. Core BMPs are those non-structural BMPs included in VT's MS4 Program that, when implemented, will result in significant reduction of pollutants. Typical MS4 Core BMPs include preventative O&M, community education programs, good housekeeping, and pollution prevention procedures.

Based on the data and methods used, the WTM estimates an annual volume of stormwater discharged at 78,556,344 cubic feet and a sediment load of 106.05 tons.

Sincerely,

Lauren Grimes, EIT
MS4 Program Administrator/Water Resources Specialist
Virginia Tech Facilities Services – Site & Infrastructure Development
Office: 540-231-3716
lgrimes@vt.edu

**Appendix C –** BMP Summary

Virginia Tech BMP Summary List
Report Cycle: July 1, 2012 - June 30, 2013

| *Permit NO* | *Reporting Year* | *BMP TYPE* | *HUC* | *Impaired Waters* | *No of Acres Treated* | *Other* | *Virgnia Tech Identifier* | *BMP_ALIAS* |
|---|---|---|---|---|---|---|---|---|
| VAR040049 | | Extended detention | NE59 | Stroubles Creek | 0.7 | | *BMP_0009* | *Smithfield Lot Extended Detention 1* |
| VAR040049 | | Extended detention | NE59 | Stroubles Creek | 0.7 | | *BMP_0010* | *Smithfield Lot Extended Detention 2* |
| VAR040049 | | Extended detention | NE59 | Stroubles Creek | 2.3 | | *BMP_0011* | *Duck Pond Overflow Lot - Extended Detention* |
| VAR040049 | | Bioretention | NE59 | Stroubles Creek | 3.4 | | *BMP_0008* | *Smithfield Lot Bioretention* |
| VAR040049 | | Detention Basin | NE59 | Stroubles Creek | 4.7 | Underground | *BMP_0018* | *Payne (NR) - Underground Detention Basin* |
| VAR040049 | | Extended detention | NE59 | Stroubles Creek | 4.7 | | *BMP_0022* | *Horse Exibit - Livestock Arena* |
| VAR040049 | | Extended detention | NE59 | Stroubles Creek | 5.0 | | *BMP_0024* | *Library Storage - Extended Detention* |
| VAR040049 | | Detention Basin | NE59 | Stroubles Creek | 12.0 | | *BMP_0005* | *Vet Med - Detention Basin* |
| VAR040049 | | Extended detention | NE59 | Stroubles Creek | 17.1 | | *BMP_0023* | *VTES - Extended Detention* |
| VAR040049 | | Extended detention | NE59 | Stroubles Creek | 20.1 | | *BMP_0013* | *Special Purpose Housing - Detention Basin* |
| VAR040049 | | Retention basin | NE59 | Stroubles Creek | 27.8 | | *BMP_0004* | *Vet Med - Retention Basin* |
| VAR040049 | | Extended detention | NE59 | Stroubles Creek | 47.5 | | *BMP_0015* | *Grove Lane Extended Detention* |
| VAR040049 | 2009 | Manufactured BMP | NE59 | Stroubles Creek | 52.8 | Underground | *BMP_0002* | *Chicken Hill Underground Detention Basin* |
| VAR040049 | | Extended detention enhanced | NE59 | Stroubles Creek | 55.5 | | *BMP_0014* | *Alumni Pond* |
| VAR040049 | 2010 | Extended detention | NE59 | Stroubles Creek | 47.5 | | *BMP_0006* | *Vet Med - Dry Pond* |
| VAR040049 | 2010 | Extended detention basin | NE59 | Stroubles Creek | 1.7 | | *BMP_0001* | *Lane Stadium - Extended Detention Basin* |
| VAR040049 | 2010 | Green Roof Exensive | NE59 | Stroubles Creek | 0.5 | | *BMP_0016* | *Life Sciences - Green Roof Extension 1* |
| VAR040049 | 2010 | Green Roof Exensive | NE59 | Stroubles Creek | 0.2 | | *BMP-0017* | *Life Sciences - Green Roof Extension 2* |
| VAR040049 | 2010 | Bioretention - Filter | NE59 | Stroubles Creek | 0.3 | | *BMP_0020* | *New Hall West 1* |
| VAR040049 | 2010 | Bioretention - Filter | NE59 | Stroubles Creek | 0.4 | | *BMP_0021* | *New Hall West 2* |
| VAR040049 | 2010 | Filterra Unit | NE59 | Stroubles Creek | 0.7 | | *BMP_0037* | *McComas Filterra Unit* |
| VAR040049 | 2010 | Underground Water Quality | NE59 | Stroubles Creek | 2.0 | Underground | *BMP_0038* | *Football Locker Room WQU* |
| VAR040049 | 2010 | Bioretention Pretreatment | NE59 | Stroubles Creek | 3.6 | | *BMP_0007* | *Smithfield Lot Bioretention Pretreatment* |
| VAR040049 | 2010 | Underground Water Quality | NE59 | Stroubles Creek | 52.8 | Underground | *BMP_0034* | *Lower Chicken Hill WQU* |
| VAR040049 | 2010 | Bioretention Filter | NE59 | Stroubles Creek | 0.3 | | *BMP_0035* | *New Hall West 3* |
| VAR040049 | 2010 | Bioretention Filter | NE59 | Stroubles Creek | 0.3 | | *BMP_0036* | *New Hall West 4* |
| VAR040049 | 2011 | Bioretention Filter | NE59 | Stroubles Creek | 3.58 | | *BMP_0019* | *Henderson Hall Bioretention* |
| VAR040049 | 2011 | Rain Garden (Bioretention Filter) | NE59 | Stroubles Creek | 0.15 | | *BMP_0039* | *ICTAS II - Rain Garden* |
| VAR040049 | 2011 | Bioretention Filter | NE59 | Stroubles Creek | 0.28 | | *BMP_0027* | *ICTAS II - Bioretention* |
| VAR040049 | 2012 | Bioretention Filter | NE59 | Stroubles Creek | 11.62 | | BMP_0041 | *MMF Bioretention* |
| VAR040049 | 2012 | Bioretention Filter | NE59 | Stroubles Creek | 0.29 | | BMP_0042 | *West End Bioretention* |
| VAR040049 | 2012 | Filterra Unit | NE59 | Stroubles Creek | 0.65 | | BMP_0043 | *West End Filterra Unit* |
| VAR040049 | 2012 | Stormceptor Underground Water Quality Unit | NE59 | Stroubles Creek | 6.80 | Underground | BMP_0044 | *Roller Hockey Rink WQU* |
| VAR040049 | 2012 | Bioretention Filter | NE59 | Stroubles Creek | 1.37 | | *BMP_0045* | *Visitor's Center - Bioretention Filter 1* |
| VAR040049 | 2012 | Bioretention Filter | NE59 | Stroubles Creek | 0.48 | | *BMP_0046* | *Visitor's Center - Bioretention Filter 2* |
| VAR040049 | 2012 | Bioretention Filter | NE59 | Stroubles Creek | 0.63 | | *BMP_0047* | *Visitor's Center - Bioretention Filter 3* |
| VAR040049 | 2012 | Bioretention Filter | NE59 | Stroubles Creek | 1.53 | | *BMP_0048* | *Visitor's Center - Bioretention Filter 5* |
| VAR040049 | 2012 | Contech - Underground Detention Basin | NE59 | Stroubles Creek | 1.26 | Underground | *BMP_0049* | *ASA - Underground Storage Tank 1* |
| VAR040049 | 2012 | Contech - Underground Water Quality Unit | NE59 | Stroubles Creek | 1.26 | Underground | *BMP_0050* | *ASA - Underground WQU 1* |
| VAR040049 | 2012 | Contech - Underground Detention Basin | NE59 | Stroubles Creek | 0.85 | Underground | *BMP_0051* | *ASA - Underground Storage Tank 2* |
| VAR040049 | 2012 | Contech - Underground Water Quality Unit | NE59 | Stroubles Creek | 0.85 | Underground | *BMP_0052* | *ASA - Underground WQU 2* |
| VAR040049 | 2012 | Contech - Biofilter | NE59 | Stroubles Creek | 0.22 | | *BMP_0053* | *ASA - Biofilter* |
| VAR040049 | 2013 | Detention Swale | NE59 | Stroubles Creek | 0.34 | | *BMP_0057* | *VMIA - Detention Swale* |
| VAR040049 | 2013 | Filterra Unit | NE59 | Stroubles Creek | 0.24 | | *BMP_0058* | *VMIA - Filterra Unit* |

**Appendix D –** Summary of Illicit Discharges

# Summary of Illicit Discharges 2013

| Illicit Discharge Location: | Date of Incident: | Narrative: | Notes: |
|---|---|---|---|
| VT Derring Lot | 9/17/2012 | Soil Boring samples were improperly disposed of in the parking lot directly behind Derring Hall.   | GeoConcepts Engineering assumed responsibility of the incident. |
| VT Cowgill Hall | 2/22/2013 | Architecture Students cleaned plaster tools off into the storm drain. Maintenance personnel contacted   SID while on routine storm drain vacuuming activities. | 2 garbage bags collected from the storm drain. |
| VT Veterinary Medicine | 3/5/2013 | Measurable flow due to leaking coils in the rooftop air handling unit. The water from the coils was picking up rust from inside the air handling unit.   | 21 days of known measurable flow (through 3/26/2013) |
| VT Dairy Farm | 3/22/2013 | Dairy Farm personnel left a pump that leads to a holding tank on overnight. The alarm system was disengaged so there was no notification of the overflow until the morning. | Approx. 250,000 gallons discharged. DEQ notified. |

| | | | |
|---|---|---|---|
| | |   | |
| TOB Allendale Ct. | 4/18/2013 | Water line flushing occurred on Allendale Ct. The flushed water was discharged on a slope and pulled sediment into the VT storm sewer system for approx. 10min before activity ceased.   | TOB notified. |
| TOB Kent St. | 4/23/2013 | A truck parked at the North Main University Bookstore leaked a wood preservative, copper sulphate, overnight and released 25-200 gallons into the storm system.   | DEQ notified. |
| VT Signature Engineering | 4/29/2013 | Construction debris fell and broke a ball valve on a 90 degree upright connected to a live water line.   | |

**Appendix E –** List of Regulated Land-Disturbing Activities

# Virginia Tech 2013 MS4 Annual Report

## MCM 4 - BMP 4.1: Active and Proposed Land Disturbing Projects

**Active Land Disturbing Projects requiring VAR10 Permit Coverage:**

1. Academic and Student Affairs Building
2. Ambler Johnston Hall Renovations
3. Center for the Arts
4. Davidson Hall Renovations Project Phase I
5. English Field Improvements Project
6. Human Agricultural and Biosciences Building One
7. Infectious Disease Research Facility
8. Inert Debris
9. Kentland Farm Aerobiology Building
10. North Campus Steam Extension
11. Recycled Brush Pad at Tom's Creek Landfill
12. Sigma Phi Epsilon House
13. Sigma Phi Epsilon Infrastructure
14. Signature Engineering Building
15. Southwest Chiller Plant
16. Tent Pad at Alumni Inn
17. Visitors' and Undergraduate Admission Center
18. Veterinary Medicine Instructional Addition
19. Virginia Tech Electric Services Ductbank – CRC Phase II

**Active Land Disturbing Projects less than 1 acre and greater than 10,000 square feet:**

1. Virginia Tech Electric Services Ductbank
2. 2013 SRA Field
3. Lane Stadium/Verizon Wireless Digital Antenna System (DAS)
4. Wildlife Aviary
5. 2013 Softball Field Improvements

**Proposed Projects:**

1. Classroom Building
2. Dairy Barn Relocation to Kentland Farm
3. Upper Quad Residential Facilities
4. Drillfield Improvements
5. 460 Interchange
6. VT Airport Runway Expansion
7. Multi-Modal Transit Facility
8. Indoor Athletic Facility
9. North Chiller Plant
10. Translational Medicine
11. Propulsion Lab
12. Virginia Bioinformatics Institute Addition
13. Sandy Hall Renovations
14. Performing Arts Building Renovations