VSMP General Permit for
Small Municipal Separate Storm Sewer Systems
Permit # VAR040037

Program Year Four Annual Report

July 2016 – June 2017

James City County

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INTRODUCTION

An annual report is hereby submitted for James City County's General Permit for Small Municipal Separate Storm Sewer Systems (MS4). The report presents information in accordance with Section II.E.3 of the Small MS4 General Permit from the Virginia Department of Environmental Quality (DEQ). The majority of the report consists of the MS4 Program Plan spreadsheet developed and submitted to DEQ on September 6, 2013, and revised on August 27, 2014, March 25, 2015, and September 30, 2016. The spreadsheet presents information related to the various Program Plan measureable goals with the accomplishments of Program Year 4 beginning on July 1, 2016, and extending to June 30, 2017. Unless otherwise noted, the information submitted in the report is for the entire county not just the MS4 (regulated) area.

a. *Background Information*
   1) James City County General Permit Number #VAR040037
   2) Annual Report Permit Year Four – July 1, 2016 to June 30, 2017
   3) The modifications to the County's roles and responsibilities under the permit include the discontinuance of the Consent Order between the James City Service Authority (JCSA) and DEQ.
   4) There have been 9 new MS4 outfalls added within the County's MS4 area during this permit year.
   5) The signed certification statement is included in Appendix A of this report.

b. *Status of compliance.* The status of compliance with the permit conditions, an assessment of the appropriateness of the identified best management practices, and progress toward achieving the identified measureable goals for each of the minimum control measures is summarized in Appendix B, and details are provided in subsequent appendices.

c. *Results of information collected.* The County began a volunteer benthic monitoring program in 2009. The data collected this program year represent the eighth year of the monitoring program. While this represents a relatively short monitoring period, some observations are possible.

   1) Station PCUT07 on Warhill Park Complex – The data from this site suggests that, at this time, the stream maintains a marginal rating for water quality at this location.
   2) Station PCLS04 on Warhill Park Complex near Adams Hunt subdivision – The data indicate that the site is stable and maintaining a large, diverse benthic insect population associated with a good water quality stream.
   3) Station PCLT01 adjacent to the Pointe at Jamestown neighborhood – RETIRED
   4) GCFP01 in Freedom Park on Centerville Rd shows signs of very healthy water quality with a diverse community of macroinvertebrates.
   5) Upper County Park's site, DCUT01 has been retired due to changes in property boundaries.

   The County also has been collecting data related to E.coli bacteria since 2009 using the Coliscan method. There are nine sites in two of the current streams with TMDLs which are sampled on a monthly basis. Trends show water quality that routinely meets state standards.

d. *Planned stormwater activities*. The following stormwater activities are programmed to be undertaken during the next reporting cycle – July 1, 2017 to June 30, 2018.

1. MCM # 1 – Public Education and Outreach on Stormwater Impacts
    a. With assistance from the citizen members of the Stormwater Program Advisory Committee, continue implementation of the County's public education plan - Protect and restore our Clean Water Heritage Program - addressing prioritized water quality issues.
    b. Continue implementation of the Turf Love and Garden Love programs educating property owners on nutrient management and rain garden installation.
    c. Continue collaborative regional efforts through the Hampton Roads Planning District Commission, such as askhrgreen.org.
2. MCM # 2 – Public Involvement and Participation
    a. Continue to provide support and opportunity to volunteer water quality monitors, including both benthic monitoring and coliscan screening.
    b. Continue implementation of the Clean Water Heritage grant program, encouraging upgrades and improvements to existing stormwater management facilities.
    c. Continue to support the program's citizen advisors through the Board-appointed Stormwater Program Advisory Committee.
    d. Continue existing efforts for public input through the County website and advertised email addresses.
    e. Support the Clean County Commission Annual Clean-up Activities.
3. MCM # 3 – Illicit Discharge Detection and Elimination
    a. Continue updating MS4 outfall mapping based on 2010 urbanized area as need be.
    b. Continue ongoing illicit discharge education efforts.
    c. Continue dry weather screening of MS4 outfalls and investigate observed illicit discharges.
    d. Continue to implement procedures and protocols used to detect and address illicit discharges to the MS4.
    e. Review follow-up and enforcement procedures to ensure compliance with permit.
4. MCM # 4 – Construction Site Stormwater Runoff Control
    a. Continue to implement the program in accordance with state regulations.
    b. Continue documenting policies and procedures for inspection, plan review, and enforcement.
5. MCM # 5 – Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands
    a. Continue to implement the program in accordance with state regulations.
    b. Continue documenting policies and procedures for inspection, plan review, and enforcement.
    c. Implement the Ware Creek (James City County portion) watershed management plan and complete the York River (James City County portion) watershed management plan.
    d. Continue to document procedures and protocols used to inspect and maintain County owned stormwater management facilities.
    e. Continue to perform annual inspection and maintenance efforts for County-owned stormwater management facilities.
    f. Continue ongoing inspection schedule for privately owner stormwater management facilities, including owner training and enforcement, as needed.

6. MCM # 6 – Pollution Prevention/Good Housekeeping for Municipal Operations
    a. Continue implementing stormwater pollution prevention plans for municipal fuel facilities with potential to contribute pollutants to the MS4 facility.
    b. Continue implementing procedures designed to minimize or prevent pollutants from daily activities, equipment maintenance and equipment storage.
    c. Continue implementing current nutrient management plans and developing plans for additional acres.
    d. Continue implementing Pollution Prevention Training Plan and Administrative Regulation 28 for municipal employees, customizing training to specific work-related needs.
7. TMDL Special Conditions
    a. Continue implementation of the TMDL action plans for the Warwick River (Skiffes Creek) bacteriological TMDL, approved by EPA on February 29, 2008, and the Mill Creek and Powhatan Creek watershed bacteriological TMDL, approved by EPA on April 28, 2009.
    b. Continue implementation of the TMDL action plan for the Chesapeake Bay TMDL, addressing nitrogen, phosphorus and sediment, in accordance with DEQ Guidance Memorandum No. 15-2005.

e. *Changes to Best Management Practices*. There have been no program plan changes for FY17, permit year 4. The Program Plan for FY17 and FY18 was submitted with the FY16 year-end report. It had been updated to address the program requirements in Table 1 of the permit.

f. *Reliance on another government entity***.** James City County continues to fund Virginia Cooperative Extension for their support in the Turf Love and Garden Love programs, as well as the HRPDC Stormwater Program.

g. *Approval of Programs*. The James City County Engineering and Resource Protection Division has been approved by DEQ as a VSMP authority. A copy of an approval letter dated March 29, 2014 was submitted in PY1. (Pursuant to section IIC)

h. *TMDL special conditions*. The TMDL Action Plan summary updates for bacteria in Mill, Powhatan, and Skiffes Creek and the Chesapeake Bay TMDL are being submitted with this report. The Action Plans were submitted in period year 3. The James City County Chesapeake Bay TMDL Action Plan was submitted in PY2 and was approved by DEQ February 22, 2016.

Appendix A

Signed Certification Statement

CERTIFICATION STATEMENT AND SIGNATORY REQUIREMENTS FOR MS4 PERMIT APPLICATIONS AND REPORTS

As required by 9VAC25-870-370 B, all reports required by state permits, and other information requested by the board shall, be signed by a responsible official or by a duly authorized representative of that person. A responsible official is:

1. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for state permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
3. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above;
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and
3. The written authorization is submitted to the department.

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.

J Hell 9/26/17

Responsible Official Signature Date

VAR040037 James City County

Permit Number MS4 Name

Appendix B

MS4 Program Plan PY4-5: July 1, 2016 – June 30, 2018

MCM 1 Public Education and Outreach on Stormwater Impacts							
BMP	BMP Description	Measurable Goals	Metric	Responsible Party	Timeline	Associated Documents	PY4 Status
1.1	Participate in regional committees: askHRgreen.org, Regional Stormwater Management Committee (RSMC), and SW Phase II Subcommittee					askHRgreen.org Annual Report, MOA, HRPDC Regional Cooperation in Stormwater Management	See detail below
1.1a	*Regional Cooperation*	Maintain MOA with the HRPDC and participate in the regional processes, including the Regional Stormwater Management Program, the Stormwater Phase II Subcommittee, and askHRgreen.org	Maintain valid MOA	HRPDC and Stormwater Division	PY2 and ongoing	Hampton Roads Regional Stormwater Management Program Memorandum of Agreement (MOA) (previously submitted)	MOA executed on July 1, 2014 and expires June 30, 2018. Current copy submitted in PY1.
1.1b	*askHRgreen.org*	Participate in at least 50% of askHRgreen.org Stormwater Education Subcommittee meetings	Number of meetings attended/Number of meetings held	Stormwater Division	Annually	Attendance List	8 meetings attended / 9 meetings held. See Appendix C-1
1.1b1		Post volunteer opportunities on askHRgreen.org calendar	Number and types of events submitted	askHRgreen.org Stormwater Division	Annually	askHRgreen.org website	Spring Cleanups advertised on the askhegreen.org calendar.
1.1c	*Stormwater Phase II Subcommittee*	Participate in at least 50% of monthly Stormwater Committee Meetings.	Number of meetings attended/Number of meetings held	Stormwater Division	Annually	Attendance List	8 meetings attended/9 meetings held. See Appendix C-1
1.2	Implement the James City County Stormwater Public Information Plan						See detail below
1.2a	*Protect and Restore Our Clean Water Heritage (CWH) Program*	Distribute County-specific information to identified target audiences through the Clean Water Heritage website. Target audiences include managed turf properties, pet and septic system owners.	Number of direct mailings to septic system owners, number of materials distributed to target audiences and percentage of audience reached	Stormwater Division	Annually	Annual report	175 items given to local pet-related businesses. 4 Pet waste stations given to local neighborhoods or installed for public use. Targeted mailing were discontinued in PY3 due to negative feedback. See outreach document in Appendix C-1 for outreach details.

MCM 1 Public Education and Outreach on Stormwater Impacts							
BMP	BMP Description	Measurable Goals	Metric	Responsible Party	Timeline	Associated Documents	PY4 Status
1.2b	*Promote CWH Program to educate citizens on hazards and legal implications of illegal discharges and improper disposal of waste*	Pet waste station and premium item giveaways	Number and type of events	Stormwater Division	Annually	Outreach spreadsheet	CWH promoted at 14 events. See outreach document in Appendix C-1 for outreach details.
1.2c	*Turf Love Nutrient Management Planning for Homeowners and Community-owned lands*	Provide soil testing and nutrient management plans directly to property owners in order to reduce the unnecessary use of fertilizers	Number of nutrient management plans, number of property owner contacts	Turf Love Team and Master Gardeners (Virginia Cooperative Extension)	Annually	Turf Love Annual report	153 Nutrient Management Plans devleoped in PY4. 1268 property owner contacts made. See Appendix C-1 for details.
1.3	Implement the Regional Media Campaign to Address High Priority Issues	Participate in the askHRgreen.org regional media campaign which will make impressions with a stormwater message via print, television (local municipal access, cable and local affiliate), radio, and social media					Details of the Hamton Roads media campaign for FY17 is located in the askHRGreen Annual Report in Appendix C-1.
1.3a	*Scoop the Poop campaign*	Make *Scoop the Poop* information and giveaways available at events as appropriate	Percentage of target audience reached through activities.	askHRgreen.org Stormwater Education Subcommittee	Annually	askHRgreen.org Annual Report	At least 20% of target audience reached through County and HRPDC ASKHRGreen outreach. See outreach documents in Appendix C-1 for details.
1.3b	*Promote Lawn Care campaign*	Run media campaigns and make lawn care best management practice guides available.	Percentage of target audience reached through activities.	askHRgreen.org Stormwater Education Subcommittee	Annually	askHRgreen.org Annual Report	At least 20% of target audience reached through County and HRPDC ASKHRGreen outreach. See outreach documents in Appendix C-1 for details.
1.3c	*Promote FOG campaign*	Participate in the askHRgreen.org regional media campaign which will make impressions with a stormwater message via print, television (local municipal access, cable and local affiliate), radio, and social media	Percentage of target audience reached through activities.	askHRgreen.org Stormwater Education Subcommittee	Annually	askHRgreen.org Annual Report	The FOG campaign is run by the HRPDC. See http://askhrgreen.org/wp-content/uploads/2011/06/askHRgreenFY17AnnualReport_final.pdf for the HRPDC ASkHRGreen annual report.

MCM 1 Public Education and Outreach on Stormwater Impacts							
BMP	BMP Description	Measurable Goals	Metric	Responsible Party	Timeline	Associated Documents	PY4 Status
1.3d	*Relevant Message Implementation*	Conduct sufficient education and outreach activities designed to reach an equivalent 20% of each high priority audience.	Demographic, reach, frequency, & website click-through rates	askHRgreen.org Stormwater Education Subcommittee	Annually	askHRgreen.org Annual Report	The outreach campaign run by HRDC reached at least 35.1% of the target audience in PY4. See http://askhrgreen.org/wp-content/uploads/2011/06/askHRgreenFY17AnnualReport_final.pdf for the HRPDC ASkHRGreen annual report.
1.3e	*Educate homeowners on the hazards of illegal discharges and improper disposal of waste*	Promote askHRGreen.org for list of locality contacts for citizens to report illegal discharges and to learn about proper disposal methods	Number of page visits	askHRgreen.org Stormwater Education Subcommittee	annually	askHRgreen.org/stormwater-runoff/	The outreach campaign run by HRDC reached at least 35.1% of the target audience in PY4. See http://askhrgreen.org/wp-content/uploads/2011/06/askHRgreenFY17AnnualReport_final.pdf for the HRPDC ASkHRGreen annual report.
1.4	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

MCM 2 Public Involvement/Participation							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
2.1	Provide Public Notice of Program Plan and Modifications	Promote the availability of the operator's MS4 Program Plan and any modifications for public review and comment in accordance with public law.	Public notice of modifications.	Stormwater Division	As needed	Virginia Code reference, updated plan	See http://www.jamescitycountyva.gov/992/MS4-Permit
2.2	Make Program Plan and other Stormwater Program Information Available to Public	Provide the program plan, stormwater annual reports, the stormwater permit, and the stormwater ordinances on the County's website.	Public notice of modifications.	Stormwater Division	Ongoing	Program Plan, Annual Reports, Stormwater Permit and Ordinances	See http://www.jamescitycountyva.gov/992/MS4-Permit
2.3	Promote and /or sponsor local activities to increase public participation in activities that improve water quality						See detail below
2.3a	*Support the Stormwater Program (citizen) Advisory Committee*	Continue to secure citizen advice and recommendations through regularly scheduled public meetings of the Committee	Number of meetings and agendas	Stormwater Division	5 times per year	SPAC minutes and publications	6 meetings of the full committee; see spreadsheet in Appendix C-2
2.3b	*Clean Water Heritage Implementation Projects*	Conduct Clean Water Heritage implementation projects that promote water quality improvement through mini grant program for stormwater management facility owners	Number of funded projects and accomplishments	Stormwater Program Advisory Committee	Annually	Project documentation	20 Projects Implemented totalling $136,582. See detail in Appendix C-2
2.3c	*Volunteer Water Quality Monitoring*	Provide equipment and training to citizens interested in monitoring County water bodies for biological health, fecal coliform levels or both	Number of sites monitored by type of monitoring	Stormwater Division	As appropriate for protocol per site	Water Quality Summaries	Summaries updated with PY3-4 data. See http://www.jamescitycountyva.gov/985/Water-Quality-Reports
		Post volunteer opportunities on James City County website and the askHRgreen.org/calendar.	Number and types of events	Stormwater Division	Annually	James City County website, askHRgreen.org website	Volunteer opportunities posted on Stormwater website, the Parks and Recreation Department website, and at askhrgreen.org

2.3d	*Garden Love Program*	Provide infiltration testing, designs and installation rebates directly to property owners for the installation of residential-scale rain gardens	Number of rain gardens installed and number of acres treated	Turf Love Team and Master Gardeners (Virginia Cooperative Extension)	Annually	Project documentation	No rain gardens were installed in PY4, however 3 rain gardens were contracted and are in the planning stages.
2.3e	*Support the Clean County Commission Annual Clean up Activities*	Actively promote and encourage citizen involvement in the Clean County Commission annual neighborhood cleanup efforts	Number of participating neighborhoods, tons of trash collected	Clean County Commission	Annually	Project documentation	28 neighborhoods collected 17,110 lbs of trash including 172 tires. See detail in Appendix C-2
2.4	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

MCM 3 Illicit Discharge Detection and Elimination							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
3.1	Storm Sewer System Map	Maintain an accurate storm sewer system map and information table, including MS4 outfalls within the 2010 urbanized area	Updated information table	Stormwater Division	Annually	Updated information table	See Detail Below
3.1a	*Mapping of 2010 Urbanized Area Outfalls*	Update the storm sewer system map and information table to include MS4 outfalls within the 2010 urbanized area	2010 urbanized area storm sewer system map	Stormwater Division	PY4	Updated information table	No updates, mapping complete
3.1b	*Notification of Downstream MS4*	Notify the downstream MS4 of any newly identified points of discharge	2010 urbanized area storm sewer system map	Stormwater Division	PY4	Notification Letters, if any	No new points of discharge to downstream MS4s but a change to an existing amount previously notified. See Appendix C-3 for details.
3.2	Illicit Discharge Detection & Elimination Ordinance	Continue implementing and enforcing the Illicit discharge/Stormwater Management Ordinance.	Number of investigations and actions taken	Stormwater Division	Ongoing	Stormwater Management Ordinance, Chapter 18A of County Code	3 IDDE investigations in PY4. See detail in Appendix C-3
3.3	Illicit Discharge Detection & Elimination Procedures						See Detail Below
3.3a	*Standard Operating Procedures*	Maintain updated IDDE SOPs for dry weather screening and complaint followup	Protocol for responding and investigating IDDE	Stormwater Division	Ongoing	SOPs Developed During PY1	James City County has adopted the IDDE Field Guide created in cooperation with the HRPDC MS4 communities. See SOP details in Appendix C-3.
3.3b	*Promote and publicize procedures for public reporting of illicit discharges*	Implement the Illicit Discharge Complaint Follow up standard operating procedures	Number of citizen complaints	Stormwater Division	Ongoing	Clean Water Heritage website	See http://www.jamescitycountyva.gov/FormCenter/General-Services-18/Service-Request-235
3.4	Continue implementing an illicit discharge detection and elimination program for the municipally-owned MS4 within the Urbanized Area.						See Detail Below
3.4a		Track illicit discharge detection and elimination activities.	Number of investigations and actions taken	Stormwater Division	Ongoing	Tracking Reports	3 IDDE investigations in PY4. See detail in Appendix C-3

MCM 3 Illicit Discharge Detection and Elimination							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
3.4b		Perform dry weather screening of MS4 outfalls in the regulated area on an annual basis.	Number of outfalls screened annually	Stormwater Division	Ongoing	Inspection Reports	71 dry weather screenings performed in PY4. This constitutes all known outfalls in this permit year.
3.4c		Yard inspections; Develop/enhance reporting relationship with Fire Department/Haz Mat Team; targeted education	Number of responses; number of inspections	Stormwater Division	Ongoing	Inspection Reports	Pollution Prevention Team developed. See meeting summariesin MCM 6 of this document.
3.5	Report all spills that reach state waters to the DEQ and DCR						See Detail Below
3.5a	*Report non-sewer spills and releases from small MS4 regulated properties that reach state waters to the Virginia EOC, who in turn reports to the DEQ.*	Report spills to Virginia EOC and file internal reports. Virginia EOC reports to Department of Environmental Quality's Pollution Response Program (PREP).	Number of internal reports. If applicable, obtain PREP Incidence Response number.	Fire Department	Report in accordance to Section III. G.	Internal report	20 incidents of HazMat spill in James City County. See detail in Appendix C-3.
3.5b	*Report Sanitary Sewer Overflows through SSORS database.*	Continue to utilize SSORS to report Sanitary Sewer Overflows	Number of overflows	James City Service Authority (JCSA)	As necessary		17 overflows reported to DEQ in FY17. Of these, 13 overflows are associated with Hurricane Matthew, October 2016.
3.6	Continue Sanitary Sewer System improvements in coordination with HRSD Hybrid Consolidation Plan	Continue implementation of the DEQ-approved Management, Operation & Maintenance (MOM) Plan	Number of repairs/rehabilitation	JCSA	Ongoing	Internal report	A summary of JCSA's FY17 efforts is provided in Appendix C-3.
3.8	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

MCM 4 Construction Site Stormwater Runoff Control							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	PY4 Status
4.1	Legal Authorities						See Detail Below
4.1.a	*LD Activities > 10,000 SF*	Continue to implement the James City County Erosion and Sediment Control Ordinance, Chapter 8 of the County Code	Number of regulated land-disturbing activities, number of acres disturbed, number of inspections	Engineering and Resource Protection Division	Ongoing	Tracking reports	39 local land disturbing permits for 79.86 acres were issued in PY4
4.1.b	*CBPA LD Activities >2,500 SF*	Continue to implement the James City County Erosion and Sediment Control Ordinance, Chapter 8 of the County Code	Number of regulated land-disturbing activities, number of acres disturbed, number of inspections	Engineering and Resource Protection Division	Ongoing	Tracking reports	13 local land disturbing permits were issued for 4.81 acresin PY4
4.1.c	*E&SC LD Activities*	Continue to implement the James City County Erosion and Sediment Control Ordinance, Chapter 8 of the County Code	Number of regulated land-disturbing activities, number of acres disturbed, number of inspections	Engineering and Resource Protection Division	Ongoing	Tracking reports	39 local land disturbing permits for 79.86 acres were issued in PY4
4.1.d	*Individual Lot or CPOD LD Activities > 10,000 SF*	Continue to implement the James City County Erosion and Sediment Control Ordinance, Chapter 8 of the County Code	Number of regulated land-disturbing activities, number of acres disturbed, number of inspections	Engineering and Resource Protection Division	Ongoing	Tracking reports	Number of single-family "*Permit Agreement in Lieu of a Stormwater Management Plan for a Single Family Detached Residential Structure*" is 330 for PY4
4.2	Plan Review Process	Continue to implement the site plan review, LID implementation where deemed appropriate, construction site BMP, and inspection provisions of the County's Erosion and Sediment Control Ordinance.	Number of plan reviews, Number of plan approvals	Engineering and Resource Protection Division	Ongoing	Tracking reports	508 total first-time plan reviews (178 for development projects; 330 for single family)
4.3	Compliance and Enforcement						See Detail Below

MCM 4 Construction Site Stormwater Runoff Control							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	PY4 Status
4.3a	*Construction Site Inspection Program*	Implement construction site inspection program with sufficient frequency to ensure complaince with approved erosion and sediment control plan or agreement in lieu of plan in accordance with Chapter 8 of the County Code.	Number of inspection, inspection frequency	Engineering and Resource Protection Division	Ongoing	Tracking reports	3,261 total (1,465 for development projects; 1,796 for single family).
4.3b	*Citizen Complaint Process*	Continue to receive and respond to information from citizens relating to the County's erosion and sediment control program through personal visits, email, telephone, and the County's web page.	Number of calls/requests, number of site visits	Engineering and Resource Protection Division	Annually	Tracking reports	25 citizen contacts resulting in 25 contacts/visits investigated under E&SC, VSMP, and Chesapeake Bay Preservation Area (CBPA) ordinances.
4.3c	*Enforcement*	Continue to implement progressive compliance and enforement strategy where appropriate in accordance with Chapter 8 of the County Code.	Number and type of enforcement actions	Engineering and Resource Protection Division	Annually	Tracking reports	1367 compliance inspections were completed in PY4 and 58 total notices-to-comply were given.
4.3d	*Written Compliance and Enforcement Procedures*	Review and update written compliance and enforcement procedures to control erosion and sediment and prevent the discharge of nonstormwater to the MS4.	Protocol	Engineering and Resource Protection Division	Ongoing	Protocol	Compliance inspection summary reported in PY2
4.4	Regulatory Coordination	Implement inspection provisions of the local Stormwater Management Ordinance for VSMP authority permits including Pollution Prevention Plans contained within the SWPPP.	Number of permit applications, permits issued and inspections	Engineering and Resource Protection Division	Annually	Copies of permits and registration statements	3 Construction General Permits processed for the VSMP authority in PY4
4.5	Certifications	Ensure that plan reviewers, inspectors, and program administrators obtain the appropriate certifications as required under the Erosion and Sediment Control Law and the Stormwater Management Act.	Certifications obtained	Engineering and Resource Protection Division	Ongoing	Copies of certificates	5 staff received certifications or renewals in FY17. See detail in Appendix C-4.

MCM 4 Construction Site Stormwater Runoff Control							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	PY4 Status
4.6	Tracking and Reporting	Continue to track and report through appropriate tracking systems.	the total number of permitted land disturbing activities, disturbed acreage, inspections conducted and number and type of enforcement actions taken	Engineering and Resource Protection Division	Annually	Tracking reports and Enforcement Documentation	39 permits representing 79.86 total acres of disturbance; 3,261 total inspections; 58 total notices-to-comply
4.7	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Engineering and Resource Protection Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

MCM 5 Post-Construction Stormwater Management in New Development and Development of Prior Developed Lands							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
5.1	Oversight Requirements	Continue to implement the stormwater criteria of the Chesapeake Bay Preservation, and Erosion and Sediment Control Ordinances for new development and redevelopment, and update ordinances to comply with Section II.5.a of the General Permit.	Updated Ordinance, Chapter 8, County Code	Engineering and Resource Protection Division	Ongoing	Chapter 8, Article II of the County Code - The Virginia Stormwater Management Program	There are no updates to the ordinance in PY4.
5.2	VSMP Permits	Continue to require construction site owners and operators to secure authorization to discharge stormwater from construction activities under a VSMP permit for construction activities that result in a land disturbance of greater than or equal to 2500 square feet in all areas of the County as the entire County is designated as a Chesapeake Bay Preservation Area.	Number of permit registration statements and permits obtained.	Engineering and Resource Protection Division	Ongoing	File copies of permits and registration statements	9 registration statements were processed and input into the state's (SWCGPS) for state VPDES construction general permit (VAR10) coverage for the 39 local land disturbing/ stormwater construction permits issued. A summary was provided in Appendix C-4.
5.3	Inspection and O&M Verification for Privately-owned BMPs						See Detail Below
5.3a	*BMP Maintenance Agreements*	Continue to require BMP maintenance agreements as required by the Chesapeake Bay Preservation Ordinance.	Number of agreements	Engineering and Resource Protection Division	Ongoing	Maintenance Agreements	19 Declaration of Covenants/Inspection-Maintenance Agreements secured.
5.3b	*Inspection Activities*	Continue to implement inspections of private stormwater management facilities	Number of inspections	Stormwater Division	Ongoing	Inspection Database	44 SWMF inspections. Notices of non-compliance issued to owners of BMPs needing some kind of attention. Copy of non-compliance letter submitted in PY2. See detail in Appendix C-5.
5.3c	*Enforcement Program*	Develop and implement a progressive compliance and enforcement strategy	Enforcement Protocol	Stormwater Division	PY2	Written procedures	Written procedures were developed and approved by the Legal Division, and submitted in PY2.
5.3d	*Individual Residential Lot Program*	Implement the residential BMP protocol developed in PY1	Residential BMP Protocol	Stormwater Division/Engineering and Resource Protection Division	Ongoing	Inspection Database	330 single family plans reviewed (VESCP/VSMP) for PY4. Details provided in Appendix C-5.

MCM 5 Post-Construction Stormwater Management in New Development and Development of Prior Developed Lands							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
5.3e	*Publically Owned BMP Program*	Inspect all publically owned BMPs annually and implement appropriate maintenance as needed.	Number of inspections, annual maintenance activities	Stormwater Division	PY2 onward	County BMP O&M Manual, Inspection Database, Work Order database	68 Inspections of publicly owned BMPs. Annual maintenance activities are reported on a monthly basis.
5.4	BMP Tracking	Maintain a database of all known permanent stormwater management facilities that discharge to the regulated small MS4 including: (a) Type of structural stormwater management facility; (b) Geographic location; (c) Number of acres treated; (d) date facility was brought on line; (e) hydrologic unit code; (f) the impaired surface water that the stormwater management facility is discharging into; (g) ownership; whether or not a maintenance agreement exists; and (h) date of last inspection.	Stormwater Database	Stormwater Division	Ongoing	Stormwater Database	34 BMPs added in PY3. See spreadsheet with detailed information on BMPs added in Appendix C-5.
5.5	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
6.1	Operations & Maintenance Program						See Detail Below
6.1a	*Support the County-wide Pollution Prevention Team*	Continue to secure advice and recommendations on pollution prevention efforts from County deprtments and agencies through regularly scheduled public meetings of the Team and implement the Pollution Prevent Program contained in the James City County Administrative Regulation # 28, Pollution Prevention Program	Number of meetings and agendas	Stormwater Division	Twice per year	Meeting minutes and publications, AR# 28	Pollution Prevention Team update flyer in July 2016 and meeting on 2/6/17. See details in Appendix C-6.
6.1b	*Implement Current Standard Operating Procedures (SOPs) for General Services and Parks & Recreation Facilities*						See Detail Below
		Continue to implement SOPs for General Services facilities to include activities, schedules, and inspection procedures that include provisions and controls to reduce pollutant discharges into the regulated small MS4 and receiving surface waters.	SOPs	Stormwater Division/ General Services	Ongoing	SOPs	Current SOPs were submitted in PY1
		Continue to implement SOPs for Parks and Recreation facilities to include activities, schedules, and inspection procedures that include provisions and controls to reduce pollutant discharges into the regulated small MS4 and receiving surface waters.	SOPs	Stormwater Division/ Parks and Recreation	Ongoing	SOPs	Current SOPs were submitted in PY1
6.1c	*Spill Prevention & Control Plans*	Continue to implement and update plans describing spill prevention and control procedures for municipal facilities developed during past permit cycle.	Standard Operating Procedure (SOP) Implementation	Stormwater Division	Ongoing	SPCC Plans	SOPs added for Fire Station 1 and Fire Station 4. See all Fire Station SOPs in Appendix C-6.
6.1d	*Update and/or Develop Written Procedures*	Ensure that actions included in written procedures and SOPs (a) prevent illegal discharges; (b) ensure proper disposal of waste materials; (c) prevent discharge of vehicle wash water w/o a separate VPDES permit; (d) prevent the discharge of wastewater; (e)require BMPs when discharging pumped water from maintenance activities; (f) minimize pollutants from stockpiles; (g) prevent pollutants from municipal vehicles; and (h) ensure that chemicals are used or applied in accordance with product labels.	Updated Written Procedures	Pollution Prevention Team and Stormwater Division	Ongoing	Updated Written Procedures	All SWPPPs complete. Current SWPPPs submitted in PY2
6.2	Stormwater Pollution Prevention Plans (SWPPPs)	Update SWPPPs as needed for Fleet, the James City Service Authority Complex, the Law Enforcement Center , the Convenience Centers (2) and the Williamsburg-James City County Schools Operations Center.	6 SWPPPs	Pollution Prevention Team and Stormwater Division	ongoing	SWPPPs	All SWPPPs complete. Current SWPPPs submitted in PY2

MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
6.2a	*SWPPP Implementation*	Complete implementation of final SWPPPs, including installing needed site upgrades	Site Improvements	Pollution Prevention Team and Stormwater Division	PY4	Site Improvements	Final SWPPPs implemented. Current SWPPPs submitted in PY2
6.3	Turf and Landscape Management	Continue developing and implementing certified nutrient management plans (NMPs) on at least 7.75 acres or 20% of the identified acreage meeting the requirement threshold	Completed NMPs	Turf Love and General Services Grounds Maintenance Division	PY4	GIS Layer and information table	NMPs created for 56.42 acres of managed turf by end of PY4, of the 70.55 acres required. See details in Appendix C-6.
		Continue developing and implementing certified nutrient management plans (NMPs) on at least 9.70 or 25% of the identified acreage meeting the requirement threshold	Completed NMPs	Turf Love and General Services Grounds Maintenance Division	PY5	GIS Layer and information table	To be completed in PY5
6.4	Employee Education & Training	Implement employee training in accordance with AR#28 and the biennial Pollution Prevention Training Plan developed in PY1.	Number of training events and topics	Pollution Prevention Team and Stormwater Division	Ongoing	Number of training events and topics	Pollution prevention training for Police in PY4. See details in Appendix C-6.
6.4a	*Regional Training Program*	Distribute pollution prevention educational materials developed through the HRPDC/askHRgreen to James City County employees engaging in operations with a high risk of discharging pollutants into the MS4.	Number of items distributed	HRPDC and Phase II Localities	Ongoing	training materials	117 Staff trained with Municipal Storm Water Pollution program. See details in Appendix C-6.
6.4b	*Regulated Certifications*	Ensure that employees hold the appropriate required State or federal regulated certifications	Pesticide applicators, Hazmat certifications, ESC certifications, Stormwater certifications	Pollution Prevention Team and Stormwater Division	Ongoing	Types of Certifications and Certficate Number	All 17 pesticide applicators certified, 117 trained Hazmat operators in the county, ESC and Stormwater up to date.
6.5	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual Report	Compliance with this measurable goal is met through the submission of this annual report.

Appendix C-1

Exhibits for Minimum Control Measure #1 – Public Outreach and Education

James City County Compliance Summary Statement

MCM1 Public Education and Outreach

Permit Year 4 - FY17

James City County staff worked diligently in cooperation with volunteers, other localities, and the Hampton Roads Planning District Commission to educate and encourage citizens to make responsible choices and treat local waterways with care. Some of these activities included planning and supporting information and events drawing attention to the shared website askhrgreen.org, talking with community groups, doing demonstrations of the Enviroscape stormwater learning tool, and promoting spring cleanup events.

Critical audiences are targeted utilizing the askhrgreen.org media campaign. The marketing numbers from these campaigns show that for the different important topics- FOG, Pet Waste, Only Rain the Drain, and Responsible Lawn Care, between 23.4% and 38.4% of the targeted populations were reached.

- **Leaves & Pet Waste**. For that focal area, AskHRGreen.org ran a 2-week radio and online media campaign designed to reach the target audience of adults 35-64. The reach of that campaign was 35.1% with a frequency of 2.4. For leaves and pet waste, we were able to reach 35.1% of the target audience a total of 2.4 times.

- **Fertilizer/Soil Testing**. For that focal area, AskHRGreen.org ran a 2-week radio and online media campaign designed to reach the target audience of men, 35+. The reach of that campaign was 38.4% with a frequency of 3.0. For fertilizer/soil testing, we were able to reach 38.4% of the target audience a total of 3 times.

- **Holiday FOG/Reducing SSOs**. For that focal area, AskHRGreen.org ran a 1-week radio and online campaign designed to reach the target audience of adults 25-64. The reach of that campaign was 23.4% with a frequency of 3.1. For holiday FOG/SSO prevention messaging, we were able to reach 23.4% of the target audience a total of 3.1 times.

- **What Not to Flush/Reducing SSOs**. For that focal area, AskHRGreen.org ran a 1-week television and online media campaign designed to reach the target audience of women 25-54. The reach of that campaign was 36.3% with a frequency of 3.5. With the campaign, we were able to reach 36.3% of the target audience a total of 3.5 times.

- **Down the Drain/Reducing SSOs**. For that focal area, AskHRGreen.org ran a 1-week television and online media campaign designed to reach the target audience of adults 25-54. The reach of that campaign was 36.8% with a frequency of 3.4. For that focal area, we were able to reach 36.8% of the target audience a total of 3.4 times.

175 premium items were given to the public through pet care businesses, 4 Pet waste stations given to local neighborhoods or installed for public use, and more than 733 premium items with outreach messages were given away at a variety of local events.

In the next permit year, the County will continue to implement the Stormwater Education Plan through similar successful events, activities, and coordination with askhrgreen.org. Premium items, volunteer time, and continuing program analysis will remain in operation, and at least 20% of the high-priority audiences will continue to be reached.

MCM 1 Public Education and Outreach on Stormwater Impacts							
BMP	BMP Description	Measurable Goals	Metric	Responsible Party	Timeline	Associated Documents	PY4 Status
1.1	Participate in regional committees: askHRgreen.org, Regional Stormwater Management Committee (RSMC), and SW Phase II Subcommittee					askHRgreen.org Annual Report, MOA, HRPDC Regional Cooperation in Stormwater Management	See detail below
1.1a	*Regional Cooperation*	Maintain MOA with the HRPDC and participate in the regional processes, including the Regional Stormwater Management Program, the Stormwater Phase II Subcommittee, and askHRgreen.org	Maintain valid MOA	HRPDC and Stormwater Division	PY2 and ongoing	Hampton Roads Regional Stormwater Management Program Memorandum of Agreement (MOA) (previously submitted)	MOA executed on July 1, 2014 and expires June 30, 2018. Current copy submitted in PY1.
1.1b	*askHRgreen.org*	Participate in at least 50% of askHRgreen.org Stormwater Education Subcommittee meetings	Number of meetings attended/Number of meetings held	Stormwater Division	Annually	Attendance List	8 meetings attended / 9 meetings held. See Appendix C-1
1.1b1		Post volunteer opportunities on askHRgreen.org calendar	Number and types of events submitted	askHRgreen.org Stormwater Division	Annually	askHRgreen.org website	Spring Cleanups advertised on the askhegreen.org calendar.
1.1c	*Stormwater Phase II Subcommittee*	Participate in at least 50% of monthly Stormwater Committee Meetings.	Number of meetings attended/Number of meetings held	Stormwater Division	Annually	Attendance List	8 meetings attended/9 meetings held. See Appendix C-1
1.2	Implement the James City County Stormwater Public Information Plan						See detail below
1.2a	*Protect and Restore Our Clean Water Heritage (CWH) Program*	Distribute County-specific information to identified target audiences through the Clean Water Heritage website. Target audiences include managed turf properties, pet and septic system owners.	Number of direct mailings to septic system owners, number of materials distributed to target audiences and percentage of audience reached	Stormwater Division	Annually	Annual report	175 items given to local pet-related businesses. 4 Pet waste stations given to local neighborhoods or installed for public use. Targeted mailing were discontinued in PY3 due to negative feedback. See outreach document in Appendix C-1 for outreach details.

MCM 1 Public Education and Outreach on Stormwater Impacts							
BMP	BMP Description	Measurable Goals	Metric	Responsible Party	Timeline	Associated Documents	PY4 Status
1.2b	*Promote CWH Program to educate citizens on hazards and legal implications of illegal discharges and improper disposal of waste*	Pet waste station and premium item giveaways	Number and type of events	Stormwater Division	Annually	Outreach spreadsheet	CWH promoted at 14 events. See outreach document in Appendix C-1 for outreach details.
1.2c	*Turf Love Nutrient Management Planning for Homeowners and Community-owned lands*	Provide soil testing and nutrient management plans directly to property owners in order to reduce the unnecessary use of fertilizers	Number of nutrient management plans, number of property owner contacts	Turf Love Team and Master Gardeners (Virginia Cooperative Extension)	Annually	Turf Love Annual report	153 Nutrient Management Plans devleoped in PY4. 1268 property owner contacts made. See Appendix C-1 for details.
1.3	Implement the Regional Media Campaign to Address High Priority Issues	Participate in the askHRgreen.org regional media campaign which will make impressions with a stormwater message via print, television (local municipal access, cable and local affiliate), radio, and social media					Details of the Hamton Roads media campaign for FY17 is located in the askHRGreen Annual Report in Appendix C-1.
1.3a	*Scoop the Poop campaign*	Make *Scoop the Poop* information and giveaways available at events as appropriate	Percentage of target audience reached through activities.	askHRgreen.org Stormwater Education Subcommittee	Annually	askHRgreen.org Annual Report	At least 20% of target audience reached through County and HRPDC ASKHRGreen outreach. See outreach documents in Appendix C-1 for details.
1.3b	*Promote Lawn Care campaign*	Run media campaigns and make lawn care best management practice guides available.	Percentage of target audience reached through activities.	askHRgreen.org Stormwater Education Subcommittee	Annually	askHRgreen.org Annual Report	At least 20% of target audience reached through County and HRPDC ASKHRGreen outreach. See outreach documents in Appendix C-1 for details.
1.3c	*Promote FOG campaign*	Participate in the askHRgreen.org regional media campaign which will make impressions with a stormwater message via print, television (local municipal access, cable and local affiliate), radio, and social media	Percentage of target audience reached through activities.	askHRgreen.org Stormwater Education Subcommittee	Annually	askHRgreen.org Annual Report	The FOG campaign is run by the HRPDC. See http://askhrgreen.org/wp-content/uploads/2011/06/askHRgreenFY17AnnualReport_final.pdf for the HRPDC ASkHRGreen annual report.

MCM 1 Public Education and Outreach on Stormwater Impacts							
BMP	BMP Description	Measurable Goals	Metric	Responsible Party	Timeline	Associated Documents	PY4 Status
1.3d	*Relevant Message Implementation*	Conduct sufficient education and outreach activities designed to reach an equivalent 20% of each high priority audience.	Demographic, reach, frequency, & website click-through rates	askHRgreen.org Stormwater Education Subcommittee	Annually	askHRgreen.org Annual Report	The outreach campaign run by HRDC reached at least 35.1% of the target audience in PY4. See http://askhrgreen.org/wp-content/uploads/2011/06/askHRgreenFY17AnnualReport_final.pdf for the HRPDC ASkHRGreen annual report.
1.3e	*Educate homeowners on the hazards of illegal discharges and improper disposal of waste*	Promote askHRGreen.org for list of locality contacts for citizens to report illegal discharges and to learn about proper disposal methods	Number of page visits	askHRgreen.org Stormwater Education Subcommittee	annually	askHRgreen.org/stormwater-runoff/	The outreach campaign run by HRDC reached at least 35.1% of the target audience in PY4. See http://askhrgreen.org/wp-content/uploads/2011/06/askHRgreenFY17AnnualReport_final.pdf for the HRPDC ASkHRGreen annual report.
1.4	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

For MS4 Program Plan Items 1.1b

AskHRGreen.org Stormwater Subcommittee Meetings

James City County FY17

	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup	Regional SW Workgroup		
Meeting Dates	**20-Jul**	**17-Aug**	**21-Sep**	**19-Oct**	**16-Nov**	**14-Dec**	**18-Jan**	**15-Feb**	**15-Mar**	**19-Apr**	**17-May**	**21-Jun**	# Meetings	% Attended
Phase II Localities:	1	Meeting Cancelled	Meeting Cancelled	1	1	Meeting Cancelled	1	1	1	1	1	1	9	100%
James City County	1			1	1		1	1	-	1	1	1	8	89%
Poquoson	1			1	1		1	1	1	1	-	1	8	89%
Suffolk	1			1	1		1	1	1	1	1	1	9	100%
Williamsburg	1			1	1		1	1	1	1	1	1	9	100%
York Co.	1			-	1		1	1	1	1	-	1	7	78%

Submitted to VADEQ September 30, 2017

For MS4 Program Plan item item 1.1c

HRPDC Regional Stormwater Workgroup
Phase II Meeting Attendance FY 17

James City County FY17

Meeting Dates	7/20/2016	8/17/2016	9/21/2016	10/19/2016	11/16/2016	12/14/2016	1/18/2017	2/15/2017	3/15/2017	4/19/2017	5/17/2017	6/21/2017	# Meetings	% Attended
Phase II Localities:	1	Meeting Cancelled	Meeting Cancelled	1	1	Meeting Cancelled	1	1	1	1	1	1	9	100%
James City County	1			1	1		1	1	-	1	1	1	8	89%
Poquoson	1			1	1		1	1	1	1	-	1	8	89%
Suffolk	1			1	1		1	1	1	1	1	1	9	100%
Williamsburg	1			1	1		1	1	1	1	1	1	9	100%
York Co.	1			-	1		1	1	1	1	-	1	7	78%

Submitted to VADEQ September 30, 2017

FY17 Outreach Activities

July 1, 2016- June 30, 2017 - PY4

DATE	Event	Staff	Display	Presentation	Audience	Number Attending	Materials Distributed	Amounts	Message Focus
8/16/16	WJCC Rec Center	Fran Geissler, Pat Menichino, John Fuqua	Yes	Yes	HOA representatives and residents	33	paper copy of power point, message pens, swedish fish	33	Neighborhood drainage and BMP maintenance and repair, Avaialble grants and application process.
9/10/16	WJCC Rec Center	Pat Menichino, John Fuqua	Yes	Yes	HOA representatives and residents	15	paper copy of power point, message pens, swedish fish	15	Neighborhood drainage and BMP maintenance and repair, Avaialble grants and application process.
10/22/16	JCC Litter Expo	Dawn Oleksy	Yes	No	Residents	100	message bags and rack cards	150 ea	general stormwater and water quality
1/11/17	Neighborhood Leadership Forum	Fran, Grace	Yes	No	HOA representatives	50	scoop the poop materials, grabbgers	50 ea	general stormwater and water quality
2/16/17	Colonial Heritage	Pat Menechino Suzanne Dyba	No	Yes	BMP owners and property managers	50	Information	NA	BMP function and maintenance
3/2/17	Grove Neighborhood Meeting	Fran, Darryl, T. Rosario, B. Hill, Sup.McGlennon	Yes	yes	Residents	18	message pens, fact sheets	20 ea	neighborhood flooding & WQ issues
3/3/17	Matthew Whaley Elementary School	Suzanne Dyba	Yes	yes	Elementary Students	16	None- Did Enviroscape presentation	NA	general stormwater and water quality

FY17 Outreach Activities

July 1, 2016- June 30, 2017 - PY4

3/8/17	Greater WBG Youth Leadership Program	Fran	No	yes	high school students	15	rack cards	15 ea	general stormwater and water quality
3/8/17	James River ES	Dawn Oleksy	No	No	Elementary Students	26	grabbers, bags, message pens, swedish fish	26	general stormwater and water quality
3/15/17	James River ES	Dawn Oleksy	Yes	yes	Elementary Students	30	None- Did Enviroscape presentation	NA	general stormwater and water quality
3/18/17	Brooks Real Estate	John Fuqua	No	Yes	HOA representatives	12	message pens,paper handouts, litter bags,rack cards,	12 ea	Neighborhood drainage and BMP maintenance and repair.
4/27/17	Toano Neighborhood Meeting	Darryl, Fran, Bryan Hill, Supervisor Sue Sadler	No	Yes	Residents	21	Fact sheets	20	neighborhood flooding & WQ issues
6/7/17	Stonehouse Elementary School	Joe Buchite	No	Yes	Elementary Students	120	None- Did Enviroscape presentation	NA	Erosion and Sediment Control: Focus on raindrop impact
5/15-6/30/17	JCC Engineering and Resource Protection reception area	Suzanne, Janice	No	No	Citizens	58	Stress balls, Goldfish crackers w/message, Message pens	58	Only rain in the drain

James City County
Pet Waste Station and
Premium Item Giveaways FY17

						Date Delivered	Ask HrGreen Grocery Bag	# Pet Waste Bags	# Hand Sanitizer
Veterinarians	James City Veterinary Clinic	95 Brookwood Drive	Williamsburg	VA	23185	6/26/2017	1	27	7
Veterinarians	Jolly Pond Veterinary Hospital	3800 Longhill Rd	Williamsburg	VA	23188	6/15/2017	1	27	7
Pet Sitting/Boarding	The Inn at Jolly Pond	3800 Longhill Rd	Williamsburg	VA	23188	6/15/2017	1	27	7
Groomers	Clip-It-Up	4514 John Tyler Hwy	Williamsburg	VA	23185	6/16/2017	2	54	14
						Totals:	***5***	***135***	***35***

TOTAL:	175

Pet Waste Station Giveaways		
Powhatan Creek	Seasons Trace	1
James River	First Colony	1
College Creek	James City County Government Center	2

TOTAl:	4

Virginia Cooperative Extension
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http://offices.ext.vt.edu/james-city/

End of 4th Quarter, FY 17 + FINAL End Of YEAR FY17 TURF LOVE/GARDEN LOVE PROGRAMS
STATISTICAL REPORT TO JAMES CITY COUNTY

		4th Q	FYTD
No. of Nutrient Management Plans Issued:		46	**153**
Residential	46		
Commercial*	0		
(James City County/School Properties)	3		**3**
Acres Covered by Nutrient Management Plans:			
Residential		13.05	**39.71**
Commercial	0.00		
(James City County/School Properties = 0)		11.25	**11.25**
Risk Assessments (Acres):			
High (residential and commercial)		.93	**5.75**
Low (residential and commercial)		12.12	**30.96**
(James City County/School Properties = 0)			
No. of Property Owners Contacted (Turf Love Program)		342	**1268**
(excludes Garden Love Program contacts; see below)			
Residential 250 new homeowner postcards + 92 general contacts			
Commercial			
General Contacts (may not be property owners):			
(presentations, educational programs, Farmers' Market)		100	
• Presence @ Williamsburg Farmers Market			
• B speak @ Colonial Heritage			
• B and Iris Speak (rain Garden)@ Williamsburg Botanical Garden			
• Presence@ JCCWMGA Annual Plant Sale			
Rain Gardens:			
Signed Contracts		**3**	
Bob working with clients to proceed			
Area Treated (square feet)			
Amount Rebated			

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Addendum:

FY 17 Marketing Accomplishments:

Month /Task	Result
July: • Office mailing to past TL clients	10 years' of TL client files have been organized and purged and re-cataloged. Years' 6-10 have been shredded: Years' 1-5 clients (380) received a letter reminding them it is time to re-test soil. The results of helped provide the necessary client "follow-up" data that is now required for the annual DCR report.
August: • Begin hire process for PT TL assistant • Send new homeowner postcards • Begin create an online option for TL applications	Ads were created-sent VT for approval process (280) new homeowner postcards were mailed Prototype created—
September/ October: • 2-5 neighborhood visits	Working with 3 HOA's to provide NMP's to homeowners • Whitehall • Candlewood Station • New Town
November/ December /January Refine Application process Explore spreader calibration options	In process of rebuilding EMG website to include an updated more streamlined version of application open
January	• Brought on new PA to help w/ Marketing • Created and mailed 600+ Postcards to new homeowners • Contacted via postcard renewal postcard to repeat TL client
February • Provide Training for Lawn Rangers • Refine application process	• Presentation -new MG Training Class • Re-Designed MG website offering w better access to TL application • Refreshed TL posters and flyers

March Present to 2-5 neighborhood workshop	• K. Presented to Latara's group of HOA • B. presented to Brooks Real Estate HOA's
April Continue Presentations	• B. present @ Colonial Heritage • K. @ JCCWMGA Plant Sale • K. @ Williamsburg Farmers Market
May	•
June	• K @ Williamsburg Framers Market • B. @ Williamsburg Botanical Garden (Speak on Rain Garden) • Provided Lawn Ranger Training w/ Bob and walk around in Fords Colony

James City County Shares for Media Campaigns

Stormwater Media Campaigns							
Campaign Name	**Total Campaign Impressions**	**James City Campaign Share**	**Target Audience**	**Target Audience Impressions**	**Target Audience Reach**	**Target Audience Frequency**	**James City Campaign Share**
Leaves Down the Drain/Pet Waste	719,578	30,582	Adults 35-64	526,100	35.1%	2.4	22,359
Lawn care	968,009	41,140	Men 35+	440,100	38.4%	3	18,704
Search Engine Marketing	22,432	953	-	-	-	-	-
	1,710,019	**72,676**	-	**966,200**	-	-	**41,064**

Fats, Oils & Grease Media Campaigns							
Campaign Name	**Total Campaign Impressions**	**James City Campaign Share**	**Target Audience**	**Target Audience Impressions**	**Target Audience Reach**	**Target Audience Frequency**	**James City Campaign Share**
Holiday Cooking/FOG	766,636	32,582	Adults 25-64	637,780	23.4%	3.1	27,106
What Not to Flush	2,245,767	95,445	Adults 25-54	904,000	36.3%	3.5	38,420
Down the Drain	2,286,222	97,164	Adults 25-54	904,000	36.8%	3.4	38,420
	5,298,625	**225,192**	-	**2,445,780**	-	-	**103,946**

All Other Campaigns		
Campaign Name	**Total Impressions**	**James City Campaign Share**
Public Relations	1,128,961	47,981
All other askHRgreen Impressions	8,809,311	374,396
Total FY17 askHRgreen Impressions	**16,946,916**	**720,244**

askHRgreen.org Annual Report for Fiscal Year 2017

HAMPTON ROADS PDC PLANNING DISTRICT COMMISSION

PEP17-03

HAMPTON ROADS PLANNING DISTRICT COMMISSION
ROBERT A. CRUM JR
EXECUTIVE DIRECTOR

CHESAPEAKE
JAMES E. BAKER
LONNIE CRAIG
DEBBIE RITTER
ELLA P. WARD
ROBERT GEIS

FRANKLIN
BARRY CHEATHAM
R. RANDY MARTIN

GLOUCESTER COUNTY
PHILLIP BAZZANI
BRENT FEDORS

HAMPTON
MARY BUNTING
JAMES GRAY
DONNIE TUCK

ISLE OF WIGHT COUNTY
REX ALPHIN
RANDY KEATON

JAMES CITY COUNTY
BRYAN J. HILL
MICHAEL J. HIPPLE

NEWPORT NEWS
MCKINLEY L. PRICE
SHARON P. SCOTT
CYNTHIA ROHLF

NORFOLK
KENNETH C. ALEXANDER
MAMIE B. JOHNSON
ANDRIA P. MCCLELLAN
THOMAS R. SMIGIEL
DOUGLAS SMITH

POQUOSON
DAVID A. HUX
J. RANDALL WHEELER

PORTSMOUTH
LYDIA PETTIS PATTON
JOHN ROWE

SMITHFIELD
PETER STEPHENSON
T. CARTER WILLIAMS

SOUTHAMPTON COUNTY
MICHAEL W. JOHNSON
BARRY PORTER

SUFFOLK
LINDA T. JOHNSON
PATRICK ROBERTS

SURRY COUNTY
TYRONE W. FRANKLIN
JOHN M. SEWARD

VIRGINIA BEACH
WILLIAM SESSOMS
ROBERT M. DYER
DAVID L. HANSEN
BARBARA M. HENLEY
LOUIS R. JONES
JOHN MOSS
JOHN E. UHRIN

WILLIAMSBURG
MARVIN C. COLLINS
PAUL FREILING

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NEIL MORGAN
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askHRgreen.org Annual Report for Fiscal Year 2016-2017

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Local Funds

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ABSTRACT
This report provides a summary of the sixth year of the askHRgreen.org public outreach and education initiative. The report contains five major sections. The first section provides background about askHRgreen.org and an overview of overall campaign results for fiscal year 2016-2017. The second through fifth sections provide an overview of the individual initiatives and results from each of the four askHRgreen.org subcommittees: Recycling & Beautification, Stormwater Education, Water Awareness, and Fats, Oils & Grease Education.

ACKNOWLEDGEMENTS
This report was prepared by the Hampton Roads Planning District Commission (HRPDC) staff in cooperation with the member localities. Preparation of this report was included in the HRPDC Unified Planning Work Program for Fiscal Year 2016-2017, approved by the Commission on May 18, 2017.

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Fiscal Year 2016-2017 At a Glance

About askHRgreen.org...

askHRgreen.org was developed to help Hampton Roads residents find their inner green with just the click of a mouse. For years, the HRPDC facilitated a variety of environmental education efforts to assist localities in notifying residents and meeting regulatory requirements. Developing consistent regional messaging affords localities an economy of scale that they could not otherwise achieve. Coupled with various emerging issues beginning to overlap, like sanitary sewer overflows and stormwater pollution, we knew it was time to develop an umbrella brand to tie all of the messages together. askHRgreen.org began with offering just the green basics, but people craved more information. Once you show someone an easy, green alternative, they get hooked and want to add something else. Now we make the connections for people by illustrating not just what they can do, but why they should care and how their actions impact the larger environment. askHRgreen.org is powered by the 17 localities of Hampton Roads, HRSD, and the Hampton Roads Planning District Commission.

You can "like" askHRgreen.org on Facebook at Facebook.com/askHRgreen, tweet and retweet at Twitter.com/HRgreen, "tune in" at YouTube.com/HRgreenVA, follow on Instagram at Instagram.com/askHRgreen and read and comment on the blog, askHRgreen.org/blog.

2016-2017 Campaign Schedule and Results

Nine environmentally-themed media campaigns and a Search Engine Marketing campaign ran for a combined total of 52 weeks of exposure in FY17. There were also regularly scheduled newsletters, blog posts, social media postings and ongoing public relations strategy and support, including a partnership with Coastal Virginia Magazine and the "Write as Rain" outdoor campaign.

2017 BY THE NUMBERS

58,113 visitors to askHRgreen.org

16.9 million opportunities
to see or hear askHRgreen.org in the media

5,106 students impacted
by environmental education grants

1,987
Facebook

1,742
Twitter

7,268
eNewsletter Subscribers

2,409 households enrolled
in the regional Bay Star Homes program

27 neighborhoods impacted
by the installation of pet waste stations

Fiscal Year 2016-2017 Results

Campaign	Media	jul	aug	sep	oct	nov	dec	jan	feb	mar	apr	may	jun
Leaves/Pet Waste	R-O-S												
Holiday FOG Down the Drain	R-O-S												
What Not to Flush	T-O-S												
FOG Down the Drain	T-O-S												
Fix a Leak Week	T-O-S												
Recycle More, Trash Less	O-S												
Lawncare/Work Smarter	R-O-S												
Write as Rain	P-O-T-S												
Value of Water	T-O-S												
Infrastructure	T-O-S												
Coastal Virginia Magazine	P-O												
askHRgreen.org E-Newsletters													
Public Relations													
Search Engine Marketing													
askHRgreen.org Blog Articles													

Media Key: T = Television R = Radio P = Print O = Online S = Social Media

Total Advertising Weeks	
Impressions	
Television	11.3 million
Radio	1.96 million
Online (media website display, native content, targeted display, video pre-roll)	1.05 million
Search Engine Marketing (SEM)	107,920
Facebook	865,210
Public Relations	1.13 million
Added Value	406,393
Budget	
Media	$126,137
Public Relations	$17,711
Mobile Responsive Website Redesign & Development Project	$37,556
Creative & Web Hosting/Maintenance	$24,299
Consulting & Management	$5,064
Value	
Media Added Value	$41,858
Public Relations Value	$171,711
Totals	
Impressions	16.95 million
Total Campaign Budget	$210,767
Campaign/Exposure Value	$426,107
Cost per Thousand Impressions	$13.09
Return on Investment	1.92 : 1

Website Analytics

askHRgreen.org Website Visitation Statistics

	2011-12	2012-13	2013-14	2014-15	2015-16	**2016-17**
Visits	27,424	32,697	55,505	58,279	52,530	**58,113**
Unique Visitors	19,920	25,092	43,547	46,994	42,539	**48,468**
Pageviews	67,047	72,270	116,818	103,228	93,177	**92,681**
Pages per Visit	2.42	2.21	2.10	1.77	1.77	**1.66**
Average Visit Duration	2:19	2:10	1:48	1:26	1:32	**1:17**
Bounce Rate	61.24%	61.27%	64.37%	74.80%	74.92%	**78.23%**
% New Visits	70.78%	75.50%	77.74%	79.87%	80.44%	**80.27%**

Top 10 Website Traffic Sources

	#	%
Google (organic)	21,527	37.0%
WTKR (display)	10,758	18.5%
Direct	8,710	15.0%
Google cpc (SEM)	3,887	6.7%
m.facebook.com (referral)	2,956	5.1%
Bing (organic)	1,495	2.6%
facebook.com (referral)	932	1.6%
hrfog.com/referral	831	1.4%
WTKR (targeting)	755	1.3%
Yahoo (organic)	754	1.3%

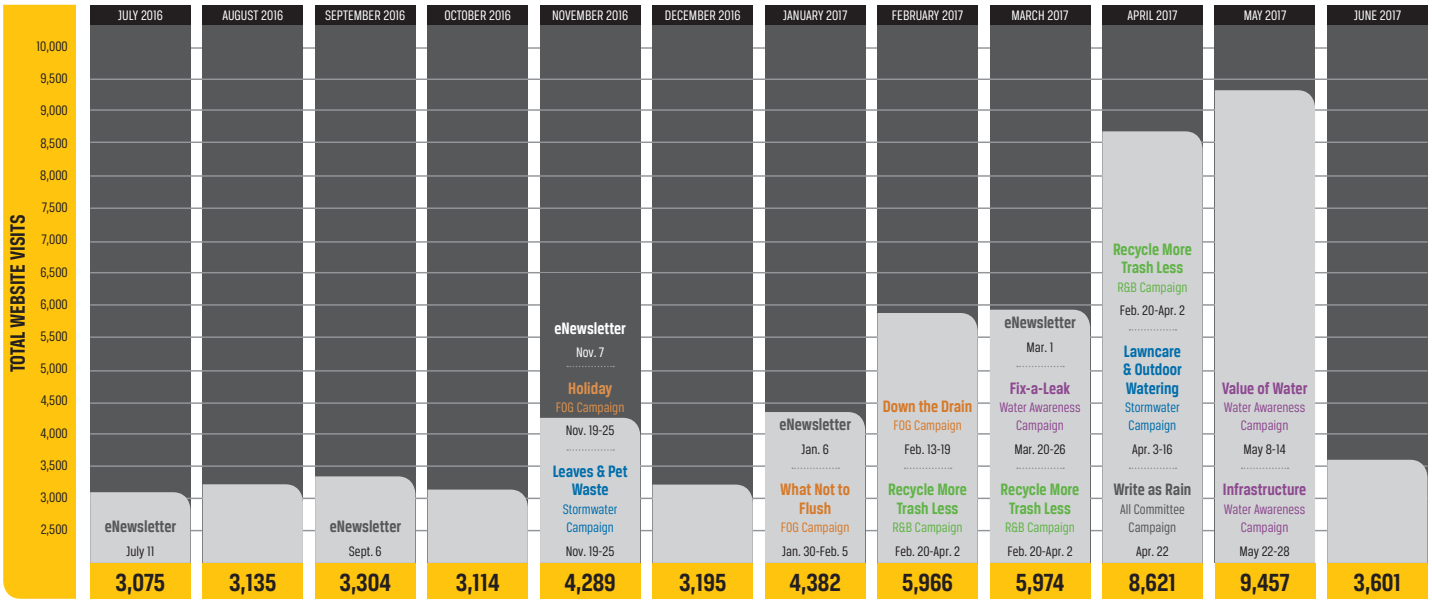
askHRgreen.org Website Visitors by Locality*

	Number	% of Total Visitation
Virginia Beach	13,033	19.5%
Norfolk	4,348	9.2%
Chesapeake	3,904	7.7%
Newport News	3,398	6.1%
Hampton	2,200	4.1%
Suffolk	1,537	2.9%
James City County/ Williamsburg	1,274	2.1%
Portsmouth	1,094	2.0%
Poquoson	439	0.6%
Smithfield	301	0.5%
Gloucester	155	0.3%
Yorktown	36	0.2%
Other	26,394	44.7%

*Locality determined by the geolocation of a user's IP address and may not reflect the actual boundaries of a locality. IP-based locations are approximate.

MONTHLY PROMOTIONS & WEBSITE VISITATION

AS OF JUNE 30, 2017



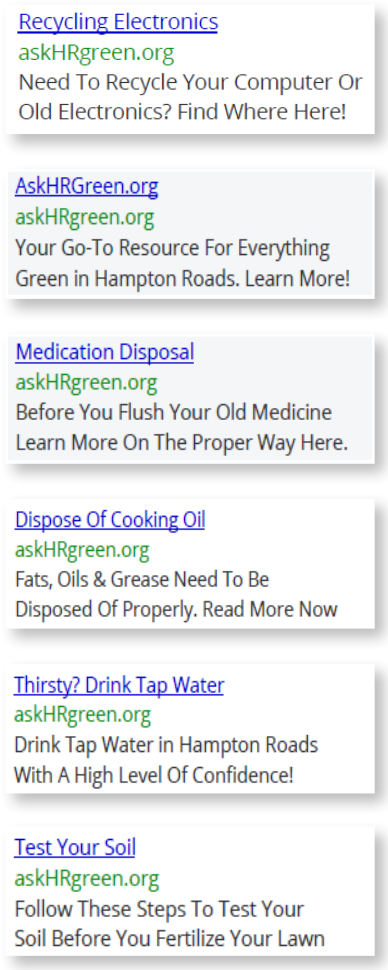
SEARCH ENGINE MARKETING July 1, 2016 - June 30, 2017

Online Search

In FY17, askHRgreen.org continued Search Engine Optimization (SEO) tactics and Search Engine Marketing (SEM) campaigns to increase traffic to and improve the website.

SEO improves the askHRgreen.org website's organic (unpaid) search rankings. Optimization tactics included editing/adding keyword-rich content to the site, identifying and eliminating any barriers to search engine indexers, and promoting the site to increase the number of inbound links from other sources.

The askHRgreen.org SEM program utilizes Google AdWords and Bing Ads pay-per-click advertising to increase traffic to the askHRgreen.org website. By bidding on select keywords and phrases, search ads direct search traffic to relevant content on the askHRgreen.org site. In total, the active SEM campaigns garnered 107,920 impressions and 4,226 clicks to the askHRgreen.org website in FY17. To view the full SEM report for FY17, please see Appendix A.



Organic Search Results

	2012-13	2013-14	2014-15	2015-16	**2016-17**
Clicks	8,513	14,842	20,637	21,274	**23,858**

SEM Campaigns

Google & Bing Ad Campaigns	Impressions	Clicks	CTR	Avg. CPC	Avg. Ad Position
Recycling & Beautification	38,336	1,621	4.23%	$3.13	1.38
Stormwater	22,432	1,168	5.21%	$2.70	1.34
askHRgreen.org	12,839	784	6.11%	$1.77	1.11
Water Awareness	33,299	625	1.88%	$4.06	2.09
FOG	1,014	28	2.76%	$2.58	2.04
Total	**107,920**	**4,226**	**3.92%**	**$2.89**	**1.56**

Coastal Virginia Magazine Partnership

For a second year, askHRgreen.org partnered with Coastal Virginia (CoVA) Magazine to develop articles and infographics specific to the campaign's messaging – and of interest to the magazine's readers. askHRgreen.org team leaders and committee members worked closely with the CoVA staff to select article topics, provide sources for the writers, and review the finished copy. The special askHRgreen.org editorial features appeared in each edition of Coastal Virginia Magazine from April 2016 to February 2017 and covered a variety of topics including green gardening practices, drinking water awareness, smart water use, Bay Star Homes, the askHRgreen.org mini grant program, recycling beyond the bin, green art, sustainable food and engaging infographics and puzzlers. Once all the content had been featured in the main magazine, it was compiled into Green Magazine and printed as a unique public outreach tool.

Social Media

Social media continues to be a key strategy for reaching the public. Facebook, Twitter, Instagram and YouTube were all used to promote askHRgreen.org messages in FY17. Social media was also used to promote various locality events, respond to citizen inquiries, share blog articles, and promote important programs and initiatives like the Bay Star Homes workshops, America Recycles Day, the Great American Cleanup, Imagine a Day Without Water and the Write as Rain campaign. Instagram was a new addition for askHRgreen.org in FY17. The Write as Rain campaign proved to be the perfect project to use for the launch of an Instagram account since the sidewalk messages provided visually interesting pictures to share with followers. Through the "Let's Talk Green" blog, which is written by askHRgreen.org team members and guest bloggers, 57 green living articles were published throughout the year covering topics ranging from cloth diapers to the environmental impact of bottled water.

e-Newsletter

The askHRgreen.org e-newsletter is shared via email to media contacts and an ever-growing list of citizens whose email addresses have been collected at events and through online promotions. In FY17, a total of five e-newsletters covering seasonal "green" tips, events, and askHRgreen.org campaign updates were sent out. By the end of FY17, the askHRgreen.org subscriber list reached more than 7,200 subscribers and continues to grow.

askHRgreen.org E-Newsletter Statistics	
Subscribers	7,268
Total Emails Sent	35,808
Total Opens	5,200
Open Rate	17.1%
Total Clicks	556
CTR (Click Through Rate)	1.6%

Online Toolkit

The askHRgreen.org Online Media Toolkit continues to be especially useful to committee members, civic leagues, community groups, homeowners associations, schools, clubs, businesses—and any organization or individual with an interest in improving neighborhoods and communities. Ideal for both online and print reproduction, the toolkit items are professionally designed and carry the signature askHRgreen.org graphic look. The materials are organized so it is easy for users to browse and select the topic they seek in the medium of their choice. In addition to logos, ads, rack cards, brochures, tip cards, and posters, there are feature articles, publications, infographics, radio ads, videos, and stickers available.

Events

Each year, askHRgreen.org participates in numerous regional events as part of the campaign's education and outreach efforts. These events take place throughout the year and range from small workplace eco fairs to large countywide festivals and almost everything in between. Committee members volunteer to staff either the askHRgreen.org mobile education trailer or a table display at these events and hand out educational materials and promotional items to those in attendance. In FY17, team members represented askHRgreen.org at 29 community events with an estimated attendance of over 90,000 people.

2016-2017 Regional Events			Estimated Attendance
9/10	Newport News Go Green Expo	Newport News	Unavailable
9/15-9/18	Isle of Wight County Fair	IOW	38,000
9/24	VBMG Fall Gardening Festival	Virginia Beach	1,200
10/7-10/9	Peanut Festival	Suffolk	20,000
10/19	Energy & Water Expo	NASA Langley Research Center	500
10/20	CNU Farmer's Market	Newport News	Unavailable
10/22	HRSLE	Virginia Beach	800
10/22	3rd Annual Litter & Recycling Expo	James City County	400
2/11-2/12	Hampton Roads Home Show	Hampton	5,000
3/11	Community Association Day	Virginia Beach	Unavailable
3/11-12	Virginia Aquarium Trash Bash	Virginia Beach	5,466
3/25-3/26	Williamsburg Home Show	Williamsburg	4,000
4/2	Wings & Things Spring Fling @ Hoffler Creek Wildlife Preserve	Portsmouth	350
4/4	ODU Public Health Fair	Norfolk	200
4/18	Anthem Eco Fair	Norfolk	Unavailable
4/19	Anthem Eco Fair	Virginia Beach	Unavailable
4/20	TCC Cares	Chesapeake	40
4/22	Virginia Living Museum Earth Day Event	Newport News	940
4/22	9th Annual Community Empowerment Fair	Newport News	470
4/28	JBB Elementary School Spring Event	James City County	100
5/6	Norfolk Utilities Employee Appreciation Event	Norfolk	115
5/10	VBPU Public Service Week & DWW Celebration	Virginia Beach	335
5/18	VB Public Works Employee Event	Virginia Beach	685
5/25	Sensible Seafood Festival	Virginia Beach	500
6/6	CMA-CGM Fair	Norfolk	600
6/8	NASA Langley Safety & Health Expo	Hampton	400
6/17	MOCA Family Fest Day	Virginia Beach	Unavailable
6/24	Olden Days	Smithfield	10,000
6/24	Noland Trail Celebration	Newport News	500

Grant Programs

Environmental Education Mini Grants

The askHRgreen.org Environmental Education Mini Grant Program provides grants of up to $500.00 for environmentally-themed projects. All Hampton Roads school teachers (K-12), youth leaders or organizations working with youth are eligible to apply. Eligible projects must relate to one or more of the askHRgreen.org program focal areas. In FY17, a total of $6,335.00 was awarded through 13 mini grants reaching more than 5,000 students in 10 localities across Hampton Roads.

Pet Waste Station Grants

Since 2013, the askHRgreen.org Pet Waste Station Grant Program has given citizens the opportunity to receive a free pet waste station to install and maintain in their neighborhoods. The program is geared toward neighborhood associations, community groups, and property managers who are managing communities with a pet waste problem. The pet waste stations come ready to install and include a post, sign, bag dispenser, waste can, hardware, 400 dog waste bags, and 50 can liners. The property manager or community group is responsible for installing the station, emptying the trash regularly, and replacing the bags as needed. The neighborhood is also tasked with promoting to residents the purpose of the stations and the impact pet waste has on local water quality. Since the launch of the program, 258 pet waste stations have been installed across the region. Of those, 27 were awarded and installed during FY17.

Fiscal Year 2016-2017 Results

2016-2017 Environmental Education Mini Grants				
Project	**# Students**	**School/Organization**	**City/County**	**Grant $**
Art in the Park	25	Western Branch Middle School	Chesapeake	$ 500.00
Students refurbished four park benches and completed murals on each of them as a beautification project.				
Cradock Community Care Project	120	Cradock Middle School	Portsmouth	$ 500.00
Cradock students identified areas with litter and participated in a community clean-up project.				
KinderGarden	100	Strawbridge Elementary School	Virginia Beach	$ 500.00
This project established a community garden on school grounds with a sensory path and various learning stations. Students sponge painted pavers with letters and numbers; planted and cared for native plants; and observed plant growth.				
Lafayette High School Beautification Project	1000	Lafayette High School	James City County	$ 500.00
Students, teachers, and parents participated in a beautification project around Lafayette High School to plant native plants, drought-tolerant plants, and repurposed plants, as well as add a recycling can and trash can in the student drop-off area.				
Learning/Vertical Palette Garden*	550*	Newtown Elementary School	Virginia Beach	$ 500.00*
Students used recycled palettes to create gardens with plants of their choice and provided water and maintenance.				
Lower School Children's Learning Garden	128	Walsingham Academy	Williamsburg	$ 500.00
This project engaged older and younger students to create a pollinator garden bed. After, the garden was used to teach students about plant growth and for other class activities such as reading time and journaling.				
Native Habitat – Pollinators, Pathways, and Prevention	650	Spratley Gifted Center	Hampton	$ 500.00
Students planted a successful vegetable garden and provided the school with a salad lunch and pesto. The project also featured native plants, sunflowers, and a pond. The garden is used to teach students about wildlife, as well as during reading time and instruction outside the classroom.				
Reading to Save the Earth	494	Oakland Elementary School	Suffolk	$ 500.00
Grant funds were used to purchase 31 library books related to Earth Day, recycling, and water conservation. The books are available for checkout to students, parents, and teachers.				
Recycling Plastic in the Classroom	500	Ghent School	Norfolk	$ 475.00
This project established a plastic recycling incentives program at Ghent School, which awarded prizes to individual students, classes, and grade levels for those who recycled the most each month. After six months, a total of 748 pounds of plastic were collected.				
Red Mill Community Garden	110	Red Mill Elementary School	Virginia Beach	$ 500.00
Students identified the Community Learning Garden as overgrown and underutilized & took steps to plant and clean in the garden. They also decorated with old bowling balls painted to look like insects. Since, they have used the garden for weekly outdoor lessons, plant growth observations, and searching/hunting around the garden.				
School Learning Garden	425	Booker T. Washington Middle School	Newport News	$ 500.00
This project will establish a learning garden/outdoor classroom for students. The teacher has requested an extension until after school begins in Fall 2017 to complete the project.				
To Our Schoolyard Watershed and Beyond!	400	Gloucester County Public Schools	Gloucester	$ 500.00
4th grade students from each of the five Gloucester County elementary schools visited Beaverdam Park for an outdoor field experience to learn about the Chesapeake Bay Watershed.				
Willoughby's Flower Garden	204	Willoughby Elementary School	Norfolk	$ 500.00
Students planted more than 200 flowers in on school grounds and maintained plants afterwards.				
Wolfgang Goes Green	400	Saint Patrick Catholic School	Norfolk	$ 360.00
This project will fund twelve 30-gallon recycling bins to be placed throughout the school to increase recycling awareness and to educate students about recycling. It is part of a larger initiative to become Project Learning Tree Green School-certified. Project will be completed in Fall 2017.				
	5,106			**$ 6,335.00**
Recycling & Beautification Subcommittee awarded $5,085 • Water Awareness Subcommittee awarded $1,250				

*Awarded in FY16, completed in FY17

Public Relations

FY17 was another busy year for askHRgreen.org in the media. A total of seven news releases and media advisories were issued through the program covering seasonal topics, news, events, and promotions which were picked up by a variety of media outlets. We also had several guest columns in various publications and team members participated in a number of informative interviews throughout the year. The total value of this publicity for FY17 was over $170,000.

Media	Date	Media Outlet	Topic	Length	Circ./ Imp	PR Value
P/O	July-August 2016	Coastal Virginia Magazine - Green Scene	Earn a Green Star - Bay Star Homes	1/3 page	35,000	$7,233.00
P/O	July-August 2016	Coastal Virginia Magazine - Green Scene	Energetic About Energy - Reducing energy consumption in Virginia	1/6 page	35,000	$5,043.00
P/O	July-August 2016	Coastal Virginia Magazine - Green Scene	Events and the Environment - Environmentally-friendly events	1/6 page	35,000	$5,043.00
P/O	July-August 2016	Coastal Virginia Magazine - Green Scene	Beyond the Bin - Community resource centers	1/6 page	35,000	$5,043.00
P/O	July-August 2016	Coastal Virginia Magazine - Green Scene	Grants for Plants - askHRgreen.org mini grant program	1/2 page	35,000	$9,963.00
P/O	July-August 2016	Coastal Virginia Magazine - Green Scene	Leaving Their Mark - askHRgreen.org storm drain marker project	2/3 page	35,000	$11,133.00
P/O	September-October 2016	Coastal Virginia Magazine - Green Scene	Eco-Artists at Work	1 + 3/4 pages	35,000	$20,523.00
P/O	Sunday, July 31, 2016	WTVZ-TV Our Issues Hampton Roads	askHRgreen.org interview	30:00 minutes	6,000	$2,250.00
T/O	Sun., September 18, 2016	WTVZ-TV Our Issues Hampton Roads	askHRgreen.org interview	30:00 minutes	6,000	$2,250.00
T/O	Thurs., December 01, 2016	WCTV-TV A Closer Look (aired 8x in Dec)	Green Holiday Tips - interview with Katie Cullipher	8:30 minutes	1,500	$600.00
P/O	Sat., Dec. 17, 2016	The Virginian-Pilot Home Section	A Letter to Santa from the Earth	28.2 col. inches	284,008	$9,948.00
T/O	Mon., Dec. 26, 2016	WTKR-TV	Christmas Tree Recycling and Pickup Schedules	Online page	15,000	$900.00
T/O	Winter 2017 Issue	Distinction Magazine	Online Advice for the Curious, askHRgreen.org	1/8 page	65,000	$2,763.00
T/O	January-February 2017	Coastal Virginia Magazine - Green Scene	Going Locavore	2 pages	35,000	$24,453.00
R	Jan. 3, 2017	Tidewater Comm. WNOR, WAFX, WJOI	New Years Resolutions from askHRgreen.org	30:00 minutes	15,600	$1,425.00
O	Fri., Feb. 17, 2017	Suffolk Sun Facebook Page	Environmental Action Awards	Online page	7,500	$450.00
P/O	Tues., Feb. 28, 2017	Suffolk News-Herald	Suffolk School Wins Recycling Award	21.8 col. inches	30,000	$1,440.00
P/O	Sat., April 22, 2017	Southside Daily	Spring Showers Will Reveal Write as Rain Messages	15.5 col. inches	20,000	$1,200.00
O	Mon., April 24, 2014	Newport News Now Blog	Write as Rain Surfaces this Week on a Sidewalk Near You	Online page	1,500	$135.00
P/O	Tues., April 25, 2017	Suffolk News-Herald	Write as Rain Campaign Launches	16.8 col. inches	30,000	$1,110.00
PO	Tues., April 25, 2017	WTKR-TV The Coast Live	A Rainy Day Messasge to Make Us All Live Greener	4:39 minutes	28,000	$2,100.00
PO	Thurs., April 27, 2017	The Virginian-Pilot	When it Rains, it Pours Messages at Your Feet	92.5 col. inches	284,008	$52,836.00
PO	Tues., May 02, 2017	WAVY-TV The Hampton Roads Show	Write as Rain Secret Messages	4:37 minutes	42,000	$3,000.00
PO	Tues., May 2, 2017	VA AWWA Newsletter	Just Add Water -- Rain Activated Environmental Messages	N/A	5,000	$525.00
P/O	Wed., June 14, 2017	Smithfield Times	Green Messages Appear After Rain	8.25 col. inches	6,345	$210.00
P/O	Thurs., June 29, 2017	City of Chesapeake Website	askHRgreen.org Receives Grants for Regional Projects	Online page	1,500	$135.00
					1,128,961	**$171,711.00**

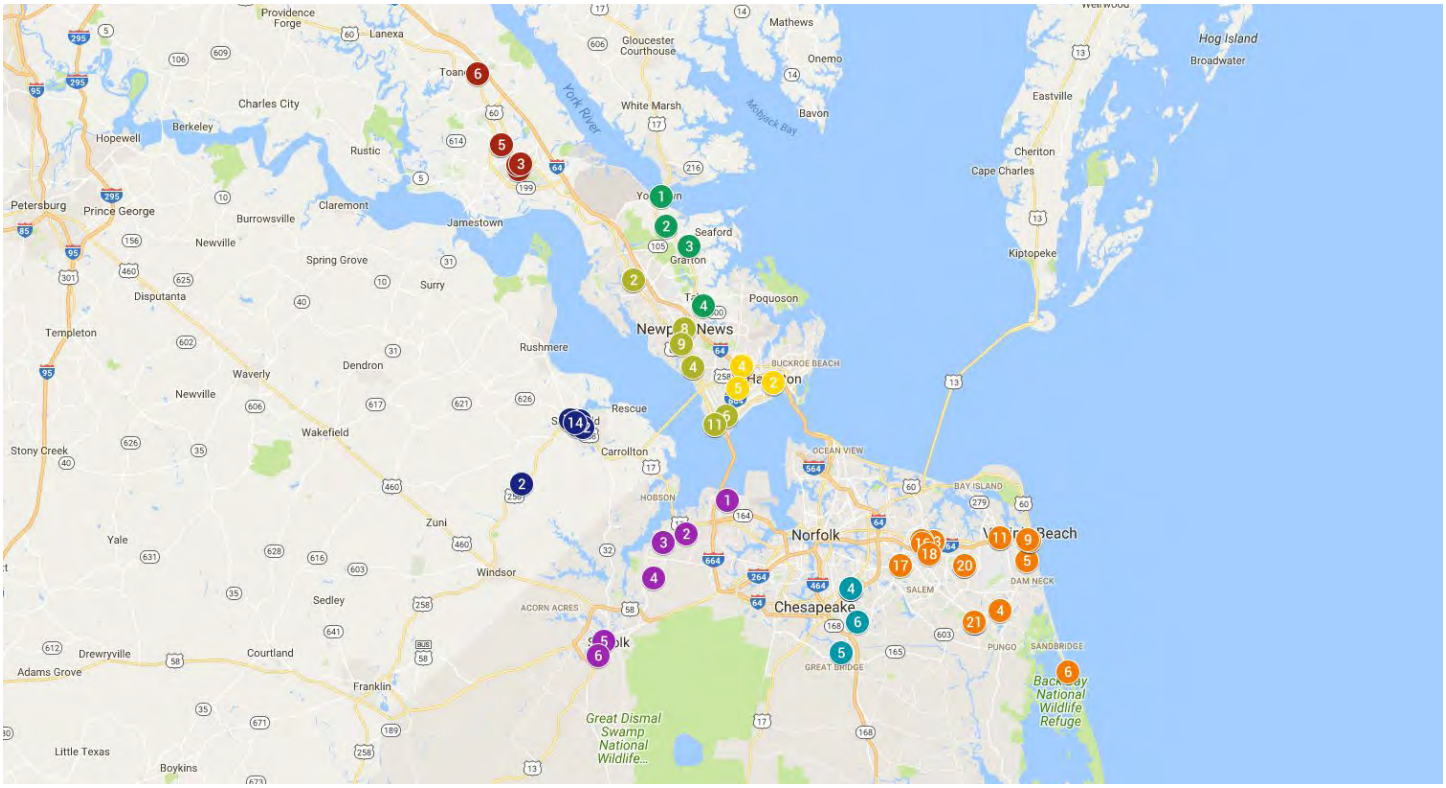
"Write as Rain" Campaign

In April 2017, askHRgreen.org took its message to the streets of Hampton Roads with the "Write as Rain" campaign. The motivational campaign placed hidden good-to-know "green" messages on more than 60 sidewalks, streetscapes and thoroughfares across the region that became visible when wet. The goal of the campaign was to inspire people to think about our local environment in new ways.

The messages carried the hashtag #askhrgreen along with such sayings as: Only Rain Down the Storm Drain; No Wipes in Our Pipes; Your Morning Coffee Starts with Tap Water; and No Such Thing as a Little Litter. A map of participating locations was made available at www.askHRgreen.org/rainyday so residents could easily find the hidden messages throughout the region.

News of this innovative campaign spread across the region through various media outlets with a prominent feature in The Virginian-Pilot, on local news stations (WTKR-TV and WAVY-TV), and in several local newspapers. The "Write as Rain" campaign had a $6,600 budget and a public relations exposure value of over $60,000.

Write as Rain Stencil Locations	
Locality	**Number of Locations**
Chesapeake	6
Gloucester	1
Hampton	5
Isle of Wight County	2
James City County	3
Newport News	11
Smithfield	7
Suffolk	6
Virginia Beach	21
Williamsburg	3
York County	4
	69



"Write as Rain" Campaign

Write as Rain Public Relations		
Publications	**Impressions**	**PR Value**
Southside Daily	20,000	$1,200
Newport News Now Blog	1,500	$135
Suffolk News-Herald	30,000	$1,110
WTKR-TV The Coast Live	28,000	$2,100
The Virginian-Pilot	284,008	$52,836
WAVY-TV The Hampton Roads Show	42,000	$3,000
Virginia Section American Waterworks Association Newsletter	5,000	$525
Smithfield Times	6,345	$210
	416,853	**$61,116**

Write as Rain Online	
Facebook (April - September 7, 2017)	
Post Impressions	6,345
Post Clicks	400
Post Actions (Like/Share/Comment)	236
Video Views	2,076
Unique Video Views - 4/21/17 Video	1,220
Unique Video Views - 5/5/17 Video	509
Twitter (April - May 2017)	
Post Impressions	3,386
Post Engagement (Clicks/Retweet/Like)	42
Google Maps (April - September 7, 2017)	
Map Views	3,824
Website (April - September 7, 2017)	
Blog Post Views	536

Environmental Action Awards

In FY17, askHRgreen.org recognized two local schools and educators for their commitment to environmental stewardship and leadership. Ms. Wendy VanHosen, assistant principal at John Yeates Middle School in Suffolk, and Ms. Amber LaMonte, teacher at York High School in Yorktown, each received the Environmental Action Award from askHRgreen.org on Thursday, February 16, at the Hampton Roads Planning District Commission meeting in Chesapeake.

The Environmental Action Award was developed to recognize individuals who inspire youth (K-12) to have a positive impact on the environment by taking action in their schools or communities. The winning projects had previously received funding through the askHRgreen.org mini grant program and were selected as outstanding projects by a panel of askHRgreen.org committee members. John Yeates Middle School and York High School were two of 19 projects funded by askHRgreen.org in FY16 and considered for the award.

John Yeates Middle School was recognized for Ms. VanHosen's leadership of a school-wide recycling program. Not only did the project focus on the importance of recycling and reducing landfill contributions, but also on integrating diverse studies from art to science to social studies. The project itself is a sustainable initiative that will continue to impact students and the environment for years to come.

At York High School, Ms. LaMonte helped the school's green team improve availability and access to tap water and reduce plastic bottle waste by installing a water bottle filling station. The students tracked data on water usage and challenged their peers to reduce waste. Because of their efforts, the school experienced a 75 percent increase in the number of students carrying reusable water bottles.

In addition to the award, each school received a check for $100.00 to be spent to further their project or to launch a new environmental initiative.

York High School Teacher, Ms. Amber LaMonte, accepts the askHRgreen.org Environmental Action Award.

John Yeates Middle School Assistant Principal, Ms. Wendy VanHosen, accepts the askHRgreen.org Environmental Action Award.

Recycling & Beautification Subcommittee

The Recycling and Beautification Subcommittee is a coalition of local government staff members from across Hampton Roads who are working together to share ideas and pool resources for various education programs tailored towards community beautification, litter prevention, and recycling education.

Great American Cleanup

Spring is cleanup season and most localities held multiple events starting in March and wrapped up with a final cleanup push for Clean the Bay Day on Saturday, June 3rd. Keep America Beautiful's Great American Cleanup theme, Clean Your Block, encouraged people to clean up litter and take ownership of their neighborhoods and businesses. The Subcommittee supported regional Great American Cleanup events by featuring event details for each locality prominently on the website along with general promotions on social media, the Let's Talk Green blog and the askHRgreen.org e-newsletter.

America Recycles Day

Each fall the Subcommittee promotes Keep America Beautiful's America Recycles Day, a national celebration on November 15th that promotes the importance of recycling. Locally, nearly every city and county hosted a recycling and/or education event. In addition to the popular paper shredding and electronics recycling services, many localities added the option for residents to bring donations of clothing and housewares. Increasingly, localities offer electronics recycling and other specialty recycling services year-round through permanent collection facilities or events held in different locations each month/quarter, etc. Local America Recycles Day events were promoted by the Subcommittee with a news release and promotion on the website, social media, the Let's Talk Green blog and askHRgreen.org e-newsletter.

Christmas Tree Recycling

In FY17, the Subcommittee encouraged residents to take advantage of Christmas tree recycling programs across the region. Most Hampton Roads localities provide free Christmas tree pickup and disposal for residents. Some localities are able to compost or mulch the trees to reduce landfill contributions. To promote these free municipal programs, a media advisory was issued and collection schedules were featured prominently on the website, social media, the Let's Talk Green blog and the askHRgreen.org e-newsletter.

Cigarette Litter Prevention

Following the 2015-2016 award winning Cigarette Litter Prevention Program (CLPP), several Subcommittee members were interested in implementing the program in new places. This included some localities that had not previously participated in the program. Due to the high cost of procuring ash receptacles, the Subcommittee researched and applied for several grants. In June 2017, the Subcommittee learned that they had been selected as a recipient of a Keep Virginia Beautiful 30-in-30 grant. The Keep Virginia Beautiful 30-in-30 grant awards grants of $500-$1,000 for projects in these four categories: Community Beautification and Greening, Litter Prevention, Recycling, and Cigarette Litter Prevention. Additionally, the Subcommittee learned they had been selected as one of five recipients awarded a bonus grant of $2,000. The Subcommittee is planning to implement the CLPP project regionally during FY18.

Recycling Contamination

In FY17, the Subcommittee continued work on a regional strategy to improve the quality and quantity of recycled materials recovered through residential recycling. The participating localities of James City County, Suffolk and Newport News performed recycling audits during FY17. The findings of the audits were paired with demographic data from the targeted recycling routes to identify trends in curbside recycling behavior and help tailor outreach priorities. For example, the materials recycled in one

downtown Suffolk route were too contaminated to audit while materials recycled in a more suburban area of Suffolk revealed very specific types of contamination in the recycled materials including plastic bags and yard debris. Armed with this new insight, the Subcommittee will take the information gathered in the audit process and target outreach to specific routes based on specific needs.

Litter and Marine Debris

During FY17, the Subcommittee continued work on developing a region-wide litter campaign. The ongoing campaign will center around printed materials the committee members can use to promote cleanups like Adopt-a-Spot and Great American Cleanup in addition to general outreach to residents and businesses. The Subcommittee agreed to the production of a series of posters and rack cards targeting litter from youth, adults, and businesses. Additional tools and materials are scheduled for production in FY18.

Residential Recycling

The Subcommittee continued to expand the Recycle More, Trash Less campaign during FY17. The Recycle More, Trash Less media campaign includes radio and display ads as well as branded posters and rack cards. New in 2017 were the development of a Recycle More, Trash Less video and updates to the rack cards and posters. The new video was developed using the existing Dr. Seuss-inspired radio campaign and adding fun graphics to accompany the audio. Updates were needed to the posters and rack cards after TFC Recycling announced they would begin accepting cartons for recycling.

The new Recycle More, Trash Less video was used as part of a six-week online campaign that ran from February 20 to April 2 and included digital ads, targeted display, native ads, video pre-roll and Facebook. As added value for the paid media campaign, additional display ads were posted on WTKR.com.

Recycle More Trash Less Video Campaign	
Paid Media – 6 weeks (Online)	
Target Audience: Adults 25-54	
Audience Targeted Display	
Impressions	218,627
Clicks	473
CTR (Click Through Rate)	0.22%
Online Display Ads	
Impressions	80,012
Clicks	89
CTR (Click Through Rate)	0.11%
Video Pre-roll Ads	
Impressions	52,778
Clicks	708
CTR (Click Through Rate)	1.34%
Native Ad Content	
Impressions	80,005
Clicks	539
CTR (Click Through Rate)	0.67%
Facebook	
Impressions	72,838
Clicks	1,386
CTR (Click Through Rate)	1.90%
Unpaid Media	
Added Value	$2,286
Added Value Impressions	99,405
Overall Campaign	
Total Impressions	603,665
Total Video Views	52,778
Total Clicks	3,195
Total Budget	$7,500
Total Exposure Value	$9,786
Return on Investment	$1.30:1
Cost per Thousand Impressions	$12.42

Stormwater Education Subcommittee

The Stormwater Education Subcommittee is a cooperative partnership of the region's seventeen member cities and counties. This effort has been underway since 1997 as a formal adjunct to the required public information component of the Virginia Pollution Discharge Elimination System Permits (VPDES) for Phase I and Phase II Municipal Separate Storm Sewer Systems (MS4). Local government staff members work together to share ideas and pool resources for various education programs tailored to stormwater pollution prevention.

Leaf and Pet Waste Disposal

The Stormwater Education Subcommittee ran a two-week campaign from November 7 through November 20 reminding Hampton Roads residents that storm drains are not the proper disposal option for fallen leaves and pet waste. The campaign message also explained the role leaves play in localized flooding caused by clogged drains and the role both leaves and pet waste play in degrading local water quality. Because leaf disposal methods vary by locality, citizens are encouraged to rake, bag, mulch, or compost the leaves.

The campaign included radio ads, targeted online display ads, native content, and Facebook ads. There was also an on-air contest with Max Media included as added value. The winner of a true/false leaf disposal quiz won an askHRgreen.org gift bag, movies passes and was entered to win a $100 gift card to Taylor's Do-It Center. This also included a minimum of 25 mentions per station (100 total) and inclusion on the website contest page.

Leaves/Pet Waste Campaign Results	
Paid Media – 2 weeks (Radio and Online)	
Target Audience: Adults 35-64	
Radio	
Impressions	526,100
Reach	35.10%
Frequency	2.4
Online	
Audience Targeted Display	
Impressions	74,955
Clicks	29
CTR (Click Through Rate)	0.04%
Native Content Ads	
Impressions	20,007
Clicks	653
CTR (Click Through Rate)	3.26%
Facebook Ads	
Impressions	98,516
Clicks	1,262
CTR (Click Through Rate)	1.28%
Unpaid Media	
Added Value	$8,116
Overall Campaign	
Total Impressions	719,578
Total Clicks	1,944
Total Budget	$9,558
Total Exposure Value	$17,674
Return on Investment	$1.85 : 1
Cost per Thousand Impressions	$13.28

Lawn Care Practices

The Stormwater Education Subcommittee encouraged residents to "work smarter, not harder" with their spring campaign promoting residential lawn care best management practices. The campaign covered tips such as testing soil before applying fertilizer, seeding bare spots, leaving grass clippings on the lawn, replacing turf grass with flower beds, planting native plants, and more.

The two-week campaign ran from April 3 through April 16 and included radio ads, targeted display ads, digital ads

on WTKR.com, and Facebook ads. As added value for the paid media campaign, the Subcommittee also received inclusion in contests held by the station with gift cards to local home improvement stores and nurseries to the winning participants.

Lawn Care Campaign Results	
Paid Media – 2 weeks (Radio and Online)	
Target Audience: Men 35+	
Radio	
Target Audience Impressions	440,100
Target AudienceReach	38.40%
Target Audience Frequency	3.0
Total Campaign Impressions	792,600
Online	
Audience Targeted Display	
Impressions	32,533
Clicks	86
CTR (Click Through Rate)	0.26%
Online Display Ads	
Impressions	2,394
Clicks	23
CTR (Click Through Rate)	0.96%
Facebook Ads	
Impressions	140,482
Clicks	4,787
CTR (Click Through Rate)	3.41%
Unpaid Media	
Added Value	$11,762
Overall Campaign	
Total Impressions	968,009
Total Clicks	4,896
Total Budget	$10,450
Total Exposure Value	$22,212
Return on Investment	$2.13 : 1
Cost per Thousand Impressions	$10.80

Pet Waste Disposal

Pet waste continued to be a high priority topic for the Stormwater Education Subcommittee. In addition to the fall paid media campaign on pet waste and leaf disposal, the Subcommittee also distributed "scoop the poop" branded materials such as dog waste bag holders and hand sanitizer to pet owners in the region. The scoop the poop message was also included in general askHRgreen.org promotions such as newsletters, blog posts, social media and multiple community events.

The Subcommittee also continued the ever popular Pet Waste Station Grant program. Since the launch of the program, 258 pet waste stations* have been awarded and installed across the region. Of those, 27 were awarded and installed during FY17.

New Pet Waste Stations in FY17	
City/County	Number
Chesapeake	5
Gloucester	2
Hampton	7
James City County	9
Newport News	4
Total	**27**

*This total may reflect additional pet waste stations issued by locality-funded programs.

Bay Star Homes

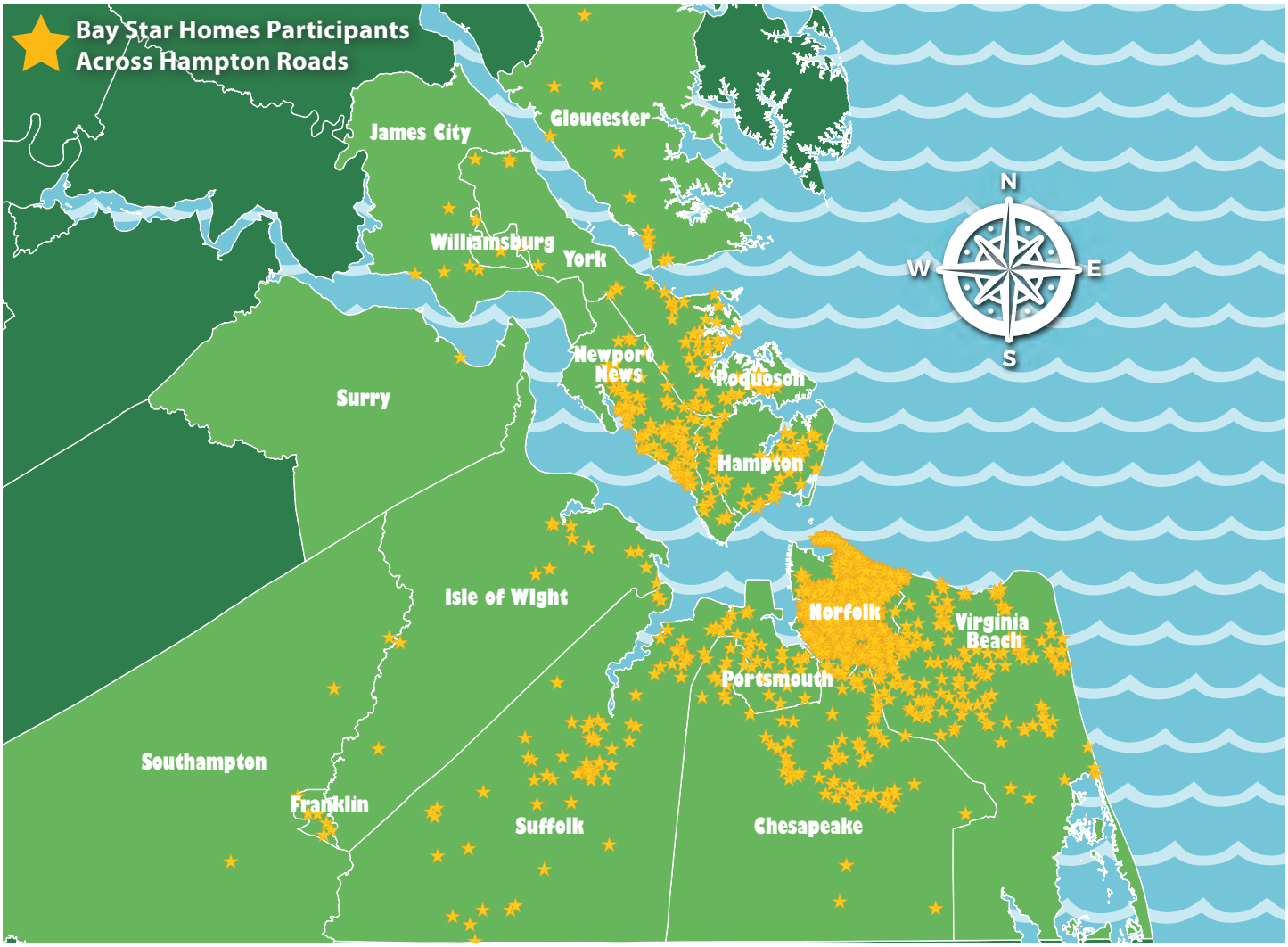
The Bay Star Homes (BSH) program continued in FY17. The program recognizes residents who pledge to avoid behaviors that are harmful to local waterways and encourages private property owners to implement voluntary stormwater management techniques such as rain barrels, rain gardens and downspout disconnects. Residents are also encouraged to begin incorporating more environmentally-friendly choices into their daily routine. Because the BSH program incorporates broad environmentally-friendly behaviors from all askHRgreen.org education programs, the program focuses not just on clean waterways, but also green living and clean communities in general.

New in 2017, the Subcommittee was able to offer three Bay Star Home workshops as part of a grant from the Chesapeake Bay Restoration Fund (CBRF) for southside and peninsula residents. Topics included soil testing, environmentally-friendly lawncare practices, techniques for tree siting and pruning, and rain barrels. The workshops helped clarify the connection between stormwater infrastructure and local waterways, including the Chesapeake Bay. The "Plant Smarter: Landscaping and Lawncare for the Peninsula" workshop was conducted in partnership with the City of Hampton and the City of Newport News on March 23, 2017 at Sandy Bottom Nature Park in Hampton. There, 36 participants learned about soil testing, environmentally-friendly methods for lawncare, and techniques for tree siting and pruning. Participants received Eastern redbud seedlings (a total of 66 seedlings were given away), askHRgreen.org informational brochures, DCR brochures on native plants and invasive species, and information on additional upcoming opportunities, including rain barrel workshops and native plant sales. In addition, rain barrel workshops were conducted in partnership with the City of Suffolk on May 20, 2017 at the Suffolk Art Gallery and on June 10, 2017 at Bennett's Creek Park in Suffolk. The workshops hosted a total of 74 participants and 37 rain barrels were given away. As a result of the workshops, the City of Suffolk was also able to create a "How-to" video to assist others in creating their own rain barrels.

As another part of the CBRF grant, Bay Star Homes was able to offer free soil testing for those who signed up during the months of July and October. Each winner received a letter congratulating them for being selected along with a soil test kit, instructions on how to collect the soil sample, and information on where to return the sample. Respondents' soil samples were tracked and sent off to the Virginia Cooperative Extension for analysis. They later received a personalized letter with their detailed soil test reports and an easy-to-read chart providing an overview of how their soil measured up. While 77 participants were contacted about the offer for free soil testing, only nine residents returned a soil sample for processing.

Bay Star Homes Registrants
(as of June 30, 2017)

City/County	Number
Chesapeake	83
Franklin	9
Gloucester	15
Hampton	55
Isle of Wight	6
James City	4
Newport News	137
Norfolk	1,763
Poquoson	12
Portsmouth	28
Smithfield	6
Southampton	1
Suffolk	83
Surry	1
Virginia Beach	153
Williamsburg	5
York	48
Total	**2,409**



Storm Drain Medallion Program

With thousands of storm drains across Hampton Roads that lead directly to local waterways, the Storm Drain Medallion Program is a great way to help people remember that "only rain belongs down the drain." Volunteers from local schools, youth groups, civic groups and others work to identify storm drains without markings in their area then adhere medallions stating "No Dumping: Leads to Waterway" directly onto the storm drain. The Subcommittee promotes the program to schools, community associations, youth clubs, and volunteer groups of all ages across the region using the askHRgreen.org website and e-newsletter, social media, and more. The program is particularly popular with schools and Boy Scout and Girl Scout troops.

Approved applicants through the Storm Drain Medallion Program each receive medallions, adhesive, a lesson plan, and PowerPoint presentation about stormwater and how individual actions affect local water quality. Each locality is involved in finding areas in need of markers and documenting the new ones that are applied. This fiscal year, the Subcommittee helped place 52 new medallions in Hampton Roads. Many more medallions were also placed through locality-initiated activities and programs.

Water Awareness Subcommittee

The Water Awareness Subcommittee is an education committee comprised of local government staff members who are committed to promoting and educating citizens about aging infrastructure, the value of tap water, and the importance of being good water stewards. This cooperative effort to promote conservation and awareness of the importance of water assists localities in meeting requirements of various water supply and ground water permits.

Fixing Leaks

Each year the Subcommittee promotes Fix-a-Leak Week in partnership with the EPA WaterSense program. The annual water conservation week encourages citizens to chase down leaks in their home and make simple repairs to worn out fixtures. The Subcommittee reused the fixing leaks TV campaign produced in FY16 for a TV and online campaign. The one-week campaign ran from March 20 to 26 on WVEC, WAVY, Cox Cable, and WTKR.com.

Value of Water

The Subcommittee used the value of water TV campaign produced in FY16 for a TV and online campaign in FY17. The value of water TV campaign explains that tap water is amazingly inexpensive and a great value when considering all the ways we depend on it each day. The one-week campaign ran from May 8 to 14 on WVEC, WAVY, Cox Cable, and WTKR.com.

Infrastructure

The Subcommittee used the infrastructure TV campaign produced in FY16 for a TV and online campaign in FY17. The infrastructure TV campaign describes the water infrastructure required to provide reliable, convenient tap water services to residents in Hampton Roads and the importance of investing in the maintenance of these systems. The one-week campaign ran from May 22 to 28 on WVEC, WAVY, Cox Cable, and WTKR.com.

Imagine A Day Without Water

The Subcommittee joined with municipal water authorities across the U.S. to promote "Imagine a Day Without Water." On September 15, 2016, the U.S. Water Alliance, through its Value of Water Campaign, raised awareness about the importance of water and the often invisible challenges to water infrastructure. The purpose of the campaign was to get citizens thinking about how much their daily routine would change if they did not have readily available tap water. It explained a day without water is also a day

Fix-a-Leak Week Campaign Results	
Paid Media – 1 Week (TV and Online)	
Target Audience: Adults 25-54	
Television	
Target Audience Impressions	1,093,000
Target AudienceReach	37.70%
Target Audience Frequency	4
Total Campaign Impressions	2,457,300
Online	
Audience Targeted Display	
Impressions	57,321
Clicks	290
CTR (Click Through Rate)	0.51%
Online Display Ads	
Impressions	14,669
Clicks	110
CTR (Click Through Rate)	0.75%
Native Content Ads	
Impressions	29,000
Clicks	288
CTR (Click Through Rate)	0.99%
Facebook Ads	
Impressions	58,500
Clicks	1,233
CTR (Click Through Rate)	2.11%
Unpaid Media	
Added Value	$3,517
Added Value Impressions	168,881
Overall Campaign	
Total Impressions	2,785,671
Total Clicks	1,921
Total Budget	$16,641
Total Exposure Value	$20,158
Return on Investment	$1.21 : 1
Cost per Thousand Impressions	$5.97

without showers, coffee, flushing toilets, sanitary hospitals, fire protection and more. The Subcommittee promoted "Imagine a Day Without Water" with a blog entitled "It's Not Just Water" on the Let's Talk Green blog and social media postings about investing in water infrastructure.

Value of Water/Drinking Water Week Campaign Results	
Paid Media – 1 Week (TV and Online)	
Target Audience: Adults 25-54	
Television	
Target Audience Impressions	1,069,000
Target AudienceReach	40.60%
Target Audience Frequency	3.7
Total Campaign Impressions	2,355,700
Online	
Audience Targeted Display	
Impressions	56,918
Clicks	262
CTR (Click Through Rate)	0.46%
Online Display Ads	
Impressions	14,324
Clicks	95
CTR (Click Through Rate)	0.66%
Native Content Ads	
Impressions	42,099
Clicks	1,091
CTR (Click Through Rate)	2.59%
Facebook Ads	
Impressions	182,641
Clicks	5,083
CTR (Click Through Rate)	2.78%
Unpaid Media	
Added Value	$1,617
Added Value Impressions	7,500
Overall Campaign	
Total Impressions	2,659,182
Total Clicks	6,531
Total Budget	$16,641
Total Exposure Value	$18,258
Return on Investment	$1.10 : 1
Cost per Thousand Impressions	$6.26

Infrastructure Campaign Results	
Paid Media – 1 Week (TV and Online)	
Target Audience: Adults 25-54	
Television	
Target Audience Impressions	1,069,000
Target AudienceReach	40.60%
Target Audience Frequency	3.7
Total Campaign Impressions	2,355,700
Online	
Audience Targeted Display	
Impressions	32,834
Clicks	156
CTR (Click Through Rate)	0.48%
Online Display Ads	
Impressions	11,166
Clicks	79
CTR (Click Through Rate)	0.71%
Native Content Ads	
Impressions	42,307
Clicks	342
CTR (Click Through Rate)	0.81%
Facebook Ads	
Impressions	133,117
Clicks	2,604
CTR (Click Through Rate)	1.96%
Unpaid Media	
Added Value	$354
Added Value Impressions	7,500
Overall Campaign	
Total Impressions	2,582,624
Total Clicks	3,181
Total Budget	$16,641
Total Exposure Value	$16,995
Return on Investment	$1.02 : 1
Cost per Thousand Impressions	$6.44

Fats, Oils & Grease Education Subcommittee

The Fats, Oils, and Grease (FOG) Education Subcommittee is a coalition of local government staff members and HRSD working together to share ideas and pool resources for various education programs tailored to preventing sanitary sewer overflows and backups caused by improper disposal of fats, oils, and grease. This cooperative effort has been underway since 2007 when 13 of the region's localities and HRSD entered into the Regional Special Order by Consent with the Virginia Department of Environmental Quality.

Holiday FOG

Each holiday season, the Subcommittee encourages Hampton Roads residents to practice kitchen BMPs for keeping fats, oils and grease out of drains. With the increase in holiday cooking this is an important time of year to promote the FOG message. The holiday-themed promotion ran from November 19 to November 25 and advised the public to keep fats, oils and grease out of the drain. It also discouraged garbage disposal use. The one-week campaign included 60-second radio ads, Facebook ads, targeted display ads, and native content ads.

As added value for the paid campaign, 92.9 The Wave and Eagle 97 recorded a video about keeping grease out of the drain and directing people to visit askHRgreen.org. Other added value included sponsorship of the Greatest Hits Weekend and Best of Dick Lamb and the Morning Wave show on 92.9 The Wave.

What Not to Flush

The Committee reused the "It came from beneath the streets" campaign previously used for movie theater ads for a one-week TV and online media campaign. Themed after a classic horror movie, the campaign alludes to the potential for sanitary sewer overflows to occur when the public uses the toilet as a trash can. Wipes, cotton balls/swabs and other personal hygiene can all play a role in clogging sanitary sewer lines and damaging wastewater machinery. The one-week campaign ran for the week leading up to the Super Bowl, January 30 to February 5, on local stations WVEC, WAY, Cox Cable, and WTKR.com.

Holiday FOG Campaign Results	
Paid Media – 1 week (Radio and Online)	
Target Audience: Adults 25-64	
Radio	
Impressions	637,780
Reach	23.40%
Frequency	3.1
Online	
Audience Targeted Display	
Impressions	59,717
Clicks	26
CTR (Click Through Rate)	0.04%
Native Content Ads	
Impressions	9,890
Clicks	292
CTR (Click Through Rate)	2.95%
Facebook Ads	
Impressions	59,249
Clicks	1,259
CTR (Click Through Rate)	2.12%
Unpaid Media	
Added Value	$8,663
Added Value Impressions	N/A
Overall Campaign	
Total Impressions	766,636
Total Clicks	1,577
Total Budget	$5,738
Total Exposure Value	$14,401
Return on Investment	$2.51:1
Cost per Thousand Impressions	$7.48

What Not to Flush Campaign Results	
Paid Media – 1 week (TV and Online)	
Target Audience: Adults 18+	
Television	
Target Audience Impressions	904,000
Target Audience Reach	36.30%
Target Audience Frequency	3.5
Total Campaign Impressions	2,076,800
Online	
Audience Targeted Display	
Impressions	24,126
Clicks	60
CTR (Click Through Rate)	0.25%
Online Display Ads	
Impressions	14,999
Clicks	5
CTR (Click Through Rate)	0.03%
Native Content Ads	
Impressions	25,627
Clicks	288
CTR (Click Through Rate)	1.12%
Facebook Ads	
Impressions	56,461
Clicks	2,421
CTR (Click Through Rate)	4.29%
Unpaid Media	
Added Value	$1,360
Added Value Impressions	47,754
Added Value Clicks	12
Overall Campaign	
Total Impressions	2,245,767
Total Clicks	2,786
Total Budget	$13,546
Total Exposure Value	$14,906
Return on Investment	$1.10:1
Cost per Thousand Impressions	$6.03

Down the Drain Campaign Results	
Paid Media – 1 week (TV and Online)	
Target Audience: Adults 25-54	
Television	
Target Audience Impressions	904,000
Target Audience Reach	36.80%
Target Audience Frequency	3.4
Total Campaign Impressions	2,038,800
Online	
Audience Targeted Display	
Impressions	41,400
Clicks	87
CTR (Click Through Rate)	0.21%
Online Display Ads	
Impressions	15,000
Clicks	8
CTR (Click Through Rate)	0.05%
Native Content Ads	
Impressions	52,263
Clicks	469
CTR (Click Through Rate)	0.90%
Facebook Ads	
Impressions	63,406
Clicks	1,568
CTR (Click Through Rate)	2.47%
Unpaid Media	
Added Value	$4,183
Added Value Impressions	75,353
Added Value Clicks	24
Overall Campaign	
Total Impressions	2,286,222
Total Clicks	2,156
Total Budget	$13,546
Total Exposure Value	$17,729
Return on Investment	$1.31:1
Cost per Thousand Impressions	$5.93

Down the Drain

The Subcommittee reused the Down the Drain TV ad produced in FY16 for a TV and online media campaign in FY17. The campaign message includes two focus areas: proper disposal of FOG and what not to flush. The ad tells residents to keep FOG, food scraps, and personal hygiene products like wipes out of the drains and demonstrates how blockages can contribute to sanitary sewer overflows. The one-week campaign ran from February 13 to 19 on local stations WVEC, WAY, Cox Cable, and WTKR.com.

Fats, Oils and Grease Regional Training Program

In FY17, the FOG Education Subcommittee continued to utilize the regional website, www.HRFOG.com, for training and certification. Through the website, grease haulers and food service industry employees receive free training and certification on proper maintenance of grease control devices and the harmful effects of FOG on the region's sanitary sewer systems. The website helps locality staff manage, train and enforce the FOG ordinances present in some Hampton Roads municipalities.

The Subcommittee continued work on improving compliance with the regional FOG program. In FY17, the Subcommittee hosted a Regional Grease Hauler Forum that took the form of a lunch and learn workshop and roundtable. Grease haulers were offered lunch and an updated HRFOG certification for attending certification refresher training followed by a roundtable discussion between grease haulers, HRSD and locality staff. Grease haulers were encouraged to ask any questions they had about complying with local FOG ordinances. About 30 employees from local grease hauler companies attended the training.

Glossary of Terms

added value
Earned but unpaid advertising value.

ad group
In Search Engine Marketing (SEM), an ad group contains one or more ads which target a shared set of keywords.

average position
A ranking system that determines where your search engine marketing ad will display on a web search results page (i.e. top of page v. bottom of page).

bounce rate
The percentage of visitors who enter the site and "bounce" (leave the site) rather than continue viewing other pages within the same site.

click through rate (CTR)
A way of measuring online advertising. The CTR of an advertisement is defined as the number of clicks on an ad divided by its impressions, expressed as a percentage.

cost-per-click (CPC)
The cost associated with a person clicking on a display ad in search engine marketing.

exposure value
The combination of advertising cost, added value, and public relations value.

frequency
The number of times an individual (among the target audience) is exposed to the message.

impressions
The number of times an advertisement or public relations placement can be seen or heard by an audience.

public relations value
The equivalent advertising cost of a public relations article, interview, internet placement, etc. times three. Because a public relations placement has a higher value with an audience than advertising, it is assigned a higher value.

reach
The number or percentage of people within the target audience who are exposed to an advertising message at least once over a specific period of time.

search engine marketing (SEM)
The process of attracting traffic to a website from search engine results pages on a pay-per-click basis.

search engine marketing (SEO)
The process of improving the quality of a website so that it appears higher in natural ("organic") search results.

unique visitors (users)
The number of people who visit a website within a specific period of time. If they visit more than one time within the period, their initial visit as well as their subsequent visits are counted as sessions. A user may have one session or multiple sessions.

Appendix A

SEM 12-Month Report

Pilot MEDIA

askHRgreen - 12 Month for askHRgreen

Date range July 01, 2016 to June 30, 2017

Created on July 10, 2017

Search Engine Marketing (SEM): **Executive Summary**

Over the past 12 months, your campaign has continued to perform well, growing clicks, Click Through Rate and Ad Position while maintaining Search Impression Share. The majority of clicks come from the Recycling at Home/Residential Recycling, Medication Disposal and Electronics Recycling ad groups, along with your Branded ad group.

During this period we have updated your ads to align with promotions on your website and in your newsletters. We have also spent time reviewing bids to ensure you are paying the most efficient price for each click, as well as reviewing search terms to ensure your ads are showing to the most relevant audience.

Traffic to your website was up 10% over the past 12 months compared to this same period the previous year, with a significant increase in Goal Completions. Top Traffic Channels included Organic Search, Other (appears to be local media campaigns) and Direct, with Paid Search driving 80% New Sessions with a double digit conversion rate. You also saw a 60% increase in mobile traffic, with mobile going from 30% of your site traffic to 44%. This increase in mobile has caused some declines in your Behavior metrics since users have trouble navigating to more pages and staying on site for a long period of time when on a mobile device. Your new mobile friendly website will help dramatically with this.

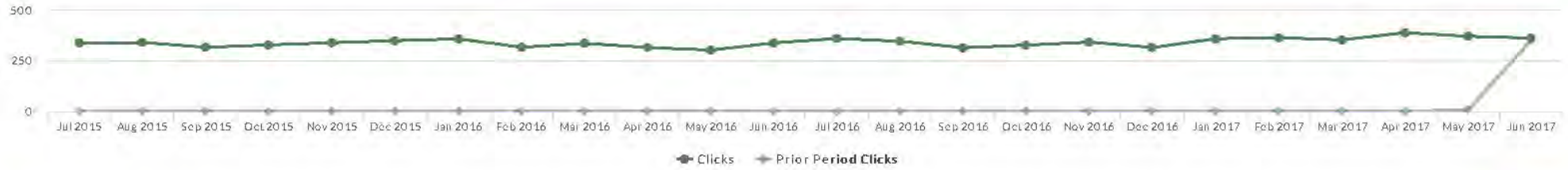
AdWords Search KPIs

Google Adwords Search campaigns

Clicks	Impressions	CTR	Avg. CPC	Average Position	Avg. Daily Search Impr. Share
4.23K	107.92K	3.92%	$2.89	1.56	45.52%
4.00K	158.28K	2.53%	$2.26	1.81	39.11%
▲6%	▼32%	▲55%	▲28%	▼13%	▲16%

Clicks Over Time

Google Adwords campaigns date grouped by month



Top Traffic Sources

Google Analytics traffic sources

Default Channel Grouping	Sessions	New Users	% New Sessions	Bounce Rate	Avg. Session Duration	Pages/Session	Goal Completions	Goal Conversion Rate
Organic Search	23,858	20,255	84.90%	77.82%	01:12	1.60	6,622.00	27.76%
(Other)	11,625	8,143	70.05%	89.82%	00:32	1.17	7,375.00	63.44%
Direct	8,710	7,094	81.45%	73.69%	01:23	1.81	3,049.00	35.01%
Referral	5,032	3,894	77.38%	68.36%	02:16	2.10	2,473.00	49.15%
Social	4,532	3,472	76.61%	84.55%	01:01	1.48	891.00	19.66%

Pilot MEDIA

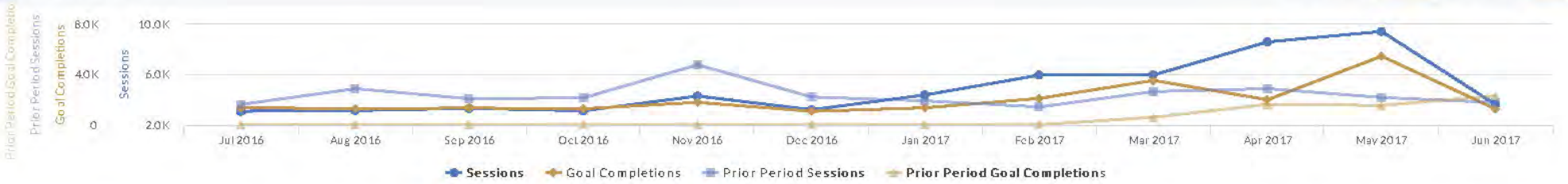
askHRgreen - 12 Month for askHRgreen

Date range July 01, 2016 to June 30, 2017

Created on July 10, 2017

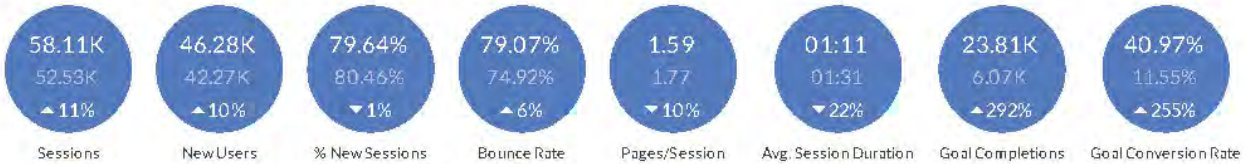
Traffic Trends

Google Analytics campaigns data grouped by month



Analytics KPIs

Google Analytics traffic sources



Goal Completions

Google Analytics goal

Goal Name	Completions	Conversion Rate
Average Page Views Per Session	6,420	11.05%
Time on Site	4,897	8.43%
Healthy Drinking Water Page	4,079	7.02%
Recycle More Trash Less RMTL Page	2,611	4.49%
Recycling at Home Page	2,611	4.49%
Fats, Oils, and Grease Disposal Page	2,003	3.45%
Let's Talk Green Blog Page	415	0.71%
Stormwater Run-off Page	299	0.51%
Mini Grant Application Package Page	202	0.35%
Scoop the Poop Page	155	0.27%

Pilot MEDIA

askHRgreen - 12 Month for askHRgreen

Date range July 01, 2016 to June 30, 2017

Created on July 10, 2017

Top 5 Campaigns By Clicks

Google Adwords campaigns

Campaign Name	Clicks	Impressions	CTR	Avg. CPC	Average Position	Avg. Daily Search Impr. Share
R&B	1,621	38,336	4.23%	$3.13	1.38	30.29%
Stormwater	1,168	22,432	5.21%	$2.70	1.34	60.93%
askHRgreen.org	784	12,839	6.11%	$1.77	1.11	59.08%
Water	625	33,299	1.88%	$4.06	2.09	31.23%
FOG	28	1,014	2.76%	$2.58	2.04	49.59%

Top 10 Ad Groups By Clicks

Google Adwords adgroups

Ad Group	Clicks	Impressions	CTR	Avg. CPC	Average Position	Avg. Daily Search Impr. Share
Recycling at Home/Residential Recycling	1,086	28,546	3.80%	$3.46	1.41	26.93%
Medication Disposal	611	6,520	9.37%	$2.31	1.48	60.97%
askHRgreen.org	336	1,040	32.31%	$0.51	1.02	88.64%
Electronics Recycling	293	3,278	8.94%	$2.39	1.62	30.77%
Environmental Education	248	6,877	3.61%	$3.14	1.07	57.78%
Drinking Water/Tap Water	247	11,841	2.09%	$3.88	1.34	32.53%
Soil Testing	224	6,627	3.38%	$3.13	1.21	67.27%
TMDL	220	4,381	5.02%	$2.49	1.04	66.47%
What to Recycle	189	5,555	3.40%	$2.65	1.11	47.65%
Water Filters/Filtration	125	9,205	1.36%	$3.96	3.26	24.21%

Pilot MEDIA

askHRgreen - 12 Month for askHRgreen

Date range July 01, 2016 to June 30, 2017

Created on July 10, 2017

Top 10 Keywords by Clicks

Google Adwords keyword breakdown

Keyword	Ad Group	Clicks	Total Impressions	CTR	Avg. CPC	Average Position
recycle	Recycling at Home/Residential Recycling	995	64,262	1.55%	$3.50	1.37
medicine disposal	Medication Disposal	413	12,142	3.40%	$2.64	1.45
environmental issues	Environmental Education	201	12,587	1.60%	$3.29	1.06
tap water	Drinking Water/Tap Water	125	11,712	1.07%	$3.88	1.20
recycling centers	What to Recycle	121	9,633	1.26%	$2.88	1.06
chesapeake bay watershed	TMDL	117	6,260	1.87%	$2.21	1.05
"soil sample testing"	Soil Testing	110	7,803	1.41%	$3.40	1.10
safe drinking water	Drinking Water/Tap Water	98	13,538	0.72%	$3.95	1.34
how to dispose of old medication	Medication Disposal	95	1,586	5.99%	$1.48	1.10
askhrgreen	askHRgreen.org	91	641	14.20%	$0.25	1.00
electronics recycling	Electronics Recycling	90	2,142	4.20%	$3.13	1.21
water filters	Water Filters/Filtration	90	11,232	0.80%	$4.12	3.16
hr green	askHRgreen.org	73	640	11.41%	$0.80	1.02
going green	Green Home/Practices	73	6,701	1.09%	$2.84	1.14
hampton roads recycling	Hampton Roads Environment	70	1,261	5.55%	$1.16	1.16
best bottled water	Bottled Water	67	4,189	1.60%	$4.87	1.28
recycling	Recycling at Home/Residential Recycling	59	3,554	1.66%	$2.49	1.37
ask hr green	askHRgreen.org	59	473	12.47%	$0.79	1.03
hrgreen	askHRgreen.org	53	342	15.50%	$0.53	1.00
askhrgreen.org	askHRgreen.org	52	422	12.32%	$0.26	1.02
dispose of old medicine	Medication Disposal	48	987	4.86%	$1.69	1.14
environmental problems	Environmental Education	43	3,068	1.40%	$2.49	1.10
"recycling computers"	Electronics Recycling	42	1,424	2.95%	$2.50	1.64
disposing of medicine	Medication Disposal	40	1,057	3.78%	$2.00	1.15
go green	Green Home/Practices	40	3,185	1.26%	$2.37	1.25

Pilot MEDIA

askHRgreen - 12 Month for askHRgreen

Date range July 01, 2016 to June 30, 2017

Created on July 10, 2017

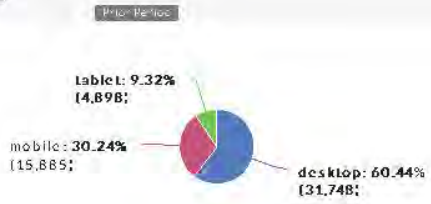
Top 10 Ads by Clicks

Google Adwords ads

Ad Preview	Ad Group	Clicks	Impressions	CTR	Avg. CPC	Ad ID
Residential Recycling - Recycle More. Trash Less askhrgreen.org/--/-- askHRgreen.org Offers Tips & Suggestions To Make Recycling Easier! Learn Today.	Recycling at Home/Residential Recycling	895	18,069	4.73%	$3.36	94716463090
AskHRGreen.org askHRgreen.org Your Go-To Resource For Everything Green in Hampton Roads. Learn More!	askHRgreen.org	320	963	33.23%	$0.51	23631155050
Medication Disposal askHRgreen.org Before You Flush Your Old Medicine Learn More On The Proper Way Here.	Medication Disposal	316	3,228	9.79%	$2.38	24017044090
Proper Medication Disposal - askHRgreen.org askhrgreen.org/--/-- Before You Throw Out Or Flush Your Old Medications, Find Out The Proper Way!	Medication Disposal	254	2,871	8.85%	$2.19	94878897010
Environmental Issues askHRgreen.org Want to Learn More About The Environment & Issues? We Can Help!	Environmental Education	225	6,027	3.73%	$3.13	24017087410

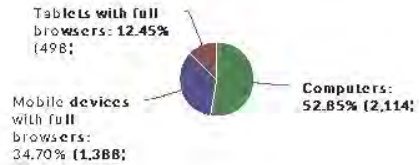
Website Traffic by Device

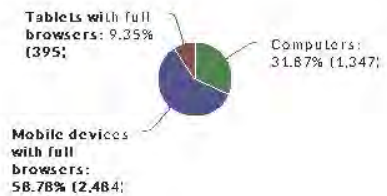
Google Analytics device



AdWords Clicks by Device

Google Adwords campaign breakdown





Appendix C-2

Exhibits for Minimum Control Measure #2 – Public Participation

James City County Compliance Summary Statement

MCM2 Public Involvement/Participation

Permit Year 4 – FY17

In order to keep the public involved in the activities of local government, the County's updated program plan, MS4 annual reports, and Stormwater Ordinances are posted on the County's Stormwater website. Also on the website are volunteer opportunities, Water Quality Summaries, and meeting minutes, as well as an email address for citizen input and requests.

Highlights of James City County Public Participation Plan in PY4 are:

- Stormwater Program Advisory Committee – 6 meetings held
- Clean Water Heritage BMP Grants – 20 grants totaling $136,582
- Volunteer water quality monitoring included coordination with the James River Association and the Virginia Master Naturalists – 16 volunteers assisted in sampling 13 sites
- Garden Love program – 3 private rain gardens planned and designed
- Clean County Commission Annual Spring Cleanup – 28 neighborhoods and community groups collected 17,110 pounds of trash and 172 tires

MCM 2 Public Involvement/Participation							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
2.1	Provide Public Notice of Program Plan and Modifications	Promote the availability of the operator's MS4 Program Plan and any modifications for public review and comment in accordance with public law.	Public notice of modifications.	Stormwater Division	As needed	Virginia Code reference, updated plan	See http://www.jamescitycountyva.gov/992/MS4-Permit
2.2	Make Program Plan and other Stormwater Program Information Available to Public	Provide the program plan, stormwater annual reports, the stormwater permit, and the stormwater ordinances on the County's website.	Public notice of modifications.	Stormwater Division	Ongoing	Program Plan, Annual Reports, Stormwater Permit and Ordinances	See http://www.jamescitycountyva.gov/992/MS4-Permit
2.3	Promote and /or sponsor local activities to increase public participation in activities that improve water quality						See detail below
2.3a	*Support the Stormwater Program (citizen) Advisory Committee*	Continue to secure citizen advice and recommendations through regularly scheduled public meetings of the Committee	Number of meetings and agendas	Stormwater Division	5 times per year	SPAC minutes and publications	6 meetings of the full committee; see spreadsheet in Appendix C-2
2.3b	*Clean Water Heritage Implementation Projects*	Conduct Clean Water Heritage implementation projects that promote water quality improvement through mini grant program for stormwater management facility owners	Number of funded projects and accomplishments	Stormwater Program Advisory Committee	Annually	Project documentation	20 Projects Implemented totalling $136,582. See detail in Appendix C-2
2.3c	*Volunteer Water Quality Monitoring*	Provide equipment and training to citizens interested in monitoring County water bodies for biological health, fecal coliform levels or both	Number of sites monitored by type of monitoring	Stormwater Division	As appropriate for protocol per site	Water Quality Summaries	Summaries updated with PY3-4 data. See http://www.jamescitycountyva.gov/985/Water-Quality-Reports
		Post volunteer opportunities on James City County website and the askHRgreen.org/calendar.	Number and types of events	Stormwater Division	Annually	James City County website, askHRgreen.org website	Volunteer opportunities posted on Stormwater website, the Parks and Recreation Department website, and at askhrgreen.org

2.3d	*Garden Love Program*	Provide infiltration testing, designs and installation rebates directly to property owners for the installation of residential-scale rain gardens	Number of rain gardens installed and number of acres treated	Turf Love Team and Master Gardeners (Virginia Cooperative Extension)	Annually	Project documentation	No rain gardens were installed in PY4, however 3 rain gardens were contracted and are in the planning stages.
2.3e	*Support the Clean County Commission Annual Clean up Activities*	Actively promote and encourage citizen involvement in the Clean County Commission annual neighborhood cleanup efforts	Number of participating neighborhoods, tons of trash collected	Clean County Commission	Annually	Project documentation	28 neighborhoods collected 17,110 lbs of trash including 172 tires. See detail in Appendix C-2
2.4	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

James City County
Stormwater Program Advisory Committee
Meetings FY17

DATE	Event	Announcement Posted Publically	Written Agenda	Minutes Approved
7/19/2016	SPAC regular meeting	yes	yes	yes
9/20/2016	SPAC regular meeting - CANCELLED	No	No	No
11/15/2016	SPAC regular meeting	yes	yes	yes
1/17/2017	SPAC regular meeting - No Quorom	yes	yes	No
2/21/2017	SPAC emergency meeting	yes	yes	yes
3/21/2017	SPAC regular meeting	yes	yes	yes
5/17/2016	SPAC regular meeting	yes	yes	yes

For Program plan 2.3b

James City County

James City County
Clean Water Heritage Grants FY17

Project Location	Project Type	Estimated Total Project Cost	Amount Authorized	Description	LDP Needed	Selected Contractor	Winning Bid	Funding
Colonial Heritage	Inspection	$10,352	$7,764	Phase 1 Section 1 (5568 LF Storm Drain Pipe) 44 Homes	No	Prism Contractors	$14,420	$6,000
Colonial Heritage	Inspection	$8,513	$6,385	Phase Section 2 (4342 LF StormDrain Pipe) 89 homes	No	Prism Contractors	$11,355	$6,000
Colonial Heritage	Inspection	$8,063	$6,047	Phase 1 Section 3 (4042 LF StormDrain Pipe) 83 homes	No	Prism Contractors	$10,605	$6,000
Colonial Heritage	Inspection	$6,261	$4,696	Phase 1 Section 4 (2841 LF Storm Drain Pipe) 53 homes	No	Prism Contractors	$7,602	$5,702
Colonial Heritage	Inspection	$6,500	$4,875	Phase 1 Section 5 (3000 LF Storm Drain Pipe) 84 homes	No	Prism Contractors	$8,000	$6,000
Colonial Heritage	Repair	$16,000	$8,000	Regrade swales and add 1 drop inlet structure	Yes	Longhill Excavating	$46,327	$23,164
Fairway Villas	Repair	$35,000	$17,500	Repair storm pipe on Fairway Lookout, Instal new drainage system in conservation area	No	Prism Contractors	$12,175	$6,088
Fenwick Hills	Repair	$14,725	$7,363	Repair subsidence around drop inlet yard drains (8808 Greenhaven Ct & 3459 Frederick Dr.)	No	Gilley Construction	$4,913	$2,457
Fernbrook	BMP Repair	$5,000	$2,500	Drain pond and remove brush and sediment.	No	Gilley Construction	$7,225	$3,614
Fernbrook	Repair	$40,903	$20,452	Replace 180' of 15" pipe (RCP) Repair 2 DI's	Yes	Toano $86,845	$1,120	$840
Fieldcrest	Repair	$5,000	$2,500	Repair multiple cracks in v-ditch located between 3214 and 3218 Deerfield Ct	No	Longhill Excavating	$16,447	$8,224
Fords Colony	Repair	$50,000	$25,000	Repair 716' of concrete v-ditch. Install 168' of concrete v-ditch	No	Longhill Excavating	$61,785	$30,893
Greater First Colony	Repair	$14,800	$7,400	Lake Pasbehegh Outflow	No	Gilley Construction and Land Tech	$14,800	$7,400
James Square	Repair	$14,350	$7,175	Remove vegetation up to 10' from v-ditch, remove 3 large trees and repair sinkhole in roadway	No	Gilley Construction	$5,158	$2,579

Submitted to DEQ September 30, 2017

For Program plan 2.3b

James City County
Clean Water Heritage Grants FY17

James City County

Powhatan Crossing	BMP Repair	$15,000	$7,500	Repair principal spillway and riser. Remove trees and undergrowth from embankment	No	Longhill Excavating	$7,415	$3,708
Powhatan Village	Inspection	$4,000	$3,000	Inspection 1 (Titan Ct., Pleasant View, Darbi,Mayflower, Turnberry)	No	Prism Contractors	$10,000	$6,000
Powhatan Village	Repair	$17,750	$8,875	Sink holes at Beacon Hill, Mayflower, Turnberry, Silver Fox, Titan Ct, Pleasant View, Darbi Ln	No	Prism Contractors	$7,170	$3,585
Stonehouse	Repair	$3,500	$1,750	(Splitwood outfall repair) Remove trees, back fill and stabillize area	No	Blossom Consulting and Engineering	$9,440	$4,720
Toano Trace	BMP Repair	$5,450	$1,800	Remove vegetation from embankment and rock swale, repair subsidence around inlet structure.	No	Gilley Construction	$4,973	$2,487
Ware Creek Manor	Inspection	$2,400	$1,800	Inspection of Marmont Drive and Massena Drive	No	Blossom Consulting and Engineering	$1,500	$1,125

$136,582

Submitted to DEQ September 30, 2017

FY17 James City County Clean County Commission Spring Cleanups

For MS4 Program Plan Item 2.3e

James City County FY17

#	Neighborhood/ Organization	Lbs of Debris	# of Bags	# of Tires	Number of Volunteers	Description of Debris	Cleanup Location
1	Chickahominy Community Improvement CCIO	4240	65	15	30	playground maintenance, roadside debris	Chickahominy, brown, Friendship, Litte Creek
2	Family	1860		0	6	household, furniture, tires	Warren Dr. at end of Theordore Allen
3	New Balance Shoes	20	2	0	4	roadside litter	olde town, longhill
4	Oak Tree Hunt/ JC Ruritan	900	7	39	20	tires, roadside litter, illegal dump	Mt. Laurel, Ware Creek, Six Mt. Zion, Richardson Mill Pond
5	Season's Trace HOA	40	4	0	1	roadside litter	SR1530 (Seasons Trace from Longhill to Teal Way - 1542)
6	Family	175	7		8	roadside litter, playground/ park	woods behind WHS; Ironbound Park, Palmer Lane, Debra Dr., Carriage Rd., Magazine Rd., Alesa Dr.
7	Wexford Hills HOA	500	20	2	17	roadside litter	Riverview from York River SP, Newman Road (646), North Cove , Wexford Hills Area
8	Odd Jobs	60	3	55	2	tires, roadside litter	Little Creek Dam Rd SR631
9	Individual	20	3	0	1	roadside litter	Norvelia, Farmville, Oslo, Powhatan, Wilson, Old Church, Rt 60 from Peninsula St. to Croaker Rd.
10	Floyd Group	640	9	0	4	roadside & community litter	Richmond Rd. westbound and their community
11	Centerville Neighborhood Association	3060	9 orange, 9 black	27	20	roadside and playground litter	Moody Park, Mildred Dr., Forest Glen, Theodore Allen
14	Association at Stonehouse	80	4	5	4	roadside litter	Rt. 30, Fieldstone Pkwy, Mill Pond Run
15	Grove Recreation and Community Organizations	460	28	12	10	roadside and park litter	Rt. 60 b/w Magruder & Howard, Grove Heights, Ron Springs, Whiting, Jackson, Woodside Dr., Juniper Court, Railroad St., Mahogany Dr.
16	The Adam Hunt Conservative League	40	3	0	2	roadside litter	centerville exit and easements; vacant lot and creek behind the homes, adam hunt, virdella dr.
17	VFW Post 8046	160	3	0	2	Croaker on/ off ramp to 64	croaker rd from interstate westbound to rt 609
18	Anheuser Busch	350	50	1	50	a tire, 12 long yellow tubes, roadside litter	capital trail
19	Lightfoot/ Mooretown Improvement League	740	10	4	10	roadside & playground litter	Clark Lane, Curry Drive, Catalpa, William Circle, Olde Town Rd.
20	Sandy Hill Great Wood HOA	60	6	1	2	roadside litter	all areas approaching Sand Hill and Great Wood from Rochambeau & Old Stage Rod plus the neighborhood
21	JCC Ruritans/ C & F Bank	160	12	2	7	roadside and commuter lot litter. Croaker On/off ramp	Croaker Rd from Richmond Rd to interstate interchange, commuter lot
23	Old Mooretown Organization	2160	37 orange, 3 black	9	4	furniture, roadside litter	Clark Lane, William Circle and upper Mooretown Rd.
24	Greensprings Community Assoc.	40	4	0	2	roadside litter	entrance along Centerville and common areas along Greensprings
26	College Creek	1220			20		College Creek
27	First Colony	75	3	0	1	roadside litter	Greensprings Road
28	Kristiansand	50	2	0	2	roadside litter	Kristiansand neighborhood
		17110	**245**	**172**	**229**		

Submitted by James City county to DEQ Septmeber 30, 2017

Appendix C-3

Exhibits for Minimum Control Measure #3 – Illicit Discharge Detection and Elimination

James City County Compliance Summary Statement

MCM3 Illicit Discharge Detection and Elimination

Permit Year 4- FY17

The James City County IDDE Program is an ongoing effort to perform routine inspections, respond to citizen complaints, and investigate possible illegal discharges into surface waters.

Highlights of the County's IDDE program in PY4 include:

- Up to date storm sewer mapping
- 3 IDDE investigations
- New IDDE field guide developed in cooperation with the Hampton Roads Planning District Commission
- 71 dry weather screenings
- Reporting 20 Hazmat incidences to VADEQ
- Reporting 17 SSORS overflows, 13 associated with Hurricane Matthew

A key part of the IDDE program in this permit cycle has been the on-going work of the Pollution Prevention Team. This collaboration has allowed staff members in different departments who work with environmentally hazardous materials to enhance relationships and work together to develop protocols and reporting methods. This team effort is also an important aspect of MCM6 – Pollution Prevention and Good Housekeeping.

The James City Service Authority has been under a consent order that, as of permit year 2, is no longer in effect, in agreement with VADEQ and EPA. James City Service Authority continues to fulfil its obligations under the Virginia Department of Environmental Quality approved Management, Operations and Maintenance (MOM) Program.

MCM 3 Illicit Discharge Detection and Elimination							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
3.1	Storm Sewer System Map	Maintain an accurate storm sewer system map and information table, including MS4 outfalls within the 2010 urbanized area	Updated information table	Stormwater Division	Annually	Updated information table	See Detail Below
3.1a	*Mapping of 2010 Urbanized Area Outfalls*	Update the storm sewer system map and information table to include MS4 outfalls within the 2010 urbanized area	2010 urbanized area storm sewer system map	Stormwater Division	PY4	Updated information table	No updates, mapping complete
3.1b	*Notification of Downstream MS4*	Notify the downstream MS4 of any newly identified points of discharge	2010 urbanized area storm sewer system map	Stormwater Division	PY4	Notification Letters, if any	No new points of discharge to downstream MS4s but a change to an existing amount previously notified. See Appendix C-3 for details.
3.2	Illicit Discharge Detection & Elimination Ordinance	Continue implementing and enforcing the Illicit discharge/Stormwater Management Ordinance.	Number of investigations and actions taken	Stormwater Division	Ongoing	Stormwater Management Ordinance, Chapter 18A of County Code	3 IDDE investigations in PY4. See detail in Appendix C-3
3.3	Illicit Discharge Detection & Elimination Procedures						See Detail Below
3.3a	*Standard Operating Procedures*	Maintain updated IDDE SOPs for dry weather screening and complaint followup	Protocol for responding and investigating IDDE	Stormwater Division	Ongoing	SOPs Developed During PY1	James City County has adopted the IDDE Field Guide created in cooperation with the HRPDC MS4 communities. See SOP details in Appendix C-3.
3.3b	*Promote and publicize procedures for public reporting of illicit discharges*	Implement the Illicit Discharge Complaint Follow up standard operating procedures	Number of citizen complaints	Stormwater Division	Ongoing	Clean Water Heritage website	See http://www.jamescitycountyva.gov/FormCenter/General-Services-18/Service-Request-235
3.4	Continue implementing an illicit discharge detection and elimination program for the municipally-owned MS4 within the Urbanized Area.						See Detail Below
3.4a		Track illicit discharge detection and elimination activities.	Number of investigations and actions taken	Stormwater Division	Ongoing	Tracking Reports	3 IDDE investigations in PY4. See detail in Appendix C-3

MCM 3 Illicit Discharge Detection and Elimination							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
3.4b		Perform dry weather screening of MS4 outfalls in the regulated area on an annual basis.	Number of outfalls screened annually	Stormwater Division	Ongoing	Inspection Reports	71 dry weather screenings performed in PY4. This constitutes all known outfalls in this permit year.
3.4c		Yard inspections; Develop/enhance reporting relationship with Fire Department/Haz Mat Team; targeted education	Number of responses; number of inspections	Stormwater Division	Ongoing	Inspection Reports	Pollution Prevention Team developed. See meeting summariesin MCM 6 of this document.
3.5	Report all spills that reach state waters to the DEQ and DCR						See Detail Below
3.5a	*Report non-sewer spills and releases from small MS4 regulated properties that reach state waters to the Virginia EOC, who in turn reports to the DEQ.*	Report spills to Virginia EOC and file internal reports. Virginia EOC reports to Department of Environmental Quality's Pollution Response Program (PREP).	Number of internal reports. If applicable, obtain PREP Incidence Response number.	Fire Department	Report in accordance to Section III. G.	Internal report	20 incidents of HazMat spill in James City County. See detail in Appendix C-3.
3.5b	*Report Sanitary Sewer Overflows through SSORS database.*	Continue to utilize SSORS to report Sanitary Sewer Overflows	Number of overflows	James City Service Authority (JCSA)	As necessary		17 overflows reported to DEQ in FY17. Of these, 13 overflows are associated with Hurricane Matthew, October 2016.
3.6	Continue Sanitary Sewer System improvements in coordination with HRSD Hybrid Consolidation Plan	Continue implementation of the DEQ-approved Management, Operation & Maintenance (MOM) Plan	Number of repairs/rehabilitation	JCSA	Ongoing	Internal report	A summary of JCSA's FY17 efforts is provided in Appendix C-3.
3.8	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

General Services
113 Tewning Road
Williamsburg, VA 23188
P: 757-259-4080
F: 757-258-1528
General.ServicesMail@jamescitycountyva.gov
jamescitycountyva.gov

June 30, 2017

Mr. Jim Utterback
District Administrator
Virginia Department of Transportation
Hampton Roads District Office
1700 North Main Street
Suffolk, VA 23434

RE: MS4 Interconnectivity Notice

Dear Mr. Utterback:

Pursuant to the Virginia General Permit for Discharges of Stormwater from Small Municipal Separate storm sewer Systems (MS4) (9VAC25-890-40 Sect II.B.3.a(5), this letter shall serve as notification of interconnectivity with the James City County system to adjacent MS4 permit holders.

A General Notice of MS4 Interconnectivity was previously sent to your office when we applied for the General Permit in 2013. The purpose of this letter is to notify you of a change to the discharge for the reconstructed James City County fire station located at the intersection of Route 60 (Richmond Road) and Route 610 (Forge Road). The fire station has been expanded from its previous size and has additional stormwater facilities that all discharge into the Route 60 drainage system.

If you have any questions or require additional information, please do not hesitate to contact me at (757) 259-1442.

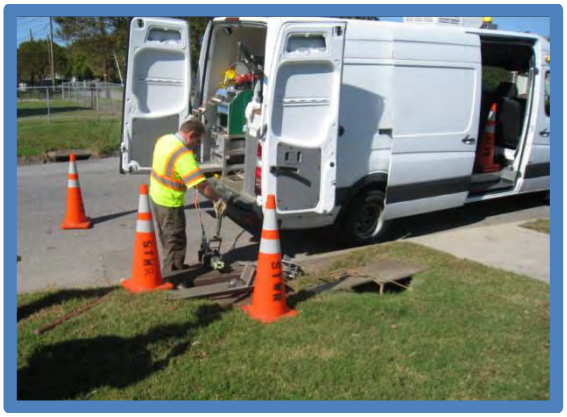
Sincerely,

Darryl E Cook

Darryl Cook
Stormwater Engineer

Date	Location	Initial Complaint	Action Taken	Description/Result	Photos Taken	Date Closed
9/8/2016	5521 Richmond Rd	Behind the shop, there is a shed where it looks like they strip paint off of and paint cars. All the residue runs down the parking lot in the storm drain. I know it is not good because it appears to have dissolved the asphalt! Thank you.	Site visit made	Directed manager that vehicle washing that discharged into a stormdrain was considered an illicit discharge under county ordance. Due to nature of the business, it was unrealist to stop vehicle washing. Manager agreed to immediately switch to phosphate free soap while he looks into possible solutions. I directed him towards a VPDES permit or a berm that the water would collect and could be disposed of down sanitary sewer system. I gave Tim until Dec 1 to provide me with information on how changes were made to stop illicit discharge.	yes	9/9/2016
10/15/2016	107 Cresent Dr	Homeowner stated that a County Waste trash truck blew a hydraulic line on road and clean up was ineffective	Site visit made, found evidence of spill	Contacted County Waste who sent out cleaning crew next day to properly clean up spill		10/16/2016
1/27/2017	6483 Richmond Rd	Grinder pump failed causing overflow of sewer into parking lot which flowed to grassed channel	Site visit made, bypass was installed while pump was repaired, no visual evidence of sewage in channel	Directed manager that this was considered an illicit discharge and would need to be reported to DEQ, I did explain to manage that fast response was appreciated and clean up was effective	yes	2/3/2017






James City County
Illicit Discharge Detection and Elimination Field Guide for the Coastal Plain: How to Identify and Quickly Report Pollution Problems

Funding: National Fish & Wildlife Foundation

Written by: Center for Watershed Protection

April 2017

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1. INTRODUCTION

What is an Illicit Discharge?

An *illicit discharge* is flow to a municipal separate storm sewer system conveyance or natural water body during dry weather conditions that contains pollutants and/or pathogens. A dry weather flow without pollutants or pathogens (e.g. groundwater), is simply a discharge.

Why Is It Important to Report Illicit Discharges?

The primary reasons for noting and reporting illicit discharges are:

1) They contaminate water resources;
2) They may threaten public health and/or the ability of the public to enjoy water resources;
3) They are regulated under the jurisdiction's Municipal Separate Storm Sewer System (MS4) permit and must be removed when detected. This permit applies to activities within the James City County, but is administered by the Virginia Department of Environmental Quality (DEQ) as part of the Clean Water Act.

What to Look for in the Course of Your Day

Many illicit discharges can be detected through visual assessments and simply paying attention to what's going on around you during routine activities. **This guide is intended to help you find, track, and report illicit discharges,** thereby helping the James City County meet permit requirements. In general, what to look for in the field during the course of the day includes:

- Unusual odors, colors, or conditions in surface water, storm drain outfalls or inlets
- Cloudy or murky water
- Floatables, such as toilet paper, suds, or excessive trash
- Unnatural (excessive or dead) vegetation near an outfall pipe
- Odd deposits or stains on an outfall pipe
- Leaks, spills, or dumping of damaging fluids and/or materials
- Staining or discoloration around dumpsters, loading docks, and inlets

2. HOW TO USE THIS MANUAL

Intended Audience

This manual is intended to be used by James City County staff whose job necessitates frequent field or site visits, as well as staff responsible for administering the MS4 Permit. This may include staff from Erosion and Sediment Control Inspectors, Stormwater Inspectors, and others.

Purpose

The purpose of this manual is to assist field and program staff with proper identification, reporting, and resolution of pollution problems.

This manual is divided into several sections, described briefly below:

Common Pollution Problems – Describes common pollution problems that may be encountered during standard work days and routine activities. Problems are listed from those more likely to be encountered to less likely.

Illicit Discharge Characteristics – Describes characteristics and severity of various illicit discharge sources. This may be used to characterize pollution problems for reporting purposes or may be used for prioritization purposes during outfall inspections.

IDDE Written Procedures – Outlines procedures for illicit discharge screening, detection, tracking, and reporting, as required by the MS4 Permit.

Appendices – Contains field and laboratory forms, and other materials that are helpful for program documentation.

What to Report

Any flow occurring after 2 to 3 days of dry weather should be assessed according to the characteristics described in this guide. The flow may be present in an outfall, manhole, storm drain inlet, street or in any manner draining to the James City County's storm sewer system. Any potential problems should be reported AS SOON AS POSSIBLE to James City County Stormwater Staff. *NOTE:* Especially in Hampton Roads, any such flow may be comingled with tidal water. However, be aware that contaminants may still be present, so the testing procedures still apply (with some potential modifications).

WHAT TO REPORT:

- Location of problem
- Time that problem was found
- Odor, color, turbidity, and floatables
- One or more digital photos to document the condition, if possible
- Any other relevant or pertinent information

TO WHOM TO REPORT:

- Stormwater Compliance Inspector, 757-259-1460**, stormwater@jamescitycountyva.gov**

3. COMMON POLLUTION PROBLEMS

Illicit discharges are considered "illicit" because storm sewer systems, unlike sanitary sewer systems, are not designed to accept, treat, or discharge non-stormwater wastes. There are two primary categories of illicit discharges, as follows:

- TRANSIENT – Short in duration, lasting only a short time and then disappearing. Examples include:
  - Materials that have been dumped into a storm drain (catch basin) or drainage way, and
  - A floor drain that is connected to the storm sewer.

- CONTINUOUS – Continuing without changing, stopping, or being interrupted. Examples include:
  - Sanitary wastewater piping that is cross-connected from a building or sanitary sewer line to the storm sewer, and
  - An industrial operational discharge that is not permitted.

The following non-stormwater discharges are authorized unless the State Water Control Board or the permittee determines the discharge to be a significant source of pollutants to surface waters:

- Water line flushing;
- Landscape irrigation;
- Diverted stream flows;
- Rising ground waters;
- Uncontaminated ground water infiltration (as defined at 40 CFR Part 35.2005(20));
- Uncontaminated pumped ground water;
- Discharges from potable water sources;
- Foundation drains;
- Air conditioning condensation;
- Irrigation water;
- Springs;
- Water from crawl space pumps;
- Footing drains;
- Lawn watering;
- Individual residential car washing;
- Flows from riparian habitats and wetlands;
- Dechlorinated swimming pool discharges;
- Street wash water;
- Discharges or flows from firefighting activities; and
- Other activities generating discharges identified by the Department as not requiring VPDES authorization.

Below you will find some common pollution problems and what you should do if you encounter them. For all cases in the "moderate" or "high" severity categories, note the location, take photos, and **contact the Stormwater Compliance Inspector at 757-259-1460, stormwater@jamescitycountyva.gov**

Sediment Discharge

Sediment or dirt should stay contained in a construction site and should not be on the streets where it can enter storm drains (**Figure 1**). Sediment problems are most likely to occur during or after rain, but may also occur if a site is being dewatered or if equipment is being washed down. Note that the source may be a regulated or un-regulated construction activity under the James City County's erosion and sediment control ordinance and/or Construction General Permit.

- **Where to look:** Streams, storm drains, ditches, concrete curb.
- **What to look for:** Brown/orange, turbid water, usually with no unusual odor.

Figure 1. Sediment Discharge (Examples)

Low Severity Sediment Discharge

Moderate Severity Sediment Discharge

Severe Severity Sediment Discharge

Sediment discharges usually originate on the landscape and look like the examples shown in **Figure 2**.

Figure 2. Typical Sediment Discharge Sources

Unprotected storm drain inlet

Soil piled on the street

Construction site runoff

Failing silt fence

Waste Management

Trash and dumping areas are often found in vacant or infrequently visited parts of commercial and residential areas. Trash attracts rodents, can wash into the storm drains and ditches, and signals to others that it is acceptable to dump in the area. Improper dumpster and grease container management can also result in pollution that can wash into the storm drains and streams (**Figure 3**).

- **Where to look:** Behind restaurants, vacant buildings or homes, and/or dead end roads. Areas that people do not frequent such as near train tracks, behind buildings, and vacant lots.
- **What to look for:** Poorly managed grease containers and dumpsters, mattresses, furniture, tires, toys, food and drink containers, cigarettes, etc.

Figure 3. Trash / Dumping

Low Severity Waste Management – Open dumspter with visible staining

Moderate Severity Waste Management – Poorly managed dumpster and/or dumping

High Severity Waste Management – Trash clogging storm drain manhole.

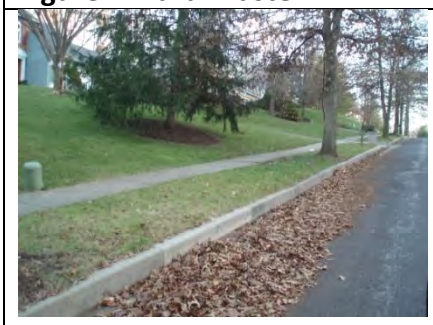
High Severity Waste Management – Grease accumulation on lot draining to storm drain

Yard Waste

Yard waste is usually piles of leaves, mulch, branches, or other residential waste (**Figure 4**). When yard waste is exposed to rain and weather, it can wash away in large quantities and damage the environment. These excessive piles of yard waste are often found on the street, behind homes near streams, in riparian buffers, and in ditches. Yard waste can clog storm drain systems and choke streams.

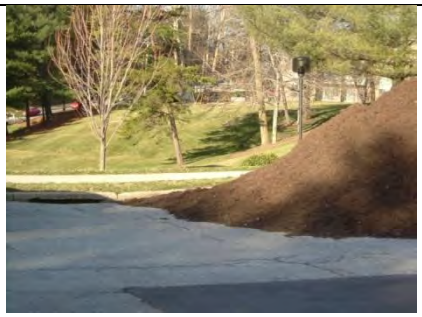
- **Where to look:** Streets and sidewalks near homes. Ditches and streams near homes.
- **What to look for:** Piles of leaves, mulch, grass clippings, tree cuttings, sediment, trash, etc. Decomposed leaves create an "oily" multi-color sheen that breaks up when stirred with stick

Figure 4. Yard Waste



Low Severity Yard Waste Management – Leaves accumulating in street gutter

Moderate Severity Yard Waste Management – Clogged storm drain



High Severity Yard Waste Management – Pile of mulch in street next to storm drain

Chemicals

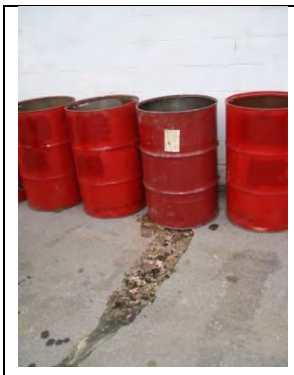
Many household and industrial products can contain chemicals that can be dangerous or potentially harmful to our health or the environment if not stored or discarded properly. These chemicals can be liquids, solids, gases, or sludge. Examples include household wastes such as paint and fertilizer; discarded commercial products, like cleaning fluids or pesticides; or the industrial by-products of manufacturing processes such as cooling tower water and concrete washout (**Figure 5**).

- **Where to look:** Automobile, construction site, and other commercial or residential businesses.
- **What to look for:** Paint, oil, automobile parts, fuel, construction material, chemical containers. Chemical/solvent odor.

Figure 5. Chemicals

Low Severity Chemicals Management – Miscellaneous waste stored outside, some under cover.

Moderate Severity Chemicals Management – Batteries outside without cover, on pallets



High Severity Chemicals Managemen – Uncovered, unlabeled leaking barrels

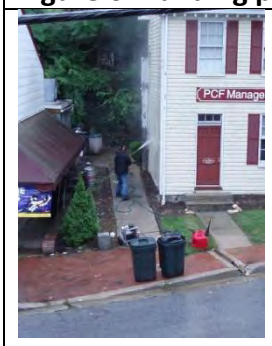
High Severity Chemicals Managemen – Used oil container open with spills

Washing Activities

Outdoor washing may or may not be problematic. For example, hosing off a sidewalk or driveway or individual residential car may not generate significant flows or pollutant loads. These examples are not problematic unless done on an ongoing or chronic basis close to a waterway or storm drain. However, washing fueling areas, and power washing construction equipment in parking lots can generate significant flows or pollutant loads and are therefore problematic. Residential homeowner car washing and lawn watering are generally allowed activities, unless deemed to be "significant contributors of pollutants to the small MS4" (see authorized list of discharges at the beginning of this manual). Wash water dumping and vehicle washing at commercial establishments is *not* acceptable. Some examples are shown in **Figure 6**.

- **Where to look:** Car washes, car dealerships and rental companies, fire stations, fleet maintenance areas, and parking lots with mobile car washes.
- **What to look for:** Suds; sweet, fruity, detergent, or chlorine smells.

Figure 6. Building power washing and outdoor vehicle washing



Low Severity Washing – Individual power washing building side without soap

Moderate Severity – Suds persisting below outfall

High Severity – Fleet vehicle washing next to storm drain

Sewage Discharges

Sanitary sewage can enter the storm drain and streams through cracks in sewer pipes, a failing septic system, straight pipes, and/or where a sewer pipe is improperly connected to a stormwater pipe. A transient discharge of sewage can also occur when sanitary sewer pipes overflow out of manholes (usually from a blockage or too much rain). Field crews may see any of these sources of discharges during routine activities. Some examples are shown in **Figure 7**.

- **Where to look:** In storm drains, near sewer manholes, in streams, exposed sewer pipes.
- **What to look for:** Sewage smells, gray water, toilet paper, scum in or below pipes.

Figure 7. Sanitary sewage discharge sources

Sanitary pipe break

Illicit sewage connection

Sanitary straight pipe

Illicit connection, downstream of source

Surcharging sanitary manhole in parking lot

Swimming Pool Discharges

Chlorinated pool water being drained into a street or storm drain is considered an illicit discharge (**Figure 8**), while dechlorinated discharges generally are not (9VAC25-870-400 D 2 c 3).

- **Where to look:** Storm drain pipes, streets, driveways, yards.
- **What to look for:** Clear water with chlorine odor.

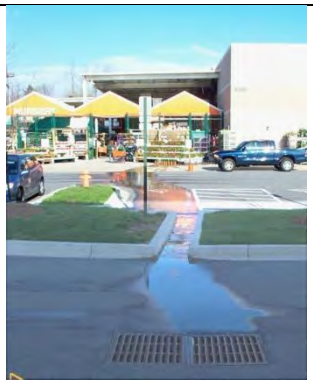
Figure 8. Suspect pool discharge

Landscape Irrigation Water

Landscape irrigation water can potentially carry excess nutrients and chemicals if it is coming from a highly fertilized area (**Figure 9**). In order to be considered an illicit discharge, irrigation water must be deemed by the MS4 to be a "significant contributor of pollutants to the small MS4" (9VAC25-870-400 D 2 c 3), which likely means that the issue is chronic and is leading to exceedances of one or more indicator thresholds (see **Section 5, IDDE Procedures**). Residential irrigation water is generally not a concern and does not need to be reported.

- **Where to look:** Nurseries, home improvement and garden supply stores, properties with highly manicured landscaping.
- **What to look for:** Clear water with chlorine or fertilizer smell; algae growth in path of water.

Figure 9. Suspect irrigation discharge



Irrigation water entering the storm drain system from a retail establishment

Water Main Breaks

Potable water leaking into the storm drain system is generally not considered to be a significant illicit discharge. However, water main breaks (**Figure 10**) can damage infrastructure, waste treated drinking water supplies, threaten public safety, and harm streams if breaks generate excessively high and

erosive flows that contribute sediment to local waterways. In addition, the Chesapeake Bay expert panel on "Nutrient Discharges from Grey Infrastructure" considers "drinking water transmission losses" to be a source of nutrients that communities can potentially take credit for if leaks are fixed (Schueler et al., 2014). Water main issues may also be detected by the chlorine scent – if you smell a strong chlorine scent, this should be reported to the James City County water utility.

- **Where to look:** Streets, sidewalks, parking lots.
- **What to look for:** Clear water seeping or spewing out of pavement or storm drain.

Figure 10. Water main break

Accident Spills

Accident spills can enter ditches, storm drains, streams and rivers (**Figure 11**). Highway and road spills, particularly those involving hazardous waste, should be reported to 911. First responders will likely be the first personnel on-site, but the Stormwater Compliance Inspector may be of assistance in cases where spill response is needed.

Figure 11. Accident spills

Accidental spills can be significant sources of pollution to the storm drain system

4. ILLICIT DISCHARGE CHARACTERISTICS

Illicit discharges have certain characteristics that are important to note when developing a report or conducting outfall inspections or dry weather screenings. These characteristics include odor, color, turbidity, and floatables, which are described in more detail here.

Odor

Determine if there is an odor coming from the suspected illicit discharge. Potential odors that you may encounter are:

- Musty
- Sewage
- Rotten eggs (sulfide)
- Gas or oil
- Sharp, pungent (chemicals)
- Rancid/sour
- Chlorine
- Sweet/fruity

The field crew should reach consensus as to whether an odor is present and score it based on how severe it is. An example of a scoring system is:

Score	Description
1	Odor is faint or the crew cannot agree on its presence or origin.
2	Indicates a moderate odor.
3	Odor is so strong that crew smells it from a considerable distance away from the outfall.

TIPS:

(1) Make sure the origin of the odor is the outfall pipe. Sometimes shrubs, trash or dead animals, or even the spray paint used to mark the outfall, can confuse the nose of field crews.

(2) Never inhale directly over the suspect area as it may contain vapors that could be harmful.

Color

Record the color intensity of the discharge which can be clear, slightly tinted or intense. The best way to measure color is to collect the discharge in a clear sample bottle and hold it to the light. Field crews should also look for downstream plumes of color that appear to be associated with the outfall. **Figure 12** illustrates a spectrum of colors that may be encountered during an inspection and offers insight on how to rank the relative intensity or color strength. Color can often help identify industrial discharges (see **Table 1**). Iron floc, a red bacterium commonly found in ditches and rivers (**Figure 13**), is generally *not* a concern. Sometimes fluorescent dyes used for dye testing (e.g., tracking floor drains or storm sewer connections) will end up at outfalls as well.

Table 1. Colors associated with common pollution problems	
Color	**Possible Sources**
Brown	• Construction • Meat • Printing facilities • Concrete, stone, clay, and/or glass cutting • Metal grinding
Green	• Chemical plants, textiles • Algae or plankton bloom • Antifreeze (fluorescent green) • Fertilizer
Gray to White	• Dairy / food processing • Sewage • Concrete wash-out
Milky white	• Paint, lime, grease, concrete • Swimming pool filter backwash • Concrete wash-out • Stone cutting
Red	• Meat packing / processing
Red, purple, blue, black	• Fabric dyes, inks from paper and cardboard manufacturers

An example of a scoring system for color intensity is:

Score	Description
1	Flow is primarily clear, faint colors may be present
2	Clearly visible, moderately intense
3	Flow is intensely colored

Figure 12. Illicit discharge colors & intensity

Color: Clear, Intensity 1

Color: Brown, Intensity 2

Color: Purple, Intensity 3

Figure 13. Iron Floc

Iron floc in an outfall pipe

Iron floc in a stream

Turbidity

During inspections, make a visual estimation of the discharge turbidity. Turbidity is a measure of the water cloudiness. Like color, turbidity is best observed in a clear sample bottle and can be quantitatively measured in the field. Field crews should look for turbidity in the pool below the outfall as well as in ditches and note any downstream turbidity plumes that appear to be related to pollution sources. Turbidity can often times be confused with color, which are related but not the same. Turbidity is a measure of how easily light can penetrate through the water sample, whereas color is defined by the tint or intensity of the color observed. See **Figure 14** for how to rank turbidity severity.

Score	Description
1	Slight cloudiness to the water
2	Cloudy, more difficult to see through the water
3	Water is opaque; cannot see through

Figure 14. Turbidity

Turbidity Severity: 1

Turbidity Severity: 2

Turbidity Severity: 3

Floatables

Another visual indicator is the presence of any floatable materials in the discharge or the plunge pool below the outfall pipe. Sewage, oil sheen, and suds are all examples of floatable indicators. Trash and debris are generally not floatables in the context of illicit discharge investigations, but should be noted in any case for potential dumping or yard waste concerns (see respective sections above). Some guidelines for ranking their severity are provided.

If you think the floatable is sewage, you should automatically assign it a severity score of 3 since no other source looks quite like it (see **Figure 8**). Surface oil sheens are ranked based on their thickness and coverage. A thick or swirling sheen associated with a petroleum-like odor indicates a likely oil discharge (**Figure 15**). In some cases, surface sheens may not be related to oil discharges, but instead are created by natural in-stream processes, such as the example shown in **Figure 16**. These natural decay sheens will crack and break up when swirled with a stick, but petroleum products will quickly coalesce back together.

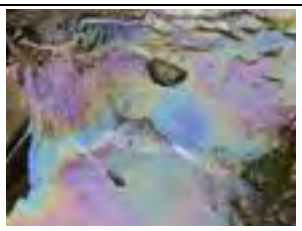
Suds are rated based on their foaminess and staying power. A severity score of 3 is designated for thick foam that travels many feet before breaking up (**Figure 17**). Suds that break up quickly may simply reflect water turbulence, and do not necessarily have an illicit origin. Some streams have naturally occurring foams due to the decay of organic matter. However, suds that are accompanied by a strong organic or sewage-like odor may indicate a sewage leak or illicit connection. If the suds have a fragrant odor, they may indicate the presence of laundry water or other wash waters.

Score	Description
1	Few/slight
2	Moderate
3	Severe

Figure 15. Oil Sheens

Low Severity Oil Sheen
Score: 1

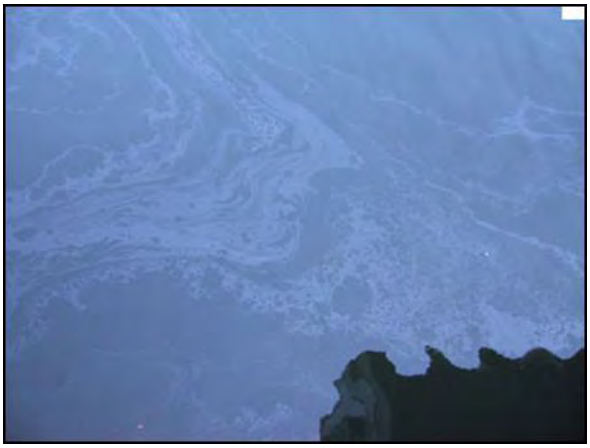
Moderate Severity Oil Sheen
Score: 2



High Severity Oil Film
Score: 3

Figure 16. Natural vs. Synthetic Sheen

Sheen from bacteria such as iron floc forms a sheet-like film that cracks if disturbed



Synthetic oil forms a swirling pattern

Figure 17. Suds

Natural Foam - Do not record.
Note: Suds caused by turbulence

Low Severity Suds – Score: 1
Note: Suds do not appear to travel; very thin foam layer

Moderate severity suds – Score: 2

High severity suds – Score: 3

5. IDDE WRITTEN PROCEDURES

Purpose/Goal

The chief purpose of these procedures is to help protect local water quality and satisfy the requirements of Minimum Control Measure No.3 of the Phase I MS4 Permit (Section B 2 e) and Phase II MS4 Permit (Section II B 3 c). The procedures provide a framework for MS4s to develop and implement a comprehensive plan to identify and eliminate unauthorized dry weather illicit discharges to their systems.

Adopted from Brown et al. (2004), the protocol relies primarily on visual observations and the use of field test kits and portable instrumentation during dry weather to complete a thorough inspection of the communities' storm sewers in a prioritized manner. The protocol is applicable to most typical storm sewer systems; however, modifications to materials and methods may be required to address coastal plain and other conditions, such as tidal influence, groundwater intrusion into storm sewers, piped stream networks, systems impacted by sanitary sewer overflows, or situations where groundwater, backwater or other conditions preclude or confound adequate inspection. The primary focus of the protocol is sanitary waste, however, toxic and nuisance discharges may also be identified. Implementation of the protocol would satisfy the relevant conditions of Minimum Control Measure No. 3, illicit discharge detection & elimination (IDDE) of the James City County's Phase I and/or Phase II NPDES MS4 Permit.

NOTE: The following procedures represent a fairly robust set of practices that would meet or exceed the requirement for "written procedures" in the MS4 General Permit. At points, the procedures intersect with particular sections of the General Permit, and these are noted in the text. Localities should review the procedures in the context of the permit, and modify to meet the capabilities and goals of the local program. In addition, MS4s may wish to consult the Chesapeake Bay Program protocols for TMDL credits for reducing discharges from "Grey Infrastructure" to ascertain whether local programs can obtain additional credits towards needed MS4 pollutant reductions (Schueler et al., 2014). The Nutrient Discharge from Grey Infrastructure Credit side bars in this document refer to potential credits outlined in the Grey Infrastructure protocol:

http://chesapeakestormwater.net/bay-stormwater/baywide-stormwater-policy/urban-stormwater-workgroup/illicit-discharge-detection/

Illegal dumping located at or near an outfall should be reported to the **IDDE Coordinator at (757) 259-1460 or stormwater@jamescitycountyva.gov**
Needed infrastructure repairs should be reported to the **James City County Stormwater at (757) 259-1460 or stormwater@jamescitycountyva.gov**

Detection

Illicit discharges can be detected in several ways: citizen complaints, during regular dry weather screening, and during other routine activities conducted by staff. Procedures to be followed at the

storm drain or outfall do not differ greatly based on the type of detection. These procedures are discussed below.

Outfall Inspections

Outfall inspections are to be conducted when at least **48 hours** has passed since the last precipitation event, generally an event of greater than 0.1", unless responding to a citizen complaint or spill. Safety precautions are to be undertaken during the inspection, including:

- Wearing protective gloves;
- Wearing protective goggles if chemical testing takes place;
- Placing traffic cones and using flashers, lights, and other traffic control measures if needed;
- Using caution on slopes and at the edge of waterbodies;
- Disposing of chemical reagents or other waste as indicated on material safety data sheets; and
- Not entering manholes or storm sewers without confined space training.

Autumn (after leaf fall) is the ideal time to conduct outfall inspections. Vegetation is less likely to obstruct views of outfalls and groundwater influences may be diminished. Outfall inspections may be conducted during other seasons, but be aware of the following:

- Winter: frozen flows, cold temperatures affecting sampling equipment, and possible effect of snow melt and/or road salt on sample results.
- Spring: high groundwater table may lead to more flowing outfalls that originate from springs in addition to more groundwater inundation of the storm sewer system.
- Summer: vegetation may obstruct outfalls, air conditioning condensate may lead to more flowing outfalls (AC condensate is not considered an illicit discharge unless deemed by the MS4 to be a "significant contributor of pollutants" (see authorized discharges in Section 3 of this manual)).

Nutrient Discharges from Grey Infrastructure Credit

Direct measurements of Flow and Nutrient Concentration are required prior to removal for the following discharge types:

- Laundry washwater*
- Commercial car washwater
- Floor drains
- Miscellaneous high nutrient discharges
- Sanitary direct connection

*Can use default values for nutrients

Submerged Outfalls & Monitoring Stations

In the coastal plain, many outfalls are submerged due to the flat relief. This can make it difficult to identify, access or to effectively sample these outfalls. Some options include:

- Sample During Low Tide
  In tidal waters, surveys should be conducted at low tide. This exposes outfalls that may be hidden during high tide.

- Take Samples from Further Up the Pipe
  Many of the observations that are helpful for identifying illicit discharges are difficult to identify in submerged outfalls or storm sewer structures with groundwater inundation. For example, one key indicator is whether the pipe is flowing or non-flowing. By walking further up the pipe or storm system, investigators can determine if the pipe is flowing.

- Conduct field surveys by boat or from the shore
  Another challenge at submerged outfalls is that they can be difficult to access. One solution to this problem is to conduct outfall surveys by kayak or canoe in deep waters. Alternatively, outfalls can be accessed by walking along the shore.

- Use Aerial Infrared Imagery to Identify discharges
  Aerial infrared imagery can help to identify continuous discharges (Figure 18). This technique is helpful for submerged outfalls that may be missed, even when flowing. This technique should always be followed up with sampling to ground truth the initial findings. Aerial infrared imagery can be obtained from fly-overs or existing imagery can be inspected from sources such as the US Geological Survey[1].

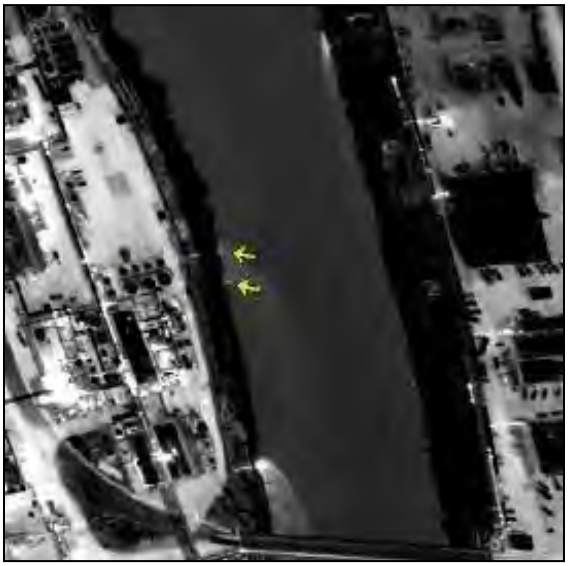


Figure 18: Four discharges to the river appear as white plumes. The two discharges highlighted with arrows were unknown discharges. (Source: http://www.excel.net/~jdh/products1.html)

- Supplement with Chemical Monitoring
  In *non-submerged or non-inundated* outfalls or structures, physical characteristics (e.g., color and odors) can be excellent indicators of the discharge potential. the contaminant source can still be relatively concentrated. However, in *submerged outfalls and inundated structures*, the flow is immediately diluted, and it becomes difficult to identify all but the most contaminated sources. Collecting samples for the lab will be helpful at these sites. The most useful parameters at submerged outfalls or inundated structures are bacteria (E. coli, Enterococcus, total coliform, etc.), ammonia and optical brighteners.

At the outfall/structure, look for visual indicators of illicit discharges like those described in Section 4. Complete the Outfall Reconnaissance Inventory (ORI) form (see **Appendix A**), or similar field or electronic form, to record your observations.

[1] https://eros.usgs.gov/aerial-photography

If the outfall is not already in the jurisdiction's mapping system, collect GPS coordinates, and assign it a unique identifier code. Consider marking this code on the outfall with spray paint or waterproof marking stick in a prominent location such as the outfall headwall. This will help field crews identify specific outfalls in the future. New outfalls and unmapped stormwater infrastructure should be updated in the jurisdiction's master GIS system as soon as possible after identification. Stormwater pipe mapping should note the direction of flow in addition to pipe location.

Water Sampling

If the outfall has dry weather flow, take photos and collect a water sample as follows. Jurisdictions may wish to adopt specific Standard Operating Procedures (SOP) for water sampling and other aspects of the IDDE program. An example SOP for water sampling can be found in **Appendix B**.

If possible, collect water from the flow directly in a clean glass bottle or, for bacteria analysis, a sterile plastic bottle or bag. If using a re-usable bottle, be sure to rinse the bottle and its cap one to three times with sample water for conditioning. If a dipper, bailer, bucket, or other device is used to collect a sample, be sure that they are also conditioned with the flow prior to final collection. Collect enough water to conduct all your field and laboratory tests, plus some extra for good measure.

Label each sample bag or bottle with the appropriate outfall ID, date and time of collection, and sample collector initials using a water-proof marker. (It is easier to label these BEFORE filling the containers.) Bacteria samples are to be kept on ice and processed within a certain amount of time after collection – usually within 6 hours, but refer to bacteria kit or lab instructions for specific holding times. Other lab samples may also need to be kept on ice; consult the laboratory for special instructions. See **Table 2** for typical water sampling parameters, common holding times and methods for handling water samples for different parameters.

Table 2. Holding Times for Water Samples for Lab Analysis

Parameter	Water Type	Holding Time	Notes
Bacteria	Fresh or salt	6 hours	Cool, 4ºC; Enterococcus preferred for salt water
Ammonia	Fresh or salt	Process immediately	Can preserve with sulfuric acid and hold for 28 days; Additional reagent needed for salt water processing
Fluoride	Fresh	28 days (HDPE plastic container only)	Cool, 4ºC
Anionic Surfactants	Fresh	2 days	Cool, 4ºC
Potassium	Fresh	6 months	Frozen
Total nitrogen / Total phosphorus	Fresh or salt	24 hours 30 days	Cool, 4ºC Frozen below -20ºC

pH	Fresh or salt	Process immediately	
Temperature	Fresh or salt	Process immediately	
Optical Brighteners	Fresh or salt	Process immediately	

Measuring Flow Rate
If possible, approximate flow measurements should be collected at each flowing outfall. Flow measurements are most critical if the MS4 wishes to take credit for eliminating an illicit discharge (see Grey Infrastructure sidebars) because flow is used to calculate the credit. In other cases, some approximation of flow is still helpful to classify and prioritize illicit discharge issues.

The methods to be used are listed in priority preference below.

1. **Volume-based** – a 1-liter container jug or 5-gallon bucket is filled and the time taken to fill it is recorded with a stopwatch. Flow rate is obtained by converting liters or gallons to cubic feet and then dividing the volume by time. If the flow is difficult to obtain, a "spout" can be molded from plumber's putty to direct the flow into the measuring container.
2. **Weir equation** – average depth of flow and wetted width are collected at the outfall and the results are input into the equation:
   Q in cubic feet per second = 3.1 x wetted width (feet) x depth (feet) ^ 1.5
   Note: This method should only be used with a free-flowing outfall (i.e. water drops out of the pipe and falls to the stream channel) and when the depth of flow is relatively uniform.
3. **Cross-sectional area** – the cross-sectional area of the water is obtained by collecting the wetted width and average depth of water and multiplying the results. Velocity is obtained by using a stopwatch to measure the time it takes for a ping pong ball or other buoyant object to flow over a known distance. The velocity measurement is repeated 3-5 times and the results averaged. Flow is obtained by multiplying cross-sectional area by velocity.
4. **Tidally influenced outfalls** – Collecting flow from a tidally influenced outfall or structure can be difficult. If the pipe invert is exposed (dry) during low tide, flow can be collected at that time. If the pipe invert is not exposed during low tide, check each succeeding upstream manhole until no or minimal tidal influence is noted. This same procedure can be followed for storm sewers that are inundated with groundwater. Flow can then be collected using the cross-sectional area equation above. If it is difficult to collect wetted width, water depth and/or velocity at the manhole, the measures can be collected as visual estimates and noted as such on the data collection sheet. A manhole inspection light and mirror kit can be useful for obtaining estimates.

Regular inspections of outfalls or storm drains are a primary part of an effective IDDE program and a regular schedule of long-term inspections for outfalls should be maintained. The Phase II MS4 Permit requires a *prioritized schedule of field screening activities determined by the operator based on such criteria as age of the infrastructure, land use, historic illegal discharges, dumping, or cross connections*

(Section II B 3 c 1 a). **If the Phase II MS4 has less than 50 outfalls, all should be screened on an annual basis. For communities with 50 or more outfalls, a minimum of 50 should be screened annually.2**

Non-routine Inspections

If an employee observes evidence of an illicit discharge during an informal or non-routine inspection, he/she should collect as much information (including photos) about the potential illicit discharge as possible and then contact his/her supervisor or dispatch office so that appropriate action can be taken. A tracking sheet or spreadsheet (example provided in **Table 3**) can be used to collect the information observed. While it may not be reasonable to expect all field employees to have copies of the form with them at all times, there are other ways to collect the information:

- The person observing the discharge can provide the information verbally to dispatch or the supervisor, who can then complete the Illicit Discharge Tracking Sheet;
- The person can log as much information as they can recall onto the form upon returning to the office; or
- A third party (such as a code enforcement officer) dedicated to inspecting and tracing illicit discharges can be sent to the location as soon as possible where the potential illicit discharge was observed to collect the necessary information directly on the form.

Table 3. Illicit Discharge Tracking Sheet

Date Illicit Discharge Observed & Reported:	**Report Initiated by: Phone, drop-in, contact information, etc.**	**Location of Discharge: If known – lat/long, stream address or outfall #, nearby landmark, etc.**	**Description of Discharge: E.g. – dumping, wash water suds, oil, etc.**	**Actions to be Taken: Who What, When and How…(what should be done)**	**Results & Follow-Up of Investigation: Outcome of actions taken and any necessary follow-up (what was done)**	**Date Investigation Resolved or Closed:**

It is important to collect as much information as possible at the time of initial observation because of the likelihood that a discharge may be transitory or intermittent. Initial identification of the likely or potential sources of the discharge is also very important.

Potential outfall investigation scenarios include:

1. No discharge present, no evidence of previous illicit discharge – Action: record and proceed to next outfall.
2. No discharge present, evidence of previous illicit discharge – Action: schedule for re-investigation in **one month**.

3. Discharge present – Action: note apparent quality of discharge, take field or lab samples for chemical analysis if necessary and, if appropriate, begin source tracking phase.

Drainage Area and Storm Drain Investigations

An illicit discharge investigation is to be conducted if any of the following apply:

- The overall outfall characterization as determined by the ORI (**Appendix A**) is determined to be "suspect" or "obvious."
- On-site or lab water testing results in values that exceed established thresholds. *General* thresholds are indicated in **Table 4** and **Figure 19**. The framework for a chemical fingerprint library for Hampton Roads can be found in **Appendix C**. Note that analysis should begin with a determination of the salinity concentration. Salt water creates interference for many monitoring parameters, ammonia in particular. For some parameters, such as ammonia, special kits are needed for salt or brackish water. In addition, some probes may not function at high salinity rates, and program designers need to search for other options.
- If the outfall is determined to have "potential" illicit discharges based on completion of the ORI, the outfall should be re-visited **three** additional times during the permit cycle to determine if an intermittent discharge may be present. Ideally, **one** re-visit will occur on a different day of the week than the original visit and/or at a different time of day.

Table 4. Dry weather outfall screening suggested water quality indicators			
Screening Parameter	**Potential Source**	**Salt Water Consideration**	**Threshold[2]**
Ammonia	Washwater, Wastewater or Industrial	Additional reagent may be required for test kits	>0.5 mg/l
Fluoride	Tap Water	Most test kits not suitable for use in salt water	>0.25 mg/l
Detergents	Wastewater, Washwater or Industrial	Most test kits not suitable for use in salt water	>0.25 mg/l
Optical Brighteners	Washwater, Wastewater	Detergent alternative for use in salt water but results may be confounded by organic matter	>15RFU[3]
Bacteria	Washwater, Wastewater	Enterococcus preferred in salt water	>10,000 CFU
Chlorine	Tap Water	Check test kits for suitability of use in salt water	>0.1 mg/L
pH	Washwater, Industrial	pH strips not appropriate for salt water, use colorimetric techniques or probe	≤5
Temperature	n/a	n/a	n/a

[2] All thresholds should be established against a locally developed chemical fingerprint library.
[3] Optical brightener thresholds are still being researched; their use in an IDDE program should be considered within the framework of an adaptive chemical fingerprint library.

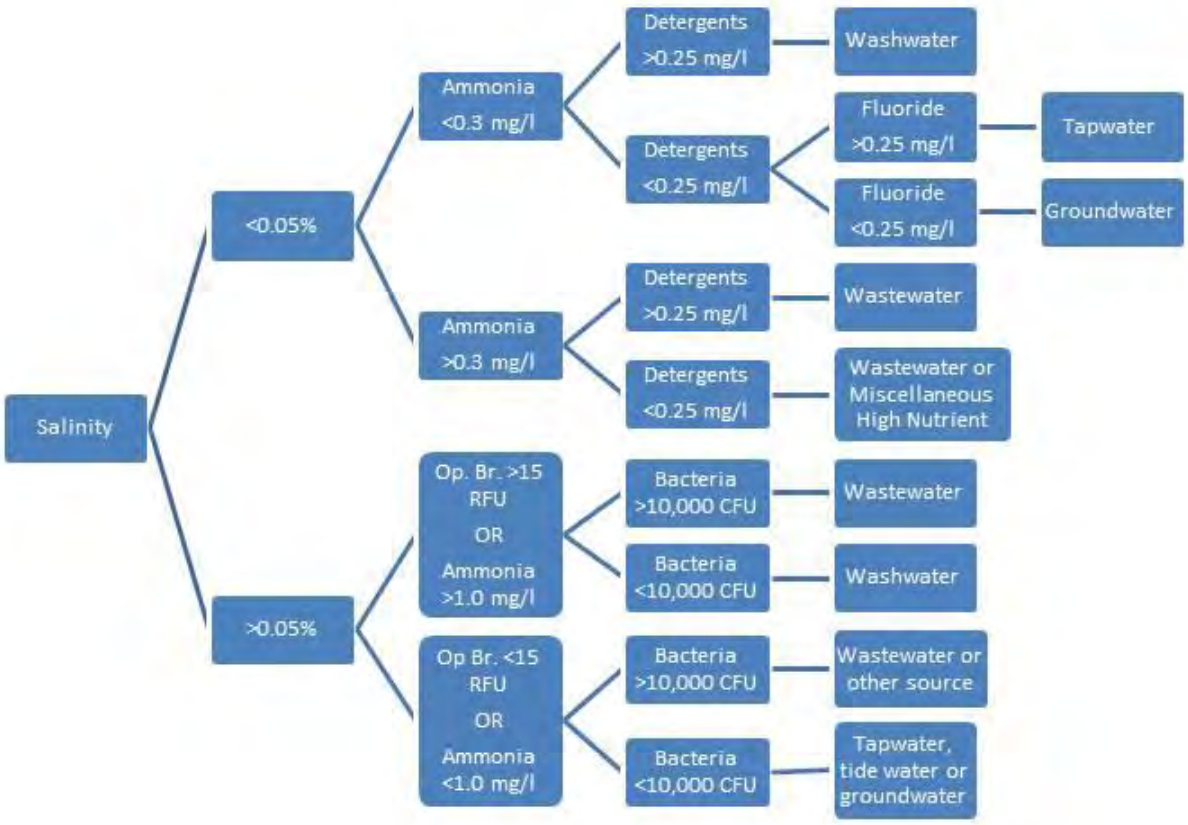


Figure 19. Flow chart method to determine if flow has an illicit discharge, based on thresholds for different parameters.

If an illicit discharge is detected at an outfall, an investigation will be conducted to isolate the source of the discharge. **These investigations should commence within 2 days of the initial identification of any observed continuous or intermittent potential illicit discharges.** Based on the MS4 Permit, potential illicit discharges from sewage or that are "significantly contaminated" must be investigated first (see severity ratings in **Section 4, Illicit Discharge Characteristics**). Potential illicit discharges that are deemed less hazardous to human health and safety (e.g., washwater) should be investigated, but as a secondary priority (Section II B 3 c 1 d).

The process for tracking a transient discharge (e.g., that enters the storm drain system directly through dumping or spills from the landscape) will follow the procedure for a *Drainage Area Investigation*. Tracking a continuous or intermittent discharge that likely occurs from direct or indirect entry into the storm drain system from the interaction of pipes underground will follow the procedure for a *Storm Drain Investigation*. Either investigation should be conducted during dry weather as described previously.

Public notification may be required in either type of investigation. If right of entry onto private property is required, the jurisdiction will **provide a letter/mailer to residents and property owners** located in the vicinity, notifying them of the scope and schedule of investigative work, and the potential need to gain access to their property to inspect plumbing fixtures.

Drainage Area Investigation

A survey by vehicle ("windshield survey") of the drainage area may be used to find the potential source of pollution if the discharge observed at an outfall has distinct or unique characteristics that allow crews to quickly ascertain the probable operation or business that is generating it (Brown et al, 2004). Discharges with a unique color, smell, or off-the-chart

Nutrient Discharges from Grey Infrastructure Credit

Step 1: Concentration – Obtain water samples, duplicates, and flow measurements from an illicit discharge source

Step 2: Average Daily Flow – Convert cfs to gpd for flow measurement (daily flow)
1 cubic foot = 7.48 gallons
86,400 seconds/day
0.006 cf/second x 7.48 gallons/cf x 86,400 seconds/day = _____ gallons/day (average daily flow)

Step 3: Conversion Factor – Understand conversion factor for concentration: mg/L to lbs/gallon
1 mg = 2.205×10^{-6} lbs
1 L = 0.264 gallons
1 mg/L = 2.205×10^{-6} lbs/mg / 0.264 gallons/L = 8.345×10^{-6}

Step 4: Duration – Calculate days/year of the discharge: assume laundry flow from building 25% of the year based on interview with building manager
365 days/year x 0.25 = _____ days/year

Step 5: Annual Load Reduced – Calculate lbs/year of eliminated discharge
TN Load = Step 1 Average concentration __ x Step 2 gallons/day _____ x Step 3 Conversion factor _____ x Step 4 days/year _____ = _____ lbs/year

TP Load = Step 1 Average concentration ___ _____ x Step 2 gallons/day _____ x Step 3 Conversion factor _____ x Step 4 days/year _____ = _____ lbs/year

indicator sample reading may point to a specific industrial or commercial source. For example, if fuel is observed at an outfall, crews might quickly check every business operation in the drainage area that stores or dispenses fuel. The drainage system map will be useful for this investigation.

In larger or more complex drainage areas, GIS data can be analyzed to pinpoint the potential sources of a discharge. If only general land use data exist, maps can at least highlight suspected industrial areas. If more detailed SIC code data are available digitally, the GIS can be used to pull up specific hotspot operations that could be potential dischargers.

Storm Drain Investigation

Adequate storm and sanitary sewer mapping is a prerequisite to properly execute a storm drain investigation. As necessary and to the extent possible, infrastructure mapping should be verified in the field and corrected prior to investigations. This effort affords an opportunity to collect additional information such as latitude and longitude coordinates using a global position system (GPS) unit, if so desired. To facilitate subsequent investigations, tributary area delineations should be confirmed and junction manholes should be identified during this process.

Field crews strategically inspect manholes within the storm drain network system to measure chemical or physical indicators that can isolate discharges to a specific segment of the network. Once the pipe segment has been identified, on-site investigations are used to find the specific discharge or improper connection. This method involves progressive sampling at manholes in the storm drain network to narrow the discharge to an isolated pipe segment between two manholes. Field crews need to make two key decisions when conducting a storm drain network investigation—where to start sampling in the network and what indicators will be used to determine whether a manhole is considered "clean" or "dirty".

The field crew can sample the pipe network in one of three ways:

1. Crews can work progressively up the trunk from the outfall and test manholes along the way.
2. Crews can split the trunk into equal segments and test manholes at strategic junctions in the storm drain system.
3. Crews can work progressively down from the upper parts of the storm drain network toward the problem outfall.

During a manhole inspection, manholes are opened and inspected for visual evidence of contamination. Where **flow is observed**, and determined to be a potential illicit discharge through visual indicators and/or use of water testing equipment, the upstream tributary storm sewer system is isolated for investigation (e.g. further flow inspection, dye testing, CCTV). Manholes are inspected until the observed flow is determined to be uncontaminated or until all upstream illicit connections are identified and removed.

For Phase II MS4 permittees, where **flow is not observed, but an intermittent discharge is suspected, the MS4 Permit requires documentation of at least 3 separate investigations to observe the potential intermittent discharge, and proper documentation of those investigations** (Section II B 3 c 1 e). No specific requirements are made of Phase I permittees with regards to intermittent discharges.

Another method to locate and identify intermittent discharges attempts to contain the flow when it occurs. This method will likely require confined space entry procedures for entering junction

manholes. All inlets to the structure should be partially dammed for 48 hours when no precipitation is forecasted. Inlets are damed by blocking a minimal percentage of the pipe diameter at the invert using sandbags, caulking, weirs/plates, or other temporary barriers. The manholes are thereafter re-inspected (prior to any precipitation or snow melt) for the capture of periodic or intermittent flows behind any of the inlet dams. The same visual observations and field testing is completed on any captured flow, and where contamination is identified, abatement is completed prior to inspecting downstream manholes.

Where flow is observed and does not demonstrate obvious indicators of contamination, samples are collected and analyzed and then compared with established benchmark values (see examples in **Table 4 and Figures 18**) to determine the likely source of the flow. This information facilitates the investigation of the upstream storm sewer system. Benchmark values may be refined over the course of investigations as the community develops a better sense of local threshold values for given indicators. In those manholes where periodic or intermittent flow is captured through damming inlets, additional laboratory testing (e.g. toxicity, metals, etc.) should be considered where an industrial discharge is suspected.

To facilitate investigations, storm drain infrastructure should possibly be cleaned to remove debris or blockages that could compromise investigations. Such material should be removed to the extent possible prior to investigations, however, some cleaning may occur concurrently as problems manifest themselves.

Isolation and confirmation of illicit sources

Where field monitoring has identified storm sewer systems to be influenced by sanitary flows or washwater, the tributary area is isolated for more detailed investigations. Additional manholes along the tributary are inspected to refine the longitudinal location of potential contamination sources (e.g. individual or small blocks of homes or businesses). Targeted internal plumbing inspections, dye testing, smoke testing or CCTV inspections are then employed to more efficiently confirm discrete flow sources. More information on these techniques can be found in Brown et al (2004), and as specified by local policies and legal authority (Section II B 3 c 1 f).

Per James City County Code, upon determination of the source, the James City County notifies the apparent responsible party that a violation of the stormwater ordinance exists. Voluntary compliance is the preferred response. If voluntary compliance cannot be achieved through negotiation, the program administrator may initiate formal enforcement action as specified in the local ordinance.

Nutrient Discharges from Grey Infrastructure Credit

Verification of illicit discharge elimination is necessary for crediting purposes. Typical verification requirements:

- Confirmation inspection after elimination
- Inclusion in annual outfall screening for one to two years after elimination.

Post-Removal Confirmation (Section II B 3 c 1 g)

After completing the removal of illicit discharges from a subdrainage area, the subdrainage area is re-inspected to verify corrections. Depending on the extent and timing of corrections, verification

monitoring can be done at the initial junction manhole or the closest downstream manhole to each correction. Verification is accomplished by using the same visual inspection, field monitoring, and damming techniques as described above.

Program Tracking, Reporting & Evaluation

The program must include a mechanism to track and document all investigations (Section II B 3 c 1 h). **Table 3** or similar spreadsheet, database, or MS4 tracking program can be used for this purpose. The permit also contains specific MS4 reporting elements (Section II B 3 f).

The MS4 may wish to track additional elements in order to evaluate the program and make efficiency improvements through time. Below is a list of possible tracking metrics:

- Number/% of manholes/structures inspected
- Number/% of outfalls screened
- Number/% of illicit discharges identified through:
    - visual inspections
    - field testing results
    - temporary damming (intermittent discharges)
- Number/% of homes inspected/dye tested
- Footage/% of pipe inspected by CCTV
- Number/% of illicit discharges removed
- Estimated flow/volume of illicit discharges removed
- Footage and location of infrastructure jetting/cleaning required
- Infrastructure defects identified and repaired
- Water main breaks identified and repaired
- Cost of illicit discharge removals (total, average unit costs)

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Appendix A: Outfall Reconnaissance Inventory (ORI) Form

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET (COASTAL)

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours:	Last 48 hours:	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial ☐ Commercial ☐ Open Space ☐ Ultra-Urban Residential ☐ Institutional ☐ Suburban Residential

Other: _____ Known Industries: _____

_____

Notes (e.g., origin of outfall, if known):

SECTION 2: OUTFALL OR MONITORING STATION DESCRIPTION

LOCATION	MATERIAL		SHAPE/STRUCTURE		DIMENSIONS (IN.)	CONDITIONS
	☐ RCP	☐ Earthen	☐ Circular	☐ Single	Diameter, circular: _____	Tide (as applicable):
	☐ CMP	☐ Rip-Rap	☐ Elliptical	☐ Double	Dimensions, Box: h - _____ w - _____	☐ Low ☐ High ☐ In Between
☐ **Closed Outfall Pipe**	☐ PVC	☐ HDPE	☐ Box	☐ Triple	Elliptical: h - _____ w - _____	Submerged Outfall: ☐ No ☐ Partially ☐ Fully
☐ **Manhole Structure**	☐ Brick	☐ Concrete	☐ Manhole shaft (vertical)	☐ Other: _____	*Open Drainage:* Depth: _____	Sediment in Outfall: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Steel		*Open Drainage:* ☐ Trapezoid		Top Width: _____	Manhole Structure: ☐ Dry ☐ Tidal water ☐ Groundwater ☐ Not Sure
☐ **In-Stream**	☐ Other: _____		☐ Parabolic		Bottom Width: _____	
			☐ Other: _____		*Manhole Structure:* Depth from rim to invert - _____ Depth from rim to water (if present) - _____ Inundation level: _____ inches	

Flow Present? ☐ Yes ☐ No ☐ Tidal Flushing *If No or Tidal Flushing, Skip to Section 5 If present, go to Sections 3 & 4.*

Note: For structures inundated with tidal or groundwater, check flow visually or by stick rule/measuring tape

Flow Description (if present): ☐ Trickle ☐ Moderate ☐ Substantial

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	Stopwatch
☐Flow #2	Flow depth	1. 2. 3. 4.	In	Tape measure
	Flow width	_____' _____"	Ft, In	Tape measure
	Measured length	_____' _____"	Ft, In	Tape measure
	Time of travel	1. 2. 3. 4.	S	Stop watch
Temperature			°F	Thermometer
Ammonia			mg/L	Specific ion probe (see instructions)
Salinity			ppm	Refractometer
Conductivity		Dilution? %	µs	Conductivity meter

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET (COASTAL)

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Chemical/solvent ☐ Sulfide ☐ Chlorine/fruity ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray/milky ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls OR Manholes With Tidal or Groundwater Inundation

Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall or Structure Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Sewage fungus ☐ Other:	
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Chemical/solvent ☐ Sulfide ☐ Chlorine/fruity ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor quality of water in pool or manhole	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe or manhole benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Gray, Milky White ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators ☐ Obvious

Section 7: Data Collection

1. Sample for the lab? ☐ Yes ☐ No **2**. Sterile sample for bacteria analysis? ☐ Yes ☐ No **3**. If yes, collected from: ☐ Flow ☐ Pool ☐ Manhole

4. Sample for optical brightener? ☐ Yes ☐ No **5**.Intermittent flow trap set? ☐ Yes ☐ No If Yes, type: ☐ OBM ☐ Caulk dam **6**. Duplicate collected? ☐ Yes ☐ No

Section 8: Other Concerns (e.g., trash, needed infrastructure repairs, etc.)?

Appendix B: Representative IDDE Standard Operating Procedures

EXAMPLE Water Sampling Standard Operating Procedure

Person responsible:	IDDE Coordinator
Area of application:	MS4
Document location:	xxxx
Original issue date:	xxxx

Revisions

Rev. No.	Date	Description	Reviewed by

Recurring action items

Activity	Responsibility	Frequency
Water Sample Collection SOP	IDDE Coordinator	Annually

Procedure Index	Page
1.0 Purpose	x
2.0 Scope	x
3.0 Responsibility	x
4.0 Definitions	x
5.0 Procedures	x
5.1 Precautions	x
5.2 Field Procedure	x
5.3 Sample Handling Procedure	x
5.4 Task Specific Requirements	x
5.5 Safety	x
5.6 Equipment and Supplies	x
6.0 References / Related Documents	x

1.0 Purpose

1.1 To assist managers and field crews to collect water samples from storm water drainage system (MS4) outfalls and surface waters.

2.0 Scope

2.1 This procedure is applicable to thoses assisting with MS4 permit and outfall inventory and illicit discharge screening activities.

3.0 Responsibility

3.1 IDDE Coordinator is responsible for:

- 3.1.1 Ensuring the proper approved forms are used;
- 3.1.2 Facilitating training for all staff;
- 3.1.3 Ensuring that all records and documents are properly maintained, controlled and distributed.

3.2 IDDE Inspectors and Technicians are responsible for:

- 3.2.1 Reading, understanding and following this SOP
- 3.2.2 Conducting field activities and sample collection
- 3.2.3 Completing appropriate forms

4.0 Definitions

4.1 **MS4:** Municipal Separate Storm Sewer System. A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):
(i) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body;
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a combined sewer; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

4.2 **Outfall:** A point where a storm water conveyance discharges into rivers, bays, streams, lakes, and/or wetlands.

4.3 **Chain of Custody:** A written record documenting the location of the sample at all times from handling of the samples through various stages of storage, processing, and analysis at the laboratory.

4.4 **Illicit Discharge Detection and Elimination Personnel (IDDEP):** Environmental Compliance Officer and DPU Environmental Inspectors and Technicians.

5.0 Procedures

5.1 **Precautions**

- 5.1.1 Special care must be taken not to contaminate samples. This includes storing samples in a secure location to preclude conditions which could alter the properties of the sample. Samples shall be custody sealed during long-term storage or shipment.
- 5.1.2 Collected samples are in the custody of the sampler or sample custodian until the samples are relinquished to another party.
- 5.1.3 Documentation of field sampling is done in a bound logbook.

5.1.4 Chain-of-custody documents shall be filled out and remain with the samples until custody is relinquished.

5.1.5 A clean pair of new, non-powdered, disposable gloves will be worn each time a different location is sampled and the gloves should be donned immediately prior to sampling. The gloves should not come in contact with the media being sampled and should be changed any time during sample collection when their cleanliness is compromised.

5.2 Field Procedure

5.2.1 Surface water samples will typically be collected either by directly filling the container from the surface water body being sampled or by decanting the water from a collection device such as a stainless steel scoop or other device.

5.2.2 Place the sample into appropriate, labeled containers.

5.2.3 All samples requiring preservation must be preserved as soon as practically possible, ideally immediately at the time of sample collection.

5.2.4 The physical location of the investigator when collecting a sample may dictate the equipment to be used. If surface water samples are required, direct dipping of the sample container into the stream is desirable. If the stream is too deep to wade, or if the sample must be collected from an elevated platform (bridge, pier, etc.), supplemental sampling equipment must be used. Supplemental sampling equipment may also be used when collecting samples from an outfall.

5.2.5 A sample may be collected directly into the sample container when the surface water source is accessible by wading or other means. The sampler should face upstream if there is a current and collect the sample without disturbing the bottom sediment. The surface water sample should always be collected prior to the collection of a sediment sample at the same location.

5.2.6 Stainless steel scoops provide a means of collecting surface water samples from surface water bodies that are too deep to access by wading or from outfalls that are otherwise inaccessible. The scoop may be used directly to collect and transfer a surface water sample to the sample container.

5.2.7 A plastic bucket can be used to collect samples for measurement of water quality parameters such as pH, temperature, and conductivity. Samples collected for analysis of classical water quality parameters including but not limited to ammonia, nitrate-nitrite, phosphorus, and total organic carbon may also be collected with a bucket. Typically, a bucket is used to collect a sample when the water depth is too great for wading, it is not possible to deploy a boat, or access is not possible (excessive vegetation or steep embankments) and the water column is well mixed. The water body is usually accessed from a bridge. The bucket is normally lowered by rope over the side of the bridge. Upon retrieval, the water is poured into the appropriate sample containers Caution should be exercised whenever working from a bridge. Appropriate measures should be taken to ensure the safety of sampling personnel from traffic hazards.

5.3 Sample Handling Procedure

5.3.1 Each person who relinquishes or receives samples sign the Chain Of Custody form for the samples. The samples should be handled only by persons associated in some way with the monitoring program.

5.3.2 Once the samples arrive at their destination and at every custody change, the samples should first be checked to ensure that their integrity is intact. The contents of the shipment should be checked against the COC form to ensure that all samples listed were included in the shipment. The levels of liquid samples should be compared to original levels (if marked on the container or recorded), to identify whether major leaks have occurred.

Any samples whose integrity or identity are questionable should be brought to the attention of the relinquisher and flagged. All flags should be "carried" along with the samples until the validity of the samples can be proven. This information can be included in the remark section of the Chain of Custody form.

5.3 **Task Specific Requirements**

5.3.1 Familiarity with water sampling procedures

5.3.2 Ability to navigate rough terrain and work in varying conditions outdoors

5.4 **Safety**

5.4.1 Do not enter swiftly moving water that is more than 6 inches deep

5.4.2 Be on the lookout for and avoid poison ivy, ticks, spiders, dogs, snakes and other wildlife

5.4.3 Be careful when attempting to cross wet rocks, concrete or wood as the surface may be extremely slippery

5.4.4 Enter an ICE (In Case of Emergency) number into your cell phone and have it set in speed dial

5.4.5 Wear rubber boots or waders at all times when in water

5.4.6 Use all appropriate PPE

5.4.7 Do not enter confined spaces unless you have received the appropriate training and have the equipment necessary to do so safely

5.4.8 Always work with at least one other person

5.5 **Equipment and Supplies**

5.5.1 **Field Equipment:**

- Clean sample containers / bottles, with preservative as needed
- Labels for sample containers
- Disposable gloves
- Hand sanitizer
- High visibility safety vests
- Safety glasses
- First aid kit
- Cell phone
- Cooler and frozen ice packs
- Digital camera (spare batteries)
- Chain of Custody form

6.0 References / Related Documents

6.1 Chain of Custody Record

6.2 https://www.epa.gov/sites/production/files/2015-06/documents/Surfacewater-Sampling.pdf

EXAMPLE Outfall Screening Standard Operating Procedure

Person responsible:	IDDE Coordinator
Area of application:	MS4
Document location:	xxxx
Original issue date:	xxxx

Revisions

Rev. No.	Date	Description	Reviewed by

Recurring action items

Activity	Responsibility	Frequency
Review SOP	IDDE Coordinator	Annually

Procedure Index	Page
1.0 Purpose	x
2.0 Scope	x
3.0 Responsibility	x
4.0 Definitions	x
5.0 Procedures	x
5.1 Field Procedure	x
5.2 Post Field Activity/Data Management Procedure	x
5.3 Task Specific Requirements	x
5.4 Safety	x
5.5 Equipment and Supplies	x
6.0 References / Related Documents	x

1.0 Purpose

1.1 To assist managers and field crews conducting inventories and illicit discharge screening of storm water drainage system (MS4) outfalls

2.0 Scope

2.1 This procedure is applicable to those assisting with MS4 outfall inventory and illicit discharge screening activities

3.0 Responsibility

3.1 The IDDE Coordinator is responsible for:

3.1.1 Ensuring the proper approved forms are used;

3.1.2 Facilitating training for all staff;

3.1.3 Ensuring that all records and documents are properly maintained, controlled and distributed.

3.2 IDDE Inspectors and Technicians are responsible for:

3.2.1 Reading, understanding and following this SOP

3.2.2 Conducting field activities and data collection

3.2.3 Completing appropriate forms

3.2.4 Completing and submitting Weekly ID/IC Discovery Report to the IDDE Coordinator.

4.0 Definitions

4.1 **Stormwater:** Water that originates from precipitation events. The term may also be used to describe water that originates with snowmelt or runoff water from overwatering that enters the MS4.

4.2 **MS4:** Municipal Separate Storm Sewer System. A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):
(i) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body;
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a combined sewer; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

4.3 **Outfall:** A point where a storm water conveyance discharges into streams, lakes, and/or wetlands.

4.4 **Illicit Connection (IC):** (i) any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the MS4 including but not limited to any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to enter the MS4 and any connections to the MS4 from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or (ii) any drain or conveyance connected from a commercial or industrial land use to the MS4 which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

4.5 **Illicit Discharge (ID):** any discharge to a MS4 that is not comprised entirely of stormwater, except discharges pursuant to a Virginia Pollutant Discharge Elimination System or Virginia Stormwater Management Program permit (other than the Virginia Stormwater Management Program permit for discharges from the MS4), discharges resulting from fire fighting activities,

and discharges identified by and in compliance with 4 VAC 50-60-1220(C)(2).

5.0 Procedures

5.1 Field Procedure

5.1.1 Ensure outfall is accessible and inspect only if safe to do so.

5.1.2 Photograph the outfall with a GPS enabled digital camera or equivalent. Use a dry erase board, spray paint, grease pen or other means to identify outfall in photograph.

5.1.3 Capture outfall location using handheld GPS unit and characterize the outfall by completing the Outfall Reconnaissance Inventory Form (ORI). Use field instruments and kits to gather water quality information if dry weather flow is present. Record data on the ORI Form.

5.1.4 If dry weather flow is present visually inspect the immediate area for a potential source, take additional photographs, and collect water samples for laboratory analysis of Ammonia, Nitrate, Nitrite, TKN, Total Phosphorus, and E. coli. (See Water Sample Collection SOP). Notify IDDE Coordinator of obvious IDs immediately.

5.2 Post Field Activity/Data Management Procedure

5.2.1 Deliver samples to laboratory for analysis. This should be done at the end of field activities each day.

5.2.2 Download all GPS data collected into the Jurisdiction's GIS system and submit for verification. This should be done at least every two days.

5.2.3 Download all field photos and place them in appropriate subfolder in the Outfall Inventory folder on the network drive. This should be done as least every two days.

5.2.4 Scan all ORI forms completed and save them as PDF files in the appropriate subfolder in the Outfall Inventory folder on the network drive. This should be done as least once per week.

5.2.4 Enter outfall locations, ORI form information and photographs into MS4 database. This should be done at least once per week.

5.2.5 Complete Weekly ID/IC Discovery Report and submit to the IDDE Coordinator. Report will contain photos, maps and information regarding the locations and characteristics of all potential, suspect and obvious ID/ICs discovered during the week's field activities. This report should be prepared and submitted to the ECO no later than 16:00 on Friday of each week.

5.3 Task Specific Requirements

5.3.1 Training in IDDE and MS4 outfall inventory procedures

5.3.2 Familiarity with water sampling procedures

5.3.3 Ability to navigate rough terrain and work in varying conditions outdoors

5.4 Safety

5.4.1 Do not enter swiftly moving water that is more than 6 inches deep

5.4.2 Be on the lookout for and avoid poison ivy, ticks, spiders, dogs, snakes and other wildlife

5.4.3 Be careful when attempting to cross wet rocks, concrete or wood as the surface may be extremely slippery

5.4.4 Enter an ICE (In Case of Emergency) number into your cell phone and have it set in speed dial

5.4.5 Wear rubber boots or waders at all times when in water

5.4.6 Use all appropriate PPE

5.4.7 Do not enter confined spaces unless you have received the appropriate training and have the equipment necessary to do so safely

5.4.8 Always work with at least one other person

5.5 **Equipment and Supplies**

5.5.1 **Field Equipment:**

- Municipal identification
- Waterproof waders or rubber boots
- Disposable gloves
- Hand sanitizer
- High visibility safety vests
- Safety glasses
- First aid kit
- Cell phone
- System map
- ORI forms
- Field book
- Handheld GPS unit
- pH meter
- Detergents test kit or optical brightener fluorometer
- Sterile E. coli or Enterococcus sample bottles
- Cooler and frozen ice packs
- Digital camera (spare batteries)
- Dry erase board
- Clip board, pencils, pens, permanent and dry erase markers
- Flashlight (spare batteries)
- Mirror
- Folding wood ruler or tape measure
- Watch with second hand or stopwatch
- Calculator
- Green spray paint and flagging tape
- Machete or bush axe
- Pepper spray

5.5.2 Color printer

5.5.3 Computer with ArcGIS Desktop, Microsoft Office and internet access

6.0 References / Related Documents

6.1 Center for Watershed Protection, R. Pitt. [University of Alabama]. 2004. *Illicit Discharge*

Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments. 378 p.

6.2 EXAMPLE Water Sampling Standard Operation Procedure

6.3 ORI Form

EXAMPLE Illicit Discharge Elimination Verification Standard Operating Procedure

Person responsible:	IDDE Coordinator
Area of application:	MS4
Document location:	xxxx
Original issue date:	xxxx

Revisions

Rev. No.	Date	Description	Reviewed by

Recurring action items

Activity	Responsibility	Frequency
Review SOP	IDDE Coordinator	Annually

Procedure Index	Page
1.0 Purpose	x
2.0 Scope	x
3.0 Responsibility	x
4.0 Definitions	x
5.0 Procedures	x
5.1 Field Procedure	x
5.2 Post Field Activity/Data Management Procedure	x
5.3 Task Specific Requirements	x
5.4 Safety	x
5.5 Equipment and Supplies	x
6.0 References / Related Documents	x

1.0 Purpose

1.1 To verify the elimination of the source of an illicit discharge over time and close out the investigation.

2.0 Scope

2.1 This procedure is applicable to those assisting with MS4 outfall inventory and illicit discharge screening activities

3.0 Responsibility

3.1 The IDDE Coordinator is responsible for:

3.1.1 Ensuring the proper approved forms are used;

3.1.2 Facilitating training for all staff;

3.1.3 Ensuring that all records and documents are properly maintained, controlled and distributed.

3.2 IDDE Inspectors and Technicians are responsible for:

3.2.1 Reading, understanding and following this SOP

3.2.2 Conducting field activities and data collection

3.2.3 Completing appropriate forms

3.2.4 Reporting details of illicit discharge elimination verification to the IDDE Coordinator

4.0 Definitions

4.1 **Stormwater:** Water that originates from precipitation events. The term may also be used to describe water that originates with snowmelt or runoff water from overwatering that enters the MS4.

4.2 **Illicit Discharge (ID):** any discharge to a MS4 that is not comprised entirely of stormwater, except discharges pursuant to a Virginia Pollutant Discharge Elimination System or Virginia Stormwater Management Program permit (other than the Virginia Stormwater Management Program permit for discharges from the MS4), discharges resulting from fire fighting activities, and discharges identified by and in compliance with 4 VAC 50-60-1220(C)(2).

4.3 **Outfall:** A point where a storm water conveyance discharges into streams, lakes, and/or wetlands.

5.0 Procedures

5.1 **Field Procedure**

5.1.1 Verification of illicit discharge elimination depends on the size and type of illicit discharge

5.1.2 Verification methods include: post-removal inspection, screening and/or monitoring to determine that the illicit discharge does not re-occur again

5.1.3 Follow-up inspections occur at the point of repair

5.1.4 Follow-up inspections also occur during outfall re-screening as detailed in the Observation SOP

5.1.5 For direct sanitary connection repairs, verification should include annual outfall re-screening for at least two years

5.2 **Post Field Activity/Data Management Procedure**

5.2.1 Close the investigation as noted in the Long Term Management / Observation SOP.

5.3 **Task Specific Requirements**

5.3.1 Training in IDDE and MS4 outfall inventory procedures

5.3.2 Familiarity with water sampling procedures

5.3.3 Ability to navigate rough terrain and work in varying conditions outdoors

5.4 **Safety**

5.4.1 Enter an ICE (In Case of Emergency) number into your cell phone and have it set in speed dial

5.4.2 Use all appropriate PPE

5.4.3 Do not enter confined spaces unless you have received the appropriate training and have the equipment necessary to do so safely

5.4.4 Always work with at least one other person

5.5 **Equipment and Supplies**

5.5.1 Color printer

5.5.2 Computer with ArcGIS Desktop, Microsoft Office and internet access

6.0 References / Related Documents

6.1 Long Term Management / Observation SOP

6.2 Recordkeeping SOP

Appendix C: Framework for Chemical Fingerprint Library

The Chemical Fingerprint Library (CFL) is used to document chemical attributes of known pollution sources. In addition, groundwater chemical attributes are also collected as a baseline and reference. Pollution sources that can be identified and tracked with the CFL include:

- Residential laundry washwater;
- Residential car washwater;
- Commercial laundry washwater;
- Commercial car washwater;
- Industrial wastewater;
- Sanitary wastewater;
- Drinking water; and
- Groundwater.

Prior to beginning the development of the CFL, the jurisdiction should develop a Sampling and Analysis Plan. The intent of the Plan is to serve as documentation of efforts and guidance throughout the project. Chemical attributes that may be monitored for the pollution sources identified include:

- pH
- Fluoride
- Conductivity
- Anionic detergents
- Optical brighteners
- Ammonia
- Total nitrogen
- Total phosphorus
- Potassium
- E. coli
- Enterococcus
- Total coliform
- Temperature

To begin building the CFL, data can be collected from 1) known sources, 2) scientific literature and 3) from outfall screening. If an illicit discharge is detected during outfall screening, the illicit discharge is tracked to the source and eliminated as described in this guidance manual. After the illicit discharge is tracked to the source and eliminated, data collected during the outfall screening process is input into the CFL. The CFL will be an excel-based spreadsheet. A screenshot of a CFL used by the City of Richmond is shown below:

Sampling Location	Temperature in °C	Fluoride	Total Coliform P/A- Colilert	Conductivity	Anionic detergents	Ammonia	Total nitrogen	Total phosphorus	Potassium	E. coli	Temper
⊞Commercial Car Wash											
First Collection Date		10/31/2002		10/31/2002	10/31/2002	10/31/2002	8/1/2012	6/23/2007	10/31/2002	3/29/2016	3/29
Mean		4.626		375.680	75.640	0.948	11.338	3.778	17.622	821.000	1
Weighted Mean		1.863		379.821	39.636	1.169	10.760	3.866	15.991	821.000	1
Std Dev		5.711		137.502	54.444	1.909	7.574	2.341	20.324	1384.926	
COV		32.619		18,906.727	2,964.197	3.643	57.370	5.479	413.078	1,918,021.000	1
⊞Commercial Laundry											
First Collection Date		1/1/2003		1/1/2003	1/1/2003	1/1/2003	3/29/2016	3/29/2016	1/1/2003	3/29/2016	3/29
Mean		23.878		554.615	22.723	0.958	11.247	7.175	7.150	15.333	2
Weighted Mean		8.255		591.750	13.325	1.047	11.247	7.175	9.444	15.333	2
Std Dev		18.837		257.993	10.580	0.409	7.129	11.369	9.596	26.558	
COV		354.818		66,560.423	111.945	0.167	50.823	129.249	92.085	705.333	6
⊞Drinking Water											
First Collection Date	7/4/2016	5/17/2002	7/4/2016	5/17/2002	5/17/2002	5/17/2002	7/4/2016	7/4/2016	5/17/2002	5/29/2003	4/1
Mean	20.200	0.695	31.000	144.769	0.008	0.056	1.100	0.400	1.352	0.000	1
Weighted Mean	20.200	0.691	31.000	149.286	0.014	0.088	1.100	0.400	1.369	0.000	1
Std Dev		0.076		20.985	0.021	0.139			0.476	0.000	
COV		0.006		440.359	0.000	0.019			0.227	0.000	5
⊞Ground Water											
First Collection Date		9/30/2002		9/30/2002	9/30/2002	9/30/2002	8/11/2005	4/7/2016	9/30/2002	9/30/2002	12/21
Mean		0.103		254.154	0.019	0.052	6.485	0.000	3.126	36.929	1
Weighted Mean		0.083		269.754	0.031	0.050	6.801	0.000	3.136	29.211	1
Std Dev		0.124		208.273	0.042	0.065	5.198	0.000	1.673	86.280	
COV		0.015		43,377.495	0.002	0.004	27.022	0.000	2.798	7,444.225	
⊞Industrial											
First Collection Date		12/18/2002		12/18/2002	12/18/2002	12/18/2002	4/12/2016	4/12/2016	12/18/2002	12/18/2002	4/12

New data can be input into a separate tab that is integrated with the overall CFL. Depending on the illicit discharge source that was identified from the illicit discharge investigation (e.g. commercial washwater, residential laundry washwater, etc), the appropriate library from the drop down list is selected. Weights may be assigned and determined by the user – for example, Richmond's library assigns the most weight to local data and less weight to regional or national data. In this iterative manner of updating the CFL with data, chemical signatures of known pollution sources is isolated along with their coefficient of variation.

FY17 Dry Weather Screenings

OutfallID	Material	Size	CommName	Type	Shape1	Submerged	CommonNam	UA 2010	UA 2000	HUC	Inspector	DryWeath_1
PCTMS001	RCP	18"	School	Closed Pipe	Circular	No	Clara Byrd Baker ES	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PCTMS002	RCP	15"	School	Closed Pipe	Circular	No	Clara Byrd Baker ES	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PCTMS003	Closed Pipe	Unknown	School	Closed Pipe	N/A	No	Clara Byrd Baker ES	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PCTMS004	RCP	12"	School	Closed Pipe	Circular	No	Clara Byrd Baker ES	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PCTMS005	RCP	12"	School	Closed Pipe	Circular	No	Clara Byrd Baker ES	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC203001	RCP	12"	School	Closed Pipe	Circular	No	DJ Montague ES	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC203002	RCP	18"	School	Closed Pipe	Circular	No	DJ Montague ES	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
JR000001	RCP	12"	Institutional	Closed Pipe	Circular	Fully	Fire Station # 5 - 3201 Monticello Ave	Yes	No	JL30	Paul Cuomo	Visual assessment completed - Clear - No action required
PC206001	RCP	18'	Institutional	Closed Pipe	Circular	Partial	Human Services Building	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC207002	HDPE	12"	Institutional	Closed Pipe	Circular	Partial	JCC Recreation Center	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC207001	RCP	24"	Institutional	Closed Pipe	Circular	Partial	JCC Recreation Center	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC207003	PVC Pipe	12"	Institutional	Closed Pipe	Circular	Partial	JCC Recreation Center	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC207004	HDPE	12"	Institutional	Closed Pipe	Circular	No	JCC Recreation Center	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
YC104001	RCP	24"	School	Closed Pipe	Circular	Partial	Norge ES	Yes	No	JL28	Paul Cuomo	Visual assessment completed - Clear - No action required
YC104002	RCP	21"	School	Closed Pipe	Circular	Partial	Norge ES	Yes	No	JL28	Paul Cuomo	Visual assessment completed - Clear - No action required
YCTMS001	PVC Pipe	15"	Industrial	Closed Pipe	Circular	No	WJCC Schools Transportation Center	No	No	JL28	Paul Cuomo	Submerged
MC000001	HDPE	18'	School	Closed Pipe	Circular	Partial	Rawls Byrd ES	Yes	Yes	JL33	Paul Cuomo	Visual assessment completed - Clear - No action required
MC000002	HDPE	18"	School	Closed Pipe	Circular	Fully	Rawls Byrd ES	Yes	Yes	JL33	Paul Cuomo	Visual assessment completed - Clear - No action required

FY17 Dry Weather Screenings

WC000002	RCP	24"	School	Closed Pipe	Circular	Partial	Stonehouse ES	No	No	YO62	Paul Cuomo	Visual assessment completed - Clear - No action required
WC000003	RCP	15"	School	Closed Pipe	Circular	Partial	Stonehouse ES	No	No	YO62	Paul Cuomo	Visual assessment completed - Clear - No action required
WC000004	RCP	18"	School	Closed Pipe	Circular	Partial	Stonehouse ES	No	No	YO62	Paul Cuomo	Visual assessment completed - Clear - No action required
WC000006	RCP	24"	School	Closed Pipe	Circular	No	Stonehouse ES	No	No	YO62	Paul Cuomo	Visual assessment completed - Clear - No action required
WC000005	RCP	15"	School	Closed Pipe	Circular	Partial	Stonehouse ES	No	No	YO62	Paul Cuomo	Visual assessment completed - Clear - No action required
DC000001	PVC Pipe	6"	Institutional	Closed Pipe	Circular	No	Upper County Park	No	No	JL27	Paul Cuomo	Visual assessment completed - Clear - No action required
PC208004			Tewning Rd				Operations Tewning Rd				Paul Cuomo	Visual assessment completed - Clear - No action required
DC000002	PVC Pipe	6"	Institutional	Closed Pipe	Circular	Partial	Upper County Park	No	No	JL27	Paul Cuomo	Visual assessment completed - Clear - No action required
CC000001	RCP	36"	Institutional	Closed Pipe	Circular	No	Government Center	Yes	Yes	JL34	Paul Cuomo	Visual assessment completed - Clear - No action required
CC000002	RCP	30"	Institutional	Closed Pipe	Circular	No	Government Center	Yes	Yes	JL34	Paul Cuomo	Visual assessment completed - Clear - No action required
PC208001	STEEL	21"	Industrial	Closed Pipe	Circular	No	Tewning Road Complex	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
YC102001	RCP	30"	School	Closed Pipe	Circular	No	Toano MS	Yes	No	JL28	Paul Cuomo	Visual assessment completed - Clear - No action required
SC000001	RCP	42"		Closed Pipe	Circular	Partial	VDOT silo parcel ADJ to jail - 9340 Merrimac Trail	No	Yes	JL35	Paul Cuomo	Visual assessment completed - Clear - No action required
WC000001	RCP	12"	Institutional	Closed Pipe	Circular	No	ADJ to Volunteer FS Forge/Richmond Rd	Yes	No	YO62	Paul Cuomo	Under construction
PC201001	HDPE	42"	School	Closed Pipe	Circular	Partial	Jamestown HS	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC201002	RCP	30"	School	Closed Pipe	Circular	No	Jamestown HS	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC201003	HDPE	36"	School	Closed Pipe	Circular	Partial	Jamestown HS	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205001	RCP	54"	School	Closed Pipe	Circular	Partial	Warhill HS	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
JR000003	RCP	18"	Institutional	Closed Pipe	Circular	Partial	Fire Station # 2 - 8421 Pocahontas Trail	No	Yes	JL34	Paul Cuomo	Visual assessment completed - Clear - No action required

FY17 Dry Weather Screenings

JR000002	RCP	12"	Institutional	Closed Pipe	Circular	Partial	Fire Station # 5 - 3201 Monticello Ave	Yes	No	JL30	Paul Cuomo	Visual assessment completed - Clear - No action required
JR000004	STEEL	48"	School	Closed Pipe	Circular	No	James River ES	No	No	JL35	Paul Cuomo	Visual assessment completed - Clear - No action required
PC207005	PVC Pipe	12"	Institutional	Closed Pipe	Circular	Partial	Adjacent to JCC Rec Center - 5231 Longhill Rd	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
WC000007	RCP	18"	School	Closed Pipe	Circular	No	Stonehouse ES	No	No	YO62	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205002	HDPE	18"	School	Closed Pipe	Circular	No	Lafayette HS	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205005	CMP	48"	School	Closed Pipe	Circular	No	Lafayette HS	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC208003	RCP	42"	Institutional	Closed Pipe	Circular	No	NewTown Common Area Courthouse/Monticello	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PCTMS006	RCP	24"	School	Closed Pipe	Circular	No	JCSA Desal Plant	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205003	HDPE	24"	Open Space	Closed Pipe	Circular	No	Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205004	HDPE	24"	Open Space	Closed Pipe	Circular	No	Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205006	HDPE	24"	Open Space	Closed Pipe	Circular	No	Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205007	HDPE	15"	Open Space	Closed Pipe	Circular	No	Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205008	RCP	72"	Open Space	Closed Pipe	Circular	No	Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
YCTMS002	PVC	Unknown	Industrial	Closed Pipe	Circular	No	WJCC Schools Transportation Center	No	No	JL28	Paul Cuomo	Visual assessment completed - Clear - No action required
PC208002	Steel	21"	Industrial	Closed Pipe	Circular	No	Tewning Road Complex	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
WC000008	RCP	15"	Institutional	Closed Pipe	Circular	No	ADJ to Volunteer FS Forge/Richmond Rd	Yes	No	YO62	Paul Cuomo	Under construction
PC205009	Unknown	Unknown					Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required

FY17 Dry Weather Screenings

PC205010	Unknown	Unknown					Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205011	Unknown	Unknown					Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205012	Unknown	Unknown					Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205013	Unknown	Unknown					Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205019	Unknown	Unknown					Warhill Sports Complex	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
GC101003	RCP	15"	School	Closed Pipe	Circular	FULLY	JB Blayton ES/Lois B. Hornsby MS Complex	No	No	JL29	Paul Cuomo	Visual assessment completed - Clear - No action required
GC101004	HDPE	24"	School	Closed Pipe	Circular	FULLY	JB Blayton ES/Lois B. Hornsby MS Complex	No	No	JL29	Paul Cuomo	Visual assessment completed - Clear - No action required
GC101002	RCP	30"	School	Closed Pipe	Circular	FULLY	JB Blayton ES/Lois B. Hornsby MS Complex	No	No	JL29	Paul Cuomo	Visual assessment completed - Clear - No action required
GC101001	RCP	24"	School	Closed Pipe	Circular	FULLY	JB Blayton ES/Lois B. Hornsby MS Complex	No	No	JL29	Paul Cuomo	Visual assessment completed - Clear - No action required
PC210006	Unknown	Unknown	Marina	Pipe			Marina	No	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC210007	Unknown	Unknown	Marina	Pipe			Marina	No	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205021	HDPE	6"	Police Building	Closed Pipe	Circular		Police Headquarters	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205022	HDPE	6"	Police Building	Closed Pipe	Circular		Police Headquarters	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PC205023	HDPE	6"	Police Building	Closed Pipe	Circular		Police Headquarters	Yes	No	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
CC000003	RCP		Palmer Ln Complex		Circular		Palmer Lane Complex	Yes	Yes	JL34	Paul Cuomo	Visual assessment completed - Clear - No action required
PC210001			Mid County Park		Circular		Mid County Park	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required
PCTMS007			School				Clara Byrd Baker ES	Yes	Yes	JL31	Paul Cuomo	Visual assessment completed - Clear - No action required

Stormwater Annual Report

Incident Date (FD1.3)	Incident Number (FD1.5)	Incident Street Number (FD1.10)	Incident Street Name (FD1.12)	Incident Street Type (FD1.13)	Fire Incident Type - Code	Fire Incident Type	Hazardous Materials Release	Hazmat Amount Released (FD14.8)	Hazmat Released Into	Remarks (FD1.47)
07/13/2016	1605696	100	STADIUM	DR	422	Chemical spill or leak				Responded mutual aid with Williamsburg Fire Dept. for Hazardous Chemical leak. On arrival Q3 was told by Williamsburg Command to stage up wind from the area of the leak and wait for further instruction. After staging for approximately 40 min. Q3 was released by Williamsburg Command. M31 responded and transported 1 decontaminated pt. to Doctors Hospital, M31 cleared and returned to service. M41 was dispatched to 100 Stadium Dr. for a person exposed to the chlorine. M41 arrived to find the pt having his vital signs recorded by WFD M10 and then was also decontaminated by WFD. BLS procedures performed. M41 transported the pt to RDHW. After clearing from that pt, M41 responded back to the incident and then staged as the transport ambulance if someone else had to be transported. M41 remained in staging until 21:25 and then was released. M-21 was dispatched to 100 Stadium Drive. Upon arrival M-21 was in Stand-By. M-21 crew assistant with pre and post V/S of entry teams.
08/18/2016	1606850	4455	JOHN TYLER	HWY	411	Gasoline or other flammable liquid spill	Gasoline - vehicle fuel tank or portable container	12	Ground	C1, C2, BAT311, Q3, R31 and M51 responded to 7-Eleven at 4455 John Tyler Hwy for a fuel spill. Upon arrival C1 reported that a tanker truck was fueling the regular gas storage tank of the gas station when approximately 12 gallons of fuel spilled onto the asphalt. The fuel did start to run off, but was stopped with approximately 5 bags of oil-dry used from JCCFD. The driver of the truck stated he was dispatched to deliver a fuel load of more than 3,000 gallons of fuel to the gas station. When he arrived he used a measuring stick to see how much fuel was in the tank. He got a reading of 57". He started to top of the tank with fuel when he heard some fuel bubbling out of the premium fuel tank. He quickly stopped fueling, but stated by then about 12 gallons of fuel bubbled onto the ground from the premium fuel tank inlet. The driver stated when the regular tank is full, as a safety it over flows into the premium tank, but the cap from that tank was left uncapped from the previous driver, which caused the tank to over flow onto the asphalt. The driver stated he put approximately 2000 gallons in the regular tank before it overflowed. JCCFD personnel assisted the driver in putting down oil-dry. We waited on scene until the company's Director of Safety showed up. Upon his arrival, he stated that their clean-up company was en-route. No other hazards to mitigate were found on scene. Scene was turned over to him. All units marked available. Company and Tractor Trailer Information: Eagle Transport Corporation 300 S. Wesleyan Boulevard, Suite 202 Rocky Mount, NC 27804 (252) 937-2464 (252) 494-0960 USDOT:090792 VCC- C-K586 NC-296 Company Tracking No.: 9985 Truck License Plate: NC-MB-5856 Trailer License Plate: NC- AD-71350 Ernesto L Hernandez - FF

Incident Date (FD1.3)	Incident Number (FD1.5)	Incident Street Number (FD1.10)	Incident Street Name (FD1.12)	Incident Street Type (FD1.13)	Fire Incident Type - Code	Fire Incident Type	Hazardous Materials Release	Hazmat Amount Released (FD14.8)	Hazmat Released Into	Remarks (FD1.47)
08/21/2016	1606929	4625	MONTICELLO	AVE	411	Gasoline or other flammable liquid spill				All units responded to a possible fuel spill at the shell station on Monticello avenue. Upon our arrival we found a very small area of gasoline that was spilled and almost evaporated beside one of the pumps. Approx 1/2 gallon. We put down some oil dry and all units went available.
09/28/2016	1608081	8935	POCAHONTAS	TRL	422	Chemical spill or leak	Special HazMat actions required or spill >= 55 gal.	55	Air	E-21,M-21 YM-3 & BAT-311 responded for an automatic alarm at 8935 Pocahontas Trail for an automatic alarm. Upon arrival found safety manager of Ball metal outside pointing us in the direction of the storage shop. He told us that one of their employees punctured at 55 gallon drum of hydrochloric acid with a fork lift. He stated that almost all of the contents of the drum leaked. E-21 investigated to find employees inside hosing down the spill into their drain which goes into their containment tank. Product was still off gassing from being in contact with water. Product liquid was contained to the room of origin but vapors had drifted into other rooms. Employees were advised to evacuate the building. They already opened a door and set up a fan for ventilation. E-21A returned M-21 and BAT-311 arrived on scene was was briefed on the situation. BAT-311 assumed Ball Metal command and moved all traffic to TAC-2. He also requested for a medic unit to return to the scene. BAT-311 called the Regional Hazmat officer and requested him to respond to the scene. YM-3 arrived and provided manpower. Hazmat Officer arrived on scene and went into the structure with E21-B to set up exclusion zones and to assess the situation in greater detail. E-21A and YM-3D stood by as a back-up crew. E21-D stood by for emergency decon operations. Ball Metal already called their contracted clean up company to come out to the scene. Hazmat officer notified the state EOC as well. After exclusion zones were set up and the atmosphere was tested crew exited the structure. He decided that no further action was necessary from the fire department. Hazmat officer released Fire Department units. BAT-311 terminated command and returned to service along with E-21 and YM-3. Contracted cleanup crew arrived as BAT-311 was leaving the scene.
10/03/2016	1608264	9	FENWYCK	CT	413	Oil or other combustible liquid spill	Motor oil - from engine or portable container			Q3 responded to 9 Fenwyck Court for a fuel spill. Upon arrival, found small puddles of hydraulic oil (less than a gallon) in the cul-de-sac. The truck that was leaking the fluid left a drip trail throughout the neighborhood. Oil dry was applied to the small puddles. Q3 went available.
10/10/2016	1608512	50	KINGSMILL	RD	413	Oil or other combustible liquid spill				Units dispatched to address above for a fire alarm. Units where canceled by dispatch but M-21 was on scene and went inside to confirm false alarm. Once inside the crew noticed a strong smell of burnt oil in the elevator shaft located on the B/C corner of the hotel. M-21 requested the Engine respond to this location. E-21 arrived and worked with staff to locate the source of the smell. A relief valve for the elevator pump located in the elevator mechanical room had ruptured and spilled a small amount of oil on the motor for the elevator. This was the cause for the smell. The power was scoured to the elevator and staff was advised to have the needed repairs made before turning the power back on. All units returned to service.

Incident Date (FD1.3)	Incident Number (FD1.5)	Incident Street Number (FD1.10)	Incident Street Name (FD1.12)	Incident Street Type (FD1.13)	Fire Incident Type - Code	Fire Incident Type	Hazardous Materials Release	Hazmat Amount Released (FD14.8)	Hazmat Released Into	Remarks (FD1.47)
12/07/2016	1610295	5301	LONGHILL	RD	411	Gasoline or other flammable liquid spill				E41, M41 responded for a report of a fuel spill at the REC Center. Upon arrival owners son in law was standing next to vehicle stating that there was a strong smell of gasoline coming from the car. Crews investigated and did have an odor of gas but nothing was actively leaking. Crew was advised that the fuel tank was replaced approximately five to six month ago. Son in law stated that AAA had been notified and a tow truck was on its way. No hazards were on scene and both units cleared and returned to service.
12/16/2016	1610571	8554	RICHMOND	RD	411	Gasoline or other flammable liquid spill				E11, SQ1 responded to above address for fuel spill. Approx 5-10 gallons of gasoline were spilled on the parking lot by a car while filling up with fuel. Pads and oil dry were put down to contain spill. Owner of gas station was advised about clean up procedures. Both units returned to service.
12/22/2016	1610761	102	BERMUDA	CIR	411	Gasoline or other flammable liquid spill	Gasoline - vehicle fuel tank or portable container			E51, M51 & FM4 responded to 102 Bermuda Cir for a gas leak. Upon arrival, resident was standing outside next to her vehicle. Resident stated the vehicle was leaking fuel the night before, and fuel line was clamped off with vice grips. Clamp was checked and confirmed leak was still controlled. All units cleared and marked available. Vehicle Info: Owner - Ellen Reger 1995 Hyundai Odyssey Va State license plates XCV-8449
12/22/2016	1610763	4455	JOHN TYLER	HWY	411	Gasoline or other flammable liquid spill	Gasoline - vehicle fuel tank or portable container			Responded to the 7-11 service station for gas leak by the fuel pumps. On arrival Capt. Antal made contact with store manger. Store manager stated a costumer overfilled her cars fuel tank. He estimated a little over a gallon of fuel was spilled. Store manager also put down stay-dry to absorb spilled fuel. Q3 crew assisted in putting more stay-dry down on spilled. Spill secured and no hazards. all units cleared form call.

Report Filters

Incident Date (Fd1.3): is between '07/01/2016' and '12/31/2017'

Report Criteria

Fire Incident Type - Code: Is Equal To 411

Fire Incident Type - Code: Is Equal To 413

Fire Incident Type - Code: Is Equal To 422

Description

This report looks at Hazardous Material incidents that are Incident types 411, 413,& 422

Basic Incident Date Original (FD1.3)	Basic Incident Number (FD1)	Basic Incident Full Address	Basic Incident Type Code (FD1.21)	Basic Incident Type (FD1.21)	Basic Hazardous Materials Release (FD1.44)	HazMat Estimated Amount Released (FD14.8)	HazMat Released Into (FD14.11)	Basic Incident Primary Narrative (FD1.47)
01/08/2017	1700236	276 MILL STREAM Way	411	Gasoline or other flammable liquid spill				M31, E31, R31, Q3, Batt311, EMS2, E51 responded to above location for reported gas leak inside a structure. Units responded and found two story dwelling with nothing noted on arrival. Crews investigated and strong smell of gasoline in garage. Source of smell is found to be a portable generator leaking gas in the garage. Generator is removed and placed outside home. No other hazards are found. All units return to service.
01/16/2017	1700444	2300 I 64 E	413	Oil or other combustible liquid spill				Units dispatched to a possible gas leak from a van. Upon arrival found a van with a blown tire and confirmed it was a brake line leaking and not a fuel line. Owners were going to contact a tow company and all occupants were waiting in the other vehicles. All units returned to service.
01/29/2017	1700776	5240 MONTICELLO Avenue	411	Gasoline or other flammable liquid spill				Responded to the intersection of Casy Blv. and Monticello Hwy. for gasoline spill. On arrival fire personnel found a gasoline container with about 2 gallons of gasoline in it. Very small amount of gasoline spilled from the container. Gasoline container remove from the scene and disposed of accordingly. All fire units cleared from the call.
02/05/2017	1700957	4660 MONTICELLO Avenue	421	Chemical hazard (no spill or leak)				Engine and Medic 51 responded for a reported natural gas leak outside in front of Martin's Grocery Store. Upon arrival in the area, a strong smell of gasoline was in the area. No leaks in the parking lot, smell was isolated to a gasoline tanker that was filling the in ground gas tanks behind the store. No spills, no hazards. Engine and medic 51 returned to service.
02/08/2017	1701032	7801 POCAHONTAS Trail	413	Oil or other combustible liquid spill				Units responded for a hydraulic spill at Anheuser Bush Brewery. Less than 10 gallons of hydraulic fluid had been spilled from a failed hydraulic hose used on the spent grain silo. Anheuser Busch employes had already stopped the leak and cleaned up the fluid. About 10 gal had made it into a drain that leads to their treatment process before going to HRSD storm water. No other hazards noted on scene. Anheuser Bush was going through their protocols for a hazard spill which calls the Fire Dept. Units cleared and returned available.
03/03/2017	1701727	5715 RICHMOND Road	411	Gasoline or other flammable liquid spill				Engine and Medic 41 responded to the above address for a fuel spill. Upon arrival Units found a nissan altama that appeared to have a leak in a gas line under the vehicle. Approx 10 gallons of gasoline were noted to be on the ground. Owner of the vehicle stated he had a tow truck on the way. Medic 41 available while Engine 41 waited to arrival of the tow truck. Once the tow truck arrived Engine 41 placed oil dry on the ground to help mitigate the gasoline hazard. All hazards removed, Engine 41 available. T. Lovelace 3/4/2017
03/17/2017	1702097	4252 BOXWOOD Lane	411	Gasoline or other flammable liquid spill	Gasoline - vehicle fuel tank or portable container			Batt-311, E51, M51, EMS-2, Q3, E41 and R31 responded to a reported gas leak at the residence. Upon arrival the caller and her children were still in the house. Fire department personnel walking to the house could smell a strong odor of gasoline. An investigation found that a plastic gas can had over-pressurized in the garage and about two tablespoons of gas had leaked out. The multi-gas meter detected no issues or hazards in the residence. All other units but Station 5 were released from the scene. The leak was confined to the gas can. The gas can was moved outside through the garage door and the house and garage were naturally ventilated. The house did have natural gas appliances (water heater in garage, fireplace, stove, and dryer) which were checked and found to be operating normally. After the house was ventilated a second check of the structure was conducted with the multi-gas meter and nothing was found. E51 and M51 marked available from the scene. The hydrant at the intersection of Boxwood Lane and Stonewood Lane was

Basic Incident Date Original (FD1.3)	Basic Incident Number (FD1)	Basic Incident Full Address	Basic Incident Type Code (FD1.21)	Basic Incident Type (FD1.21)	Basic Hazardous Materials Release (FD1.44)	HazMat Estimated Amount Released (FD14.8)	HazMat Released Into (FD14.11)	Basic Incident Primary Narrative (FD1.47)
								flushed.
04/08/2017	1702738	112 CROWNPOINT Road	411	Gasoline or other flammable liquid spill		Gasoline - vehicle fuel tank or portable container		Q3 and WFD M10 were dispatched to 112 Crown Point Drive for gasoline dripping from a vehicle. Q3 cancelled WFD M10 before they could respond. Q3 arrived to find the vehicle parked in a gravel driveway and the owner on scene. The owner reported smelling gasoline while he was at the 7-11 and seeing the vehicle drip gas, but then he still drove it home. When Q3 was on scene the Toyota 4 Runner was not leaking gas or any other fluids. The vehicle was parked on a slight slope. Q3 determined that the leak was positional. Homeowner was going to call a tow truck. No hazards on scene. Q3 available.
04/29/2017	1703425	2054 JAMESTOWN Road	413	Oil or other combustible liquid spill		Motor oil - from engine or portable container		Responded to Jamestown Marina for fuel or motor oil leaking from a boat motor that was submerged in water near the dock. On arrival Q3 personnel made contact with a fisherman who stated while fishing he hooked the motor and pulled it up onto the dock. After getting the motor out of the water and onto the dock he discovered the motor was leaking oil or fuel. After investigation by fire personnel a small sheen of oil was found on the surface of the water. Approximately 2 to 3 quarts. The boat motor was a small Mercury 15 hp. Fire personnel used absorbent pads to remove as much oil from the water as possible. Motor also removed from the dock area to the parking lot of the marina. Alex Holloway from James City Park and Recreation was on the scene and scene was turned over to him. All fire units cleared from the call.
06/02/2017	1704472	4154 LONGHILL Road	413	Oil or other combustible liquid spill				M41, E41 responded for a fuel spill. Upon arrival a small amount of evaporated fuel was at the entrance of Fords Colony Drive. No hazards were on scene and both units returned to service.

Report Filters

Basic Incident Date Original (Fd1.3): is between '01/01/2017' and '06/30/2017'

Report Criteria

Basic Incident Type Code (Fd1.21): Is Equal To 411

Basic Incident Type Code (Fd1.21): Is Equal To 413

Basic Incident Type Code (Fd1.21): Is Equal To 421

For MS4 Program Plan Item 3.6 *James City County, VA*

JCSA FY17 Program Summary

James City Service Authority (JCSA) continues to fulfil its obligations under the Virginia Department of Environmental Quality (DEQ) approved Management, Operations and Maintenance (MOM) Program. In fiscal year 2017 the following MOM related tasks were completed:

- Inspected approximately 92,000 Linear Feet (LF) of sewer mains using a Closed Circuit Television (CCTV) camera as part of the scheduled inspections.
- CCTV inspected approximately 22,000 LF of sewer mains and laterals relating to trouble shooting.
- Visually inspected about 111,000 LF of wastewater force main alignments to confirm there were no signs of failure. Inspected all force main valves along the alignments that were encountered.
- Inspected approximately 35 miles of sewer easements to prioritize them for clearing and to catalog the condition.
- Cleared approximately 31,600 LF of sewer easements that were heavily overgrown.
- Maintained flow monitoring at 74 pump stations and rainfall monitoring at 11 sites throughout the service area.
- Maintained a wastewater hydraulic model of the JCSA system.
- Performed scheduled maintenance and inspections at 76 pump stations.
- Inspected about 40 manholes that had been buried or otherwise inaccessible. Raised 53 manhole rims that were previously buried or slightly below grade. Rehabilitated 11 deteriorated manholes by sealing leaks and lining the interiors with an epoxy coating.
- Completed over thirty (30) repairs to correct defects in sewer mains and service laterals that could have potentially led to Sanitary Sewer Overflows (SSOs).
- Rehabilitated four defective gravity sewer mains using the Cured in Place Pipe (CIPP) lining method.

Completed the following CIP projects:

- Rehabilitated three wet wells at pump stations by lining the interior of the concrete structures with an epoxy coating (at LS 2-5, LS 9-6, and LS 5-3).
- Constructed a new watertight control building at a pump station that is situated in a low area and which has flooded on multiple occasions.

JCSA experienced 17 Sanitary Sewer Overflows (SSOs) in FY 17. Thirteen (13) of those occurred during Hurricane Matthew on October 11, 2016 which produced a rainfall accumulation of 4 to 5.5 inches. One SSO was caused by construction debris blocking the sewer main, two SSOs were caused by grease blockages, and one SSO occurred during a heavy storm (2.6 inches of rain) in March 2017. JCSA has noticed that fewer SSOs are occurring during rainfall events than previously experienced prior to the rehabilitation and capacity enhancement work performed over the past 5 years by JCSA and HRSD.

Hampton Roads Sanitation District (HRSD) is preparing the Regional Wet Weather Management Plan (RWWMP) which details rehabilitation and capacity enhancement projects to be performed throughout the Hampton Roads region to address wet weather SSOs. Two major components of that report are the Alternatives Analysis and System Solutions Optimization. The alternatives analysis and optimization was performed within each of HRSD's treatment plant service areas to find the economical balance between rehabilitation, to remove inflow and infiltration (I/I), and capacity enhancement. HRSD reviewed the results of this study and the proposed improvements with each of the 14 Localities. The RWWMP is on schedule to be officially submitted to the Environmental Protection Agency (EPA) and Virginia Department of Environmental Quality (DEQ) by November 2017.

HRSD has introduced a new initiative known as SWIFT (Sustainable Water Initiative for Tomorrow), which if embraced by the regulators, may significantly delay the timing of the rehabilitation and capacity enhancement work. HRSD is proposing to treat already highly treated wastewater effluent to drinking water standards and pump it into the Potomac aquifer, the primary source of groundwater throughout eastern Virginia. This will eliminate current treated wastewater pollutant loads being discharged into the Elizabeth, James and York rivers. This initiative is expected to not only benefit the ground water aquifer by replenishing the supply of fresh water, reducing or eliminating land subsidence, and mitigating salt water intrusion into the aquifer, but has the added benefit of providing a cost effective way of addressing the Region's stormwater obligations required to meet the Chesapeake Bay restoration goals. EPA and DEQ are currently considering this proposal. If approved, HRSD is proposing to fund SWIFT before the RWWMP to gain the greatest environmental benefits (reduction of nutrients to the Chesapeake Bay) before addressing SSOs. HRSD will have some funding available to address priority SSOs while SWIFT is under construction. The balance of the RWWMP will be constructed upon completion of SWIFT in the 2030-2053 timeframe.

Appendix C-4

Exhibits for Minimum Control Measure #4 – Construction Site Stormwater Runoff Control

James City County Compliance Summary Statement

MCM4 Construction Site Stormwater Runoff

Permit Year 4- FY17

The County has completed the third year of its role as a local VSMP authority, and continues to encourage and enforce responsible development practices.

The following is a list of Construction Site Runoff highlights for PY4:

1. Number of VESCP/VSMP compliance inspections. 3,261 total (1,465 for development projects; 1,796 for single family).

2. Number of 1st submittal plan reviews broken down by development plans and single family plans. 508 total (178 for development projects; 330 for single family).

3. As far as enforcement actions, 1367 compliance inspections were completed in PY4 and 72 follow-up re-inspections were performed. 58 total notices-to-comply were given.

4. Number of contacts from citizens regarding VESCP/VSMP programs and the number of contacts resulting in site visits. 28 citizen contacts resulting in 28 contacts/visits investigated under E&SC, VSMP, and Chesapeake Bay Preservation Area (CBPA) ordinances.

5. Virginia DEQ certifications (ESC or SW) certifications obtained by staff – program administrators, inspectors, plan reviewers, or combined: In total, the division has sixteen (16) total certifications as follows: four (4) DUAL combined administrators, two (2) ESC combined administrators, one (1) DUAL program administrator (ESC/SW), three (3) ESC plan reviewers, three (3) DUAL inspectors, two (2) stormwater inspector and one (1) ESC inspector. Of these personnel, there are also two registered professional engineers, one engineer-in-training (EIT), and one certified landscape architect.

6. Number of local land disturbing/stormwater construction (VESCP/VSMP authority) permits by HUC. 39 permits representing 79.86 acres of land disturbance activity for projects.

7. Land disturbing associated with single family home construction – see attached packet. 330 single family reviews representing 75.41 acres of land disturbance activity.

Other Items of Importance in FY16 (PY3):

- Total land disturbing activity for FY16 is 155.27 acres with 79.86 acres for development projects and 75.41 acres for single family.

- County completed the third full year of its obligation as a local VSMP authority. The County's VSMP ordinance is Article II, Chapter 8 of the County Code.

- The County implemented another cycle of instituting the annual permit maintenance fees for the VSMP per Section 8-34 of County Code and 9VAC25-870-830.

- Date of last finding of E&SC program consistency: September 2011; letter received from state on April 4, 2012

- Date of last finding of CBPA program consistency: June 2011; Letter received from state on June 27, 2011

- There were three civil charge settlements through the BOS for E&SC or CBP ordinance violations in FY17. Summaries of these resolutions are included. The total civil charges in these cases were $22,000 and restoration was required of the defendants.

- A total of 36 stormwater management/BMP facilities were assigned County BMP ID code numbers and/or installed in FY17 (GIS and MSAccess database).

- Septic: 1157 septic system pumpouts documented in FY17. Notice sent in FY17 was 1044.

- Number of single-family "*Permit Agreement in Lieu of a Stormwater Management Plan for a Single Family Detached Residential Structure*" is 330 for FY17. This would be for the MS4 Program Plan Update Program Update Requirement, Individual Residential Lot Special Criteria, Minimum Control Measure 5, Postconstruction Stormwater Management in New Development and Development on Prior Developed Lands.

MCM 4 Construction Site Stormwater Runoff Control							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	PY4 Status
4.1	Legal Authorities						See Detail Below
4.1.a	*LD Activities > 10,000 SF*	Continue to implement the James City County Erosion and Sediment Control Ordinance, Chapter 8 of the County Code	Number of regulated land-disturbing activities, number of acres disturbed, number of inspections	Engineering and Resource Protection Division	Ongoing	Tracking reports	39 local land disturbing permits for 79.86 acres were issued in PY4
4.1.b	*CBPA LD Activities >2,500 SF*	Continue to implement the James City County Erosion and Sediment Control Ordinance, Chapter 8 of the County Code	Number of regulated land-disturbing activities, number of acres disturbed, number of inspections	Engineering and Resource Protection Division	Ongoing	Tracking reports	13 local land disturbing permits were issued for 4.81 acresin PY4
4.1.c	*E&SC LD Activities*	Continue to implement the James City County Erosion and Sediment Control Ordinance, Chapter 8 of the County Code	Number of regulated land-disturbing activities, number of acres disturbed, number of inspections	Engineering and Resource Protection Division	Ongoing	Tracking reports	39 local land disturbing permits for 79.86 acres were issued in PY4
4.1.d	*Individual Lot or CPOD LD Activities > 10,000 SF*	Continue to implement the James City County Erosion and Sediment Control Ordinance, Chapter 8 of the County Code	Number of regulated land-disturbing activities, number of acres disturbed, number of inspections	Engineering and Resource Protection Division	Ongoing	Tracking reports	Number of single-family "*Permit Agreement in Lieu of a Stormwater Management Plan for a Single Family Detached Residential Structure*" is 330 for PY4
4.2	Plan Review Process	Continue to implement the site plan review, LID implementation where deemed appropriate, construction site BMP, and inspection provisions of the County's Erosion and Sediment Control Ordinance.	Number of plan reviews, Number of plan approvals	Engineering and Resource Protection Division	Ongoing	Tracking reports	508 total first-time plan reviews (178 for development projects; 330 for single family)
4.3	Compliance and Enforcement						See Detail Below

MCM 4 Construction Site Stormwater Runoff Control							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	PY4 Status
4.3a	*Construction Site Inspection Program*	Implement construction site inspection program with sufficient frequency to ensure complaince with approved erosion and sediment control plan or agreement in lieu of plan in accordance with Chapter 8 of the County Code.	Number of inspection, inspection frequency	Engineering and Resource Protection Division	Ongoing	Tracking reports	3,261 total (1,465 for development projects; 1,796 for single family).
4.3b	*Citizen Complaint Process*	Continue to receive and respond to information from citizens relating to the County's erosion and sediment control program through personal visits, email, telephone, and the County's web page.	Number of calls/requests, number of site visits	Engineering and Resource Protection Division	Annually	Tracking reports	25 citizen contacts resulting in 25 contacts/visits investigated under E&SC, VSMP, and Chesapeake Bay Preservation Area (CBPA) ordinances.
4.3c	*Enforcement*	Continue to implement progressive compliance and enforement strategy where appropriate in accordance with Chapter 8 of the County Code.	Number and type of enforcement actions	Engineering and Resource Protection Division	Annually	Tracking reports	1367 compliance inspections were completed in PY4 and 58 total notices-to-comply were given.
4.3d	*Written Compliance and Enforcement Procedures*	Review and update written compliance and enforcement procedures to control erosion and sediment and prevent the discharge of nonstormwater to the MS4.	Protocol	Engineering and Resource Protection Division	Ongoing	Protocol	Compliance inspection summary reported in PY2
4.4	Regulatory Coordination	Implement inspection provisions of the local Stormwater Management Ordinance for VSMP authority permits including Pollution Prevention Plans contained within the SWPPP.	Number of permit applications, permits issued and inspections	Engineering and Resource Protection Division	Annually	Copies of permits and registration statements	3 Construction General Permits processed for the VSMP authority in PY4
4.5	Certifications	Ensure that plan reviewers, inspectors, and program administrators obtain the appropriate certifications as required under the Erosion and Sediment Control Law and the Stormwater Management Act.	Certifications obtained	Engineering and Resource Protection Division	Ongoing	Copies of certificates	5 staff received certifications or renewals in FY17. See detail in Appendix C-4.

MCM 4 Construction Site Stormwater Runoff Control							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	PY4 Status
4.6	Tracking and Reporting	Continue to track and report through appropriate tracking systems.	the total number of permitted land disturbing activities, disturbed acreage, inspections conducted and number and type of enforcement actions taken	Engineering and Resource Protection Division	Annually	Tracking reports and Enforcement Documentation	39 permits representing 79.86 total acres of disturbance; 3,261 total inspections; 58 total notices-to-comply
4.7	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Engineering and Resource Protection Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

FY 2017 YEAR END											
7/1/16 - 6/30/17											
Engineering Resource Protection											
Melanie's WS									YEAR END	PROJECTED	PROJECTED
	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY17	FY18
Measure											
Stormwater pollution prevention plans (SWPPPs) reviewed	189	167	195	170	147	191	157	168		175	175
Local land disturbing/stormwater construction permits issued	63	49	57	49	37	63	34	58	39	50	50
VSMP/VPDES construction general permits processed							16	20	9	55	55
Development project compliance inspections (VESCP/VSMP)	2,730	3,992	2,580	2,379	1,616	1,790	1,501	1,411	1,465	2,000	2,000
Single family plans reviewed (VESCP/VSMP) *	195	273	307	292	354	361	356	340	330	325	325
Single family compliance inspections (VESCP/VSMP)	1,188	843	1,317	1,056	1,493	1,567	2,522	2,143	1,796	2,250	2,250
Wetland Board cases heard	13	8	7	6	12	7	9	7	11	10	10
Wetland joint permit application (JPA) reviews - no case	28	10	22	22	18	18	11	12	24	20	20
Chesapeake Bay Board Cases heard	21	26	29	27	25	33	25	32	27	30	30
CBPA administrative cases processed (CBE's)	125	129	112	113 E 30 S 27 V 170	105 E 22 S 8 V 135	84 E 35 S 4 V 123	83 E 22 S 1 V 106	87 E 29 S 5 V 121	79 E 27 S 14 V 120	125	125
Perennial flow determinations (PFDs)	98	104	66	189	220	135	114	108		120	120
Septic system pumpouts documented	676	656	299	686	918	1,068	1,079	936	1,156	500	500
Special Stormwater Criteria applied	14	36	49	32	37	82	49	58		30	30
Streetlight requests handled	0		7	5	7	11	6	7	5	5	5
Percentage of stormwater pollution prevention plans (SWPPPs) reviewed within 30 days of receipt	96.3%	97.6%	97.5%	99.4%	98.7%	96.3%	98.1%	94.6%	79.10%	95.0%	95.0%
Percentage of stormwater pollution prevention plans (SWPPPs) reviewed within 21 days of receipt	82.5%	88.0%	92.9%	94.7%	89.8%	92.7%	91.7%	84.5%	55.2%	90.0%	90.0%
Total number of plans processed (all plans of development, not including single-family)	429	383	391	343	328	441	408	432	385	400	400
Percentage of total plans approved within 3 submittals (all plans of development, not single-family)	92.2%	91.1%	84.9%	87.1%	83.2%	88.7%	80.6%	79.3%	96.8%	90.0%	90.0%
Total land area serviced - plan of development review (acres)			Not Tracked	150.1	150.7	249.16	114.34	163.77	226	150	150
Walk-Thru Building Permit Reviews	**270**	**202**	**196**	**196**	**179**	**120**	**102**	**83**	60		
VSMP Permit Renewals Reviewed	**6 mo**	**144**	**148**	**130**	**130**	**117**	**126**	**31**	52		
Surety Renewals Reviewed	**6 mo 150**	**253**	**278**	**252**	**236**	**219**	**194**	**199**	215	200	200
* Starting in FY17 will use clearing permits issued instead of building permits issued											

VSMP Annual Permit Maint Fees

For MS4 Program Plan item 4.1b

VSMP/VPDES
CBPA-LDA FY17

James City County , VA

Project	Site Plan No	LD Permit No	Acres Dist	LD Issue Date	Insp Code	HUC	VAR No	CGP Date	CGP Fee Local
PELEGS POINT - NECK-O-LAND - POWHATAN SHORES, SECT 2, Revised Outfall Remediation	E&S-06-14	17-21	0.324	11/30/2016	PC-630	JL31	CBPA-LDA	7/25/2016	$290
GODSPEED ANIMAL CARE ADDITION	SP-025-16	17-07	0.086	9/1/2016	PC-631	JL31	CBPA-LDA	9/1/2016	$290
WILLIAMSBURG MEMORIAL PARK OSSUARIUM	SP-052-16	17-10	0.15	10/11/2016	PC-632	JL31	CBPA-LDA	10/5/2016	$290
FORD'S COLONY SECTION II - DRAINAGE IMPROVEMENTS FOR GREENWAY #22	SP-045-16	17-11	0.24	10/18/2016	PC-633	JL31	CBPA-LDA	10/18/2016	$290
NEW TOWN - SECTION 3 & 6 MULCH TRAIL PLAN	SP-048-15	17-13	0.134	11/2/2016	PC-635	JL31	CBPA-LDA	10/28/2016	$290
TAZEWELLS HUNDRED DRAINAGE IMPROVEMENTS	SP-114-15	17-23	0.205	12/12/2016	CC-116	JL34	CBPA-LDA	12/1/2016	$290
10070 FIRE TOWER ROAD	E&S-28-16	17-25	0.61	1/11/2017	WC-221	YO62	CBPA-LDA	1/3/2017	$290
CRONE - 8428 CROAKER RD CLEAN-UP PLAN	E&S-03-17	17-26	0.8	3/1/2017	YR-023	YO65	CBPA-LDA	3/3/2017	$290
VILLAS AT FIVE FORKS - SEC 1 - WALL REPAIRS	SP-022-17	17-32	0.46	5/3/2017	PC-640	JL31	CBPA-LDA	4/21/2017	$290
4761 WILLIAMSBURG GLADE - MCLENDON POOL REMOVAL	E&S-06-17	17-33	0.14	5/5/2017	PC-641	JL31	CBPA-LDA	5/1/2017	$290
AUTOZONE STORE #6194	SP-091-16	17-34	0.669	5/5/2017	YC-192	JL28	CBPA-LDA	5/5/2017	$290
ANHEUSER-BUSCH ADMINSTRATION BUILDING OUTDOOR SEATING	SP-038-17	17-35	0.41	5/11/2017	CC-117	JL34	CBPA-LDA	5/10/2017	$290
NEWBERG, RICHARD R JR. - PRIVATE ROAD CONSTRUCTION	E&S-25-17	17-39	0.58	6/28/2017	DC-029	JL27	CBPA-LDA	6/22/2017	$290
			4.808				**13**		**$3,770**

Submitted to VADEQ by James City County September 30, 2017

Total App/Lot Previews	399
Total Clearing Inspections	206
Total Compliance Inspections	1367
Total Stop Work Orders	1
Total NTCs	58
Total Re-inspections	72
Total Ches Bay Inspections	136
Total Other	28
Total Inspection Reports	2
Total CO Inspections	253

*Do not edit numbers above, they are drawn automatically from *"Daily Numbers"* pages.

Quarterly Totals-17/18

	FY17 Qtr 3	FY17 Qtr 4	FY18 Qtr 1	FY18 Qtr 2
Total App/Lot Previews	121	232	46	0
Total Clearing Inspections	76	96	34	0
Total Compliance Inspections	651	499	217	0
Total NTCs	14	39	5	0
Total Re-Inspections	26	45	1	0
Total Stop Work	0	1	0	0
Total Ches Bay Inspections	18	88	30	0
Total Other	9	19	0	0
Total Inspection Reports	0	1	1	0
Total CO Inspections	91	144	18	0
	915	**1019**	**333**	**0**

*Do not edit numbers above, they are drawn automatically from *"Daily Numbers"* pages.

Total Citizen complaints and follow-up inspections = 25

Total App/Lot Previews	494
Total Clearing Inspections	314
Total Compliance Inspections	1250
Total Stop Work Orders	0
Total NTCs	25
Total Re-inspections	54
Total Ches Bay Inspections	37
Total Other	66
Total Inspection Reports	3
Total CO Inspections	430

*Do not edit numbers above, they are drawn automatically from *"Daily Numbers"* pages.

Quarterly Totals-2016

	FY17 Qtr 1	FY17 Qtr 2	FY16 Qtr 3	FY16 Qtr 4
Total App/Lot Previews	153	118	71	152
Total Clearing Inspections	116	57	37	104
Total Compliance Inspections	364	282	324	268
Total NTCs	0	15	5	5
Total Re-Inspections	6	35	5	8
Total Stop Work	0	0	0	0
Total Ches Bay Inspections	11	15	0	11
Total Other	24	21	2	19
Total Inspection Reports	1	2	0	0
Total CO Inspections	111	124	97	97
	674	**543**	**444**	**567**

*Do not edit numbers above, they are drawn automatically from *"Daily Numbers"* pages.

FY17 VSMP/VPDES

For MS4 Program Plan Item 4.4, and 5.2

Construction General Permits Processed

James City County, VA FY17

Project	VSMP Authority	Site Plan No	LD Permit No	Acres Dist	LD Issue Date	Insp Code	HUC	VAR No	CGP Date	CGP Fee Local	CGP Fee State
JCC - NEIGHBORS DRIVE IMPROVEMENT	Yes	S-013-15	17-02	1.17	7/13/2016	PC-628	JL31	VAR10I464	7/5/2016	$0	$756
WILLIAMSBURG INDOOR SPORTS COMPLEX (WISC) INDOOR POOL FACILITY		SP-020-16	17-04	3.22	7/21/2016	PC-629	JL31	VAR10I553	7/21/2016	$1,944	$756
GREENMOUNT INDUSTRIAL PARK - ROAD EXTENSION - 2016		SP-005-16	17-08	9.83	9/14/2016	SC-048	JL35	VAR10I684	8/11/2016	$2,448	$952
TEWNING ROAD COMMERCIAL PARK		SP-127-06	17-14	2.38	11/7/2016	PC-634	JL31	VAR10I966	10/20/2016	$1,944	$756
DOLLAR GENERAL (8766 Pocahontas Tr)		SP-017-16	17-18	1.36	11/14/2016	SC-049	JL35	VAR10J058	11/7/2016	$1,944	$756
PATRIOTS COLONY PRESIDENTS PAVILION APARTMENTS		SP-047-16	17-16	6.3	11/8/2016	PC-636	JL31	VAR10I006	11/9/2016	$754	$196
JCC/SW - BROOK HAVEN STREAM RESTORATION	Yes	SP-072-16	17-27	1.66	3/9/2017	MC-216	JL33	VAR10J427	3/1/2017	$0	$756
JCC - LIBRARY BMP RETROFITS	Yes	SP-102-15	17-29	1.55	3/15/2017	YR-024	YO65	VAR10J443	3/8/2017	$0	$756
7147 RICHMOND ROAD RETAIL SITE		SP-036-16	17-37	1.44	6/13/2017	YC-193	JL38	VAR10J837	6/9/2017	$1,944	$756
				28.91				**9**		**$10,978**	**$6,440**
										Total	**$17,418**

Stormwater and Resource Protection
Certifications as of 8/15/2017

For MS4 Program Plan Item Number 4.5

James City County FY17

		BUCHITE	Cook	CREECH	Cuomo	DAVIS	Dyba	Fuqua	Geissler	Menichino	MORGADO	PARKER	PETTY	WELLS	WOOLSON
SWM Training Completed	Basic	X		X		X			7/13/2017		X	X	X	X	X
	Insp	X		X							X	X		X	
	Plan Rev										X			X	
Program Admin	Cert #					DPA0103									
	Expire					01/30/18									
Inspector	Cert #	2247		DIN0219			SWIN0376	SWIN1065		DIN0512		DIN0218			
	Expire	05/31/20		08/12/18			10/23/2018	7/27/2020		11/21/2019		08/10/18			
Plan Reviewer	Cert #	393		513								537			
	Expire	11/30/18		05/31/19								11/30/19			
Combined Admin	Cert #		DCA0294		6052	6073, SWCA0444			383		DCA0261			DCA0226	
	Expire		11/8/2019		5/31/2020	11/30/2017, 7/14/2020			5/31/2019		6/23/19			12/30/18	
License	Type		PE								EIT		Notary	PE	LA
	Expire		4/30/2018								none		1/31/18	7/31/17	02/28/18
Cert Fldplain Manager	Cert #		US-09-04052												
	Expire		7/31/2019												

Submited to DEQ September 30, 2017

Appendix C-5

Exhibits for Minimum Control Measure #5 – Post-Construction Stormwater Management in New Development and Re-development

James City County Compliance Summary Statement

MCM5 Post-Construction Stormwater Management

Permit Year 4 - FY17

James City County continues its tradition of proactive post-construction stormwater management through its permitting processes, inspection procedures, and maintenance agreements.

The following are highlights of the County's stormwater management program for PY4:

- Number of VSMP/VPDES construction general permit registrations performed by the local VSMP authority (per Chapter 8 of County Code). 9 registrations were processed by the local VSMP Authority and input into the state's Stormwater Construction General Permit System (SWCGPS) for state VPDES construction general permit (VAR10) coverage for the 39 local land disturbing/stormwater construction (VESCP/VSMP authority) permits issued.

- Number of I/M agreements executed this year. 20 Declaration of Covenants/Inspection-Maintenance Agreements (DOC-I/M's) secured for the 39 local land disturbing/stormwater construction (VESCP/VSMP authority) permits issued. The 19 cases that did not secure agreements were because they were not needed because of one of the following reasons: 1) no storm systems or stormwater management/BMPs were proposed on the project site; 2) the project was an erosion and sediment control (E&SC) only project; 3) plan amendments (it already had a parent agreement); or 4) County/JCSA/WJCC school projects.

- 44 private SWMF inspections. Notices of non-compliance were issued to owners of BMPs needing some kind of attention. Written standard operating procedures for inspection and enforcement were developed in PY2 and approved by the County Attorney's office.

- Number of single-family "*Permit Agreement in Lieu of a Stormwater Management Plan for a Single Family Detached Residential Structure*" is 330 for FY17. This would be for the MS4 Program Plan Update Program Update Requirement, Individual Residential Lot Special Criteria, Minimum Control Measure 5, Postconstruction Stormwater Management in New Development and Development on Prior Developed Lands.

- Number of inspections of County SWMFs in PY4 was 68. Annual maintenance activities are reported on a monthly basis.

- A total of 34 stormwater management/BMP facilities were assigned County BMP ID code numbers and/or installed in FY17 (GIS and MSAccess database).

MCM 5 Post-Construction Stormwater Management in New Development and Development of Prior Developed Lands							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
5.1	Oversight Requirements	Continue to implement the stormwater criteria of the Chesapeake Bay Preservation, and Erosion and Sediment Control Ordinances for new development and redevelopment, and update ordinances to comply with Section II.5.a of the General Permit.	Updated Ordinance, Chapter 8, County Code	Engineering and Resource Protection Division	Ongoing	Chapter 8, Article II of the County Code - The Virginia Stormwater Management Program	There are no updates to the ordinance in PY4.
5.2	VSMP Permits	Continue to require construction site owners and operators to secure authorization to discharge stormwater from construction activities under a VSMP permit for construction activities that result in a land disturbance of greater than or equal to 2500 square feet in all areas of the County as the entire County is designated as a Chesapeake Bay Preservation Area.	Number of permit registration statements and permits obtained.	Engineering and Resource Protection Division	Ongoing	File copies of permits and registration statements	9 registration statements were processed and input into the state's (SWCGPS) for state VPDES construction general permit (VAR10) coverage for the 39 local land disturbing/ stormwater construction permits issued. A summary was provided in Appendix C-4.
5.3	Inspection and O&M Verification for Privately-owned BMPs						See Detail Below
5.3a	*BMP Maintenance Agreements*	Continue to require BMP maintenance agreements as required by the Chesapeake Bay Preservation Ordinance.	Number of agreements	Engineering and Resource Protection Division	Ongoing	Maintenance Agreements	19 Declaration of Covenants/Inspection-Maintenance Agreements secured.
5.3b	*Inspection Activities*	Continue to implement inspections of private stormwater management facilities	Number of inspections	Stormwater Division	Ongoing	Inspection Database	44 SWMF inspections. Notices of non-compliance issued to owners of BMPs needing some kind of attention. Copy of non-compliance letter submitted in PY2. See detail in Appendix C-5.
5.3c	*Enforcement Program*	Develop and implement a progressive compliance and enforcement strategy	Enforcement Protocol	Stormwater Division	PY2	Written procedures	Written procedures were developed and approved by the Legal Division, and submitted in PY2.
5.3d	*Individual Residential Lot Program*	Implement the residential BMP protocol developed in PY1	Residential BMP Protocol	Stormwater Division/Engineering and Resource Protection Division	Ongoing	Inspection Database	330 single family plans reviewed (VESCP/VSMP) for PY4. Details provided in Appendix C-5.

MCM 5 Post-Construction Stormwater Management in New Development and Development of Prior Developed Lands							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
5.3e	*Publically Owned BMP Program*	Inspect all publically owned BMPs annually and implement appropriate maintenance as needed.	Number of inspections, annual maintenance activities	Stormwater Division	PY2 onward	County BMP O&M Manual, Inspection Database, Work Order database	68 Inspections of publicly owned BMPs. Annual maintenance activities are reported on a monthly basis.
5.4	BMP Tracking	Maintain a database of all known permanent stormwater management facilities that discharge to the regulated small MS4 including: (a) Type of structural stormwater management facility; (b) Geographic location; (c) Number of acres treated; (d) date facility was brought on line; (e) hydrologic unit code; (f) the impaired surface water that the stormwater management facility is discharging into; (g) ownership; whether or not a maintenance agreement exists; and (h) date of last inspection.	Stormwater Database	Stormwater Division	Ongoing	Stormwater Database	34 BMPs added in PY3. See spreadsheet with detailed information on BMPs added in Appendix C-5.
5.5	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual report	Compliance with this measurable goal is met through the submission of this annual report.

FY17 LAND DISTURBING PERMITS AND DOC/IM AGREEMENTS

PERMIT NUMBER	WATERSHED CODE	HUC CODE	ISSUE DATE	PLAN #	NAME	ACRES DIST	DOC/IM AGMT
17-01	CC-115	JL34	7/5/2016	SP-104-15	WILLIAMSBURG LANDING - WOODHAVEN EXPANSION (5560 Williamsburg Landing Dr)	9.13	Y
17-02	PC-628	JL31	7/13/2016	S-013-15	JCC - NEIGHBORS DRIVE IMPROVEMENT (101-140 NEIGHBORS DRIVE & 5951 RICHMOND RD)	1.17	
17-03	JR-281	JL35	7/13/2016	E&S-15-16	BUSCH GARDENS - WICKED WOODS RENOVATION (7851 Pocahontas Trail)	0.37	Y
17-04	PC-629	JL31	7/21/2016	SP-020-16	WILLIAMSBURG INDOOR SPORTS COMPLEX (WISC) INDOOR POOL FACILITY (5700&5720 Warhill Tr)	3.22	Y
17-05	JR-282	JL35	7/22/2016	SP-040-16	CARTERS GROVE PLANTATION - SLAVE QUARTERS (8797 Pocahontas)	0.40	Y
17-06	GC-033	JL29	7/25/2016	SP-083-13	JCC - JOLLY POND ROAD LANDFILL - Convenience Center Improvements Area #1 only (1204 Jolly Pond Rd)	0.74	
17-07	PC-631	JL31	9/1/2016	SP-025-16	GODSPEED ANIMAL CARE ADDITION (102 TEWNING RD)	0.09	Y
17-08	SC-048	JL35	9/14/2016	SP-005-16	GREENMOUNT INDUSTRIAL PARK - ROAD EXTENSION - 2016 (1651 & 1653 Greenmount Pkwy)	9.83	Y
17-09	GC-034	JL29	9/23/2016	SP-103-15	JCC - CHICKAHOMINY RIVERFRONT PARK WATER MAIN IMPROVEMENT (1350 John Tyler Hwy)	0.30	
17-10	PC-632	JL31	10/11/2016	SP-052-16	WILLIAMSBURG MEMORIAL PARK OSSUARIUM (130 King William Drive)	0.15	
17-11	PC-633	JL31	10/27/2016	SP-045-16	FORD'S COLONY SECTION II - DRAINAGE IMPROVEMENTS FOR GREENWAY #22	0.24	Y
17-12	JR-283	JL35	11/2/2016	SP-056-16	CARTERS GROVE PLANTATION - SITEWIDE SANITARY SEWER SYSTEM (8797 Pocahontas)	2.18	Y
17-13	PC-635	JL31	11/2/2016	SP-048-15	NEW TOWN - SECTION 3 & 6 MULCH TRAIL PLAN (4201 IRONBOUND ROAD)	0.13	

FY17 LAND DISTURBING PERMITS AND DOC/IM AGREEMENTS

17-14	PC-634	JL31	11/7/2016	SP-127-06	TEWNING ROAD COMMERCIAL PARK (144 Tewning Road)	2.38	Y
17-15	JR-284	JL30	11/8/2016	SP-054-16	PATRIOTS COLONY PARKING EXPANSION (3400 John Tyler) (43 Spaces Parking Expansion)	0.60	Y
17-16	PC-636	JL31	11/8/2016	SP-047-16	PATRIOTS COLONY PRESIDENTS PAVILION APARTMENTS (3400 John Tyler)	6.30	Y
17-17	PC-637	JL31	11/9/2016	E&S-13-16	JCSA - FIVE FORKS WATER TREATMENT FACILITY LP-1A REPLACEMENT WELL FACILITY (4321 John Tyler Hwy)	0.73	
17-18	SC-049	JL35	11/14/2016	SP-017-16	DOLLAR GENERAL (8766 Pocahontas Tr)	1.36	Y
17-19	JR-285	JL35	11/23/2016	SP-068-16	CARTERS GROVE PLANTATION - OUTFALL REACH #3 RESTORATION (8797 Pocahontas)	0.17	Y
17-20	YC-190	JL28	11/28/2016	SP-077-16	VILLAGE CANDLE STATION MINI-STORAGE FACILITY (7551 Richmond Road) (335 Units)	3.39	Y
17-21	PC-630	JL31	11/30/2016	E&S-06-14	PELEGS POINT - NECK-O-LAND - POWHATAN SHORES, SECT 2, Revised Outfall Remediation	0.32	
17-22	PC-423	JL31	12/7/2016	SP-028-08	NEW DAWN ASSISTED LIVING - (1807 JAMESTOWN ROAD)	3.10	Y
17-23	CC-116	JL34	12/12/2016	SP-114-15	TAZEWELLS HUNDRED DRAINAGE IMPROVEMENTS(508 & 512 E Tazewells Ln &101 Abigail Ln)	0.21	Y
17-24	PC-638	JL31	12/21/2016	SP-070-16	JCC - MARINA WAREHOUSE (2054 Jamestown Rd)	0.99	
17-25	WC-221	YO62	1/11/2017	E&S-28-16	10070 FIRE TOWER ROAD (Thibeault barn)	0.61	
17-26	YR-023	YO65	3/1/2017	E&S-03-17	CRONE - 8428 CROAKER RD CLEAN-UP PLAN	0.80	
17-27	MC-216	JL33	3/9/2017	SP-072-16	JCC/SW - BROOK HAVEN STREAM RESTORATION (127-139 Brookhaven Dr)	1.66	
17-28	MC-215	JL33	3/9/2017	SP-065-16	JCC/SW- WINSTON TERRACE STREAM RESTORATION (1303 Jamestown Rd)	0.90	

FY17 LAND DISTURBING PERMITS AND DOC/IM AGREEMENTS

17-29	YR-024	YO65	3/15/2017	SP-102-15	JCC - LIBRARY BMP RETROFITS (7770 Croaker Rd)	1.55	
17-30	YC-191	JL28	3/20/2017	S-037-12	WALNUT GROVE (Resubmittal) (LOTS 1-75 & 10 Townhouses) (7345 & 7375 RICHMOND ROAD)	22.16	Y
17-31	PC-639	JL31	4/12/2017	E&S-27-16	JCC - NEIGHBORS DRIVE COMMUNITY IMPROVEMENT PROJECT - EARLY LAND DISTURBING (Lots 8, 9, 12, 13 and 5921 Richmond Road)	0.62	
17-32	PC-640	JL31	5/3/2017	SP-022-17	VILLAS AT FIVE FORKS - SEC 1 - WALL REPAIRS (4355 Creek View East)	0.46	Y
17-33	PC-641	JL31	5/5/2017	E&S-06-17	4761 WILLIAMSBURG GLADE - MCLENDON POOL REMOVAL	0.14	
17-34	YC-192	JL28	5/5/2017	SP-091-16	AUTOZONE STORE #6194 - 4501 NOLAND BLVD	0.67	Y
17-35	CC-117	JL34	5/11/2017	SP-038-17	ANHEUSER-BUSCH ADMINSTRATION BUILDING OUTDOOR SEATING (7801 Pocahontas Trail)	0.41	
17-36	PC-642	JL31	6/8/2017	SP-003-16	WJCC - DJ MONTAGUE BUS CANOPY (5380 Centerville Rd)	0.11	
17-36	PC-642	JL31	6/8/2017	SP-007-17	WJCC -D J MONTAGUE PARKING & SIDEWALK MODIFICATIONS (5380 Centerville Rd)	0.25	
17-37	YC-193	JL28	6/13/2017	SP-036-16	7147 RICHMOND ROAD RETAIL SITE	1.44	Y
17-39	DC-029	JL27	6/28/2017	E&S-25-17	NEWBERG, RICHARD R JR. - PRIVATE ROAD CONSTRUCTION (8846 Richmond Rd)	0.58	
					39	**79.86**	**20**

Private BMP Inspections FY17 Scores of 3 and 4

BMP	Maintenance Agreement	Location	Type	Inspection Date	Inspection Score	OWNER	Owner's Address
DC005	no	COLONIAL GOLF COURSE	Retention	1/4/2017	4	James Street, C/O Street Family Office LLC	PO Box 1475, Grundy, VA 24614-1475
MC012	no file	SUTTLE HOLDING CORPORATION % LAUREATE CAPITOL CORP	Detention	12/28/2016	3	Suttle Holding Corporation	12525 Jefferson Ave, Newport News, VA 23602
MC039	yes	La Fontaine condos	Retention	1/26/2009	3	La Fontaine HOA C/O University Square Association	616 Village Dr, ste G, Virginia Beach, VA 23454-4250
MC040	yes	WILLIAMSBURG CROSSING SHOPPING CENTER	Detention	1/4/2017	3	Williamsburg Crossing Associates, LLC c/o Cotswald Group	550 Mamaroneck Ave, Harrison, NY 10528-1634
MC062	yes	Marywood	Retention	12/28/2016	3	Marywood Property Owners Association Inc	500 Viking Ave #202, Virginia Beach, VA 23452-7487
MC063	yes	Marywood	Retention	12/28/2016	3	Marywood Property Owners Association Inc	500 Viking Ave #202, Virginia Beach, VA 23452-7487
MC064	yes	Marywood	Retention	12/28/2016	3	Marywood Property Owners Association Inc	500 Viking Ave #202, Virginia Beach, VA 23452-7487
MC065	yes	Marywood	Retention	12/28/2016	3	Marywood Property Owners Association Inc	500 Viking Ave #202, Virginia Beach, VA 23452-7487
PC006	yes	POWHATAN PLANTATION	Detention	12/28/2016	3	The Historic powhatan Resort Owners Association	10600 West Charleston Blvd, Las Vegas, NV 89135
PC009	yes	POWHATAN PLANTATION	Retention	12/28/2016	3	The Historic powhatan Resort Owners Association	10600 West Charleston Blvd, Las Vegas, NV 89135
PC086	yes	Fords colony	Retention	3/1/2017	3	Clubcorp NV XV LLC	PO Box 790830, San Antonio, TX 78279-0830
PC139	no	Five Forks BP	Infiltration	2/17/2017	?	GPM Investments LLC	1410 Commonwealth Dr, ste 202, Wilmington, NC 28403-0377
PC154	yes	?	Retention	3/1/2017	3	Clubcorp NV XV LLC	PO Box 790830, San Antonio, TX 78279-0830
PC193	yes	New Town	Bioretention	5/5/2017	3	NEW TOWN COMMERCIAL ASSOCIATION	PO Box 5010, Williamsburg VA 23188-5200
PC203	yes	Behind Petsmart	Retention	2/17/2017	3	New Company LLC	PO Box 31827, Raleigh, NA 27622-1827

Private BMP Inspections FY17 Scores of 3 and 4

PC251	yes	Behind Istanbul restaurant	Detention	4/21/2017	3	Recep Akdogan	23 Mile Course, Williamsburg VA 23185-5525
PC304	yes	Villas at Five Forks	Infiltration basin	2/17/2017	3	Villas at Five Forks Condominium Association	1730 George Washington Memorial HWY, Yorktown, VA 23693-4328
PC305	yes	Villas at Five Forks	Swale	2/17/2017	3	Villas at Five Forks Condominium Association	1730 George Washington Memorial HWY, Yorktown, VA 23693-4328
PC308	yes	Villas at Five Forks	Swale	2/17/2017	3	Villas at Five Forks Condominium Association	1730 George Washington Memorial HWY, Yorktown, VA 23693-4328
PC309	yes	Villas at Five Forks	Retention	2/17/2017	3	Villas at Five Forks Condominium Association	1730 George Washington Memorial HWY, Yorktown, VA 23693-4328
WC003	yes	Hankins Detention	Detention	3/2/2017	3	Head Investments LLC	404 Cherrywood court, Williamsburg VA 23168-9259
WC023	yes	140 Industrial Blvd	Detention	3/2/2017	3	Riley B Lowe, TRUSTEE, Robert King, and Charles B Walker, Trustee	PO Box 175, mechanicsville, VA 23111-0175
WC029	yes	Greystone	Detention	4/21/2017	3	Greystone of Virginia	7992 Richmond Road, Toano VA 23168-9125
WC044	yes	Smithfield Foods- Hankins	Retention	4/21/2017	4	Colonial Land Management	PO Box BM, Williamsburg VA 23187-3517
WC068	yes	GS STONEHOUSE GREEN LAND SUB LLC	Detention	3/2/2017	3	SCP-JTL Stonehouse Owner 1 LLC	4807 W Lovers Lane FL2, Dallas, TX 75209-3137
WC091	yes	BMP 1, 2, 3 S-1 STONEHOUSE GLEN	Detention	1/25/2017	3	Stonehouse Owners Foundation	603 Pilot House Dr, Newport News, VA 23606-1904
WC108	yes	Stonehouse Glen	Retention	1/25/2017	3	Stonehouse Owners Foundation	603 Pilot House Dr, Newport News, VA 23606-1904
YC003	No	CANDLE DEVELOPMENT LLC	Detention	1/12/2016	4	Poplar Creek LLC	PO Box BM, Williamsburg VA 23187-0341
MC011	yes	Digges Warehouse	Detention	5/30/2017	3	?	?

For MS4 Program Plan item 5.3d

FY17 Single Family Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
7/1/2016	CMH Clayton Homes	526 Neck-O-Land Road	40,000	5,192		5,361	
7/5/2016	Lennar	6419 Isabella	6,926	6,026		3,310	
7/5/2016	Lennar	6386 Cordelia	6,664	6,664		2,439	
7/5/2016	Lennar	6378 Cordelia	6,926	6,926		2,439	
7/5/2016	Lennar	3809 Isaac Circle	7,318	7,318		4,007	
7/5/2016	Lennar	3805 Isaac Circle	7,318	7,318		3,833	
7/11/2016	Lennar	6370 Cordelia	7,100	7,100		2,400	
7/11/2016	Lennar	6427 Isabella	7,230	7,230		3,050	
7/13/2016	CMH Clayton Homes	9060 Barnes Road	21,780	4,390		5,663	
7/13/2016	Innovative Homes	3049 Ridge	11,507	6,600		5,468	
7/13/2016	Laura Schacht	5023 Fenton Mill Road	139,386	1,500		1,700	
7/13/2016	Ryan Homes	6101 John Jackson Drive	12,451	9,784		3,151	
7/13/2016	Ryan Homes	3619 Mallory Place	131,196	52,478		4,957	
7/13/2016	Ryan Homes	6005 John Jackson Drive	11,165	6,195		3,353	
7/13/2016	Ryan Homes	7440 Wicks Road	6,374	5,159		2,491	
7/13/2016	Centex Homes	312 Oxford Road	25,243	8,813		2,679	
7/15/2016	Ryan Homes	3647 Mallory Place	225,057	42,626		6,140	
7/18/2016	Centex Homes	502 Collington Court	19,642	6,754		2,117	
7/19/2016	HH Hunt	8469 Lantana Ct	5,500	4,630		2,201	
7/19/2016	HH Hunt	8472 Lantana Ct	5,500	4,751		2,029	
7/19/2016	US Homes	6408 Isabella Dr	6,149	6,149		3,342	
7/19/2016	US Homes	6431 Isabella Dr	7,374	7,374		2,828	
7/19/2016	US Homes	3836 Isabella Dr	6,120	6,120		3,302	
7/21/2016	Paul White	7290 Little Creek Dam Rd	224,693	42,800		6,428	
7/21/2016	Cleckley & Smith	620 Dock Landing	9,455	8,600		3,325	
7/26/2016	US Homes	3828 Isaac Circle	6,120	6,120		3,021	
7/26/2016	US Homes	3832 Isaac Circle	6,120	6,120		3,021	
7/26/2016	US Homes	6327 Cordelia Rd	4,715	4,715		2,418	

For MS4 Program Plan item 5.3d

FY17 Single Family
Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
7/26/2016	Crossroads Custom Builders	7596 Uncle's Neck	174,837	41,382		10,454	
7/26/2016	Centex Homes	308 Oxford Road	19,809	9,209		2,926	
7/26/2016	Cartwright Construction	4332 Landfall Drive	22,491	11,234		5,868	
7/28/2016	Ryan Homes	2708 Brownstone Circle	12,056	9,316		2,766	
7/28/2016	Wayne Harbin Bldrs	1690 Centennial Dr.	134,992	29,970		5,715	
7/29/2016	Charles Ross Homes	8132 Wrenfield Drive	165,394	10,800		5,550	
8/2/2016	Ryan Homes	3643 Mallory Place	130,980	32,618		4,695	JL29
8/2/2016	Southern Chesapeake	136 Portland	10,014	9,510		4,397	
8/2/2016	Centex Homes	300 Oxford	28,168	9,251		3,692	JL33
8/2/2016	Coastal Construction	223 Oakmere Park	36,285	10,511		5,011	
8/3/2016	Wayne Harbin Bldrs	2604 John Tyler Highway	138,510	32,748		5,575	
8/4/2016	Lennar	6424 Zachariah	7,318	7,318		3,746	
8/4/2016	Dave Johnson	8401 Croaker Rd	1,883,970	78,539		21,551	
8/4/2016	Edgerton	8816 Walnut Creek	29,400	18,647		4,915	
8/4/2016	Ryan Homes	4049 Penzance	20,712	11,652		3,023	
8/4/2016	Wayne Harbin Bldrs	228 Hurlston	58,235	22,272		5,963	
8/5/2016	Ryan Homes	3724 Jeremiah Wallace Drive	11,909	9,958		3,243	
8/8/2016	US Homes	6331 Cordelia Road	4,715	4,715		2,424	
8/8/2016	US Homes	6359 Cordelia Road	4,848	4,848		2,423	
8/8/2016	Chilham Construction LLC	137 Indigo Dam Road	10,000	7,000		1,750	
8/9/2016	Atlantic Homes	4911 Ercil Way	5,600	3,230		2,442	
8/24/2016	HH Hunt	3260 Leighton Boulevard	8,249	7,227		3,330	YO62
8/26/2016	HH Hunt	3279 Leighton Boulevard	7,965	7,965		2,888	YO62
8/9/2016	Harbin Bldr	204 Brickhampton	17,672	15,736		5,018	
8/12/2016	Ryan Homes	2612 Brownstone Circle	16,018	10,358		3,287	JL31
8/15/2016	AF Ross, LLC	3076 Torrington Trail	16,073	14,966		6,004	JL30
8/15/2016	HH Hunt	3675 Lavender Lane	5,501	4,146		1,812	YO62
8/15/2016	HH Hunt	3635 Lavender Lane	5,434	4,419		2,190	YO62

For MS4 Program Plan item 5.3d

FY17 Single Family Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
8/15/2016	HH Hunt	8481 Lantana Ct	5,995	4,748		2,096	YO62
8/15/2016	HH Hunt	3655 Lavender lane	5,742	4,546		2,272	YO62
8/15/2016	Ryan Homes	6081 John Jackson Drive	10,971	8,908		2,747	JL29
8/16/2016	Stephen Alexander Homes	115 Royal Melbourne	19,813	12,858		5,048	JL31
8/19/2016	Ryan Homes	6065 John Jackson Drive	11,254	8,836		3,340	JL29
8/19/2016	Ryan Homes	5998 John Jackson Drive	13,573	13,396		2,811	JL29
8/16/2016	Ryan Homes	3636 Mallory Place	130,695	42,060		5,266	JL29
8/22/2016	Crossroads Custom Builders	3112 Ridge Dr	14,130	12,428		3,482	YO62
8/22/2016	Plantation Group, LLC	150 Forest Heights Road	6,313	2,936		1,242	JL31
8/22/2016	Plantation Group, LLC	146 Forest Heights Road	6,317	3,023		1,226	JL31
8/24/2016	Innovative Homes	3049 Ridge Dr	11,507	6,600		5,468	YO62
8/24/2016	Ryan Homes	8514 Ashington	21,757	10,854		2,869	YO62
8/24/2016	Ryan Homes	108 Fairmont	20,892	19,280		4,486	YO62
8/24/2016	Ryan Homes	3639 Mallory Place	130,686	34,399		5,325	JL29
8/24/2016	Custom Builders Express	4625 Rochambeau Drive	89,615	28,000		3,082	YO65
8/25/2016	Salty Dog Properties, Inc	114 Royal Worlington	9,285	4,500		2,312	
8/26/2016	Final Phase	8539 Pocahontas Trail	27,210	7,554		2,274	JL35
8/26/2016	Final Phase	153 Whiting Avenue	25,230	11,142		3,015	JL35
8/30/2016	Lennar	3882 Isaac	7,013	7,013		3,092	JL28
8/30/2016	Lennar	6404 Brightwell	6,621	6,621		2,831	JL28
8/30/2016	Ryan Homes	3616 Mallory Place	131,661	55,540		4,940	JL29
9/2/2016	Kimberly Builders	135 Country Club Dr	15,225	15,225	0.35	5,414	JL31
9/2/2016	HH Hunt	3651 Lavender Lane	6,269	5,955	0.14	2,261	Y062
9/2/2016	HH Hunt	3667 Lavender Lane	5,500	4,142	0.10	1,850	Y062
9/2/2016	Snow	145 Hollinwell	6,540	5,000	0.11	3,532	JL31
9/2/2016	US Homes	6355 Cordelia Rd	4,748	4,748	0.11	2,439	JL28
9/7/2016	Ryan Homes	7420 Wicks	9,589	7,814	0.18	3,615	JL28
9/7/2016	Lennar	6338 Cordelia	4,704	4,704	0.11	2,439	JL28

For MS4 Program Plan item 5.3d

FY17 Single Family Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
9/7/2016	Ryan Homes	7436 Wicks	6,374	5,830	0.13	2,868	JL28
9/9/2016	Walkwright Construction	212 Cruden Bay	22,788	13,700	0.31	4,879	JL31
9/9/2016	Cleckley & Smith	618 Dock Landing	9,273	8,100	0.19	4,720	JL35
9/12/2016	HH Hunt	4708 Pelegs Way	30,032	16,531	0.38	7,673	JL31
9/12/2016	JH Fisher	7608 Uncles Neck	134,501	40,000	0.92	11,700	JL28
9/16/2016	Ryan Homes	3008 Meadowcrest Trail	25,170	14,076	0.32	4,066	Y062
9/16/2016	Ryan Homes	3612 Mallory Place	131,738	49,027	1.13	7,226	JL29
9/20/2016	Tommy Louke	9943 Swallow Ridge	54,379	13,312	0.31	3,830	YO62
9/20/2016	Ryan Homes	7412 Wicks Road	8,095	6,947	0.16	2,671	JL28
9/20/2016	Ryan Homes	7416 Wicks Road	8,098	6,968	0.16	2,492	JL28
9/20/2016	Ryan Homes	7444 Wicks Road	7,546	6,490	0.15	2,796	JL28
9/20/2016	Ryan Homes	3624 Mallory Place	130,681	36,824	0.85	5,723	JL29
9/21/2016	Ryan Homes	112 fairmont	15,600	13,937	0.32	3,126	YO62
9/23/2016	Ryan Homes	7408 Wicks Road	7,237	6,461	0.15	3,110	JL28
9/23/2016	Ryan Homes	7428 Wicks Road	8,482	7,615	0.17	3,089	JL28
9/26/2016	Lennar	6366 Cordelia	5,749	5,749	0.13	2,526	JL28
9/26/2016	Lennar	6362 Cordelia	5,749	5,749	0.13	2,613	JL28
9/26/2016	Lennar	3820 Isaac	8,494	8,494	0.19	3,005	JL28
9/26/2016	Lennar	3824 Isaac	6,098	6,098	0.14	3,397	JL28
9/26/2016	HH Hunt	3671 Lavender	5,500	5,114	0.12	2,268	YO62
9/27/2016	Mitchell	5300 Riverview Road	457,685	39,204	0.90	5,427	YO65
9/29/2016	Lennar	6444 Brightwell	7,625	7,625	0.18	3,769	JL28
10/3/2016	Paul White	3069 Chickahominy	263,538	30,000	0.69	3,000	JL28
10/3/2016	Paul White	3095 Chickahominy	23,616	15,000	0.34	3,000	JL28
10/3/2016	Paul White	3200 Friendship	622,908	30,000	0.69	3,000	JL28
10/3/2016	Paul White	3100 Friendship	274,456	30,000	0.69	3,000	JL28
10/4/2016	Atlantic Homes	9919 Swallow Ridge	11,485	3,111	0.07	944	YO62
10/4/2016	Fred A. Nice Construction	125 Oak Road	34,792	13,201	0.30	3,480	JL31

For MS4 Program Plan item 5.3d

FY17 Single Family Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
10/4/2016	Ryan Homes	7424 Wicks Road	7,015	6,524	0.15	2,842	JL28
10/6/2016	Lennar	3840 Isaac Circle	6,120	6,120	0.14	3,021	JL28
10/6/2016	Lennar	6440 Brightwell	7,625	7,625	0.18	3,133	JL28
10/6/2016	Ryan Homes	3628 Mallory Place	130,683	40,700	0.93	5,394	JL29
10/6/2016	Ryan Homes	5332 Arbor Place	133,718	59,400	1.36	5,163	JL29
10/6/2016	Ryan Homes	3604 Mallory Place	131,428	41,546	0.95	5,206	JL29
10/7/2016	Hunter	1744 Founders Hill South	15,137	6,000	0.14	5,150	JL29
10/10/2016	Lennar	6448 Brightwell	8,606	8,606	0.20	3,788	JL28
10/10/2016	Lennar	3886 Isaac Circle	6,970	6,970	0.16	3,293	JL28
10/14/2016	Ryan Homes	7440 Wicks Road	6,374	6,099	0.14	3,173	JL28
10/17/2016	Ryan Homes	7463 Wicks Road	7,025	6,130	0.14	1,889	JL28
10/19/2016	Kenneth Kirby	7205 Canal Street	25,121	8,300	0.19	2,500	JL28
10/20/2016	Blackrock Bldrs	105 Western Gailes	18,289	14,882	0.34	4,130	JL31
10/21/2016	HH Hunt	8404 Sheldon Branch	8,286	7,996	0.18	3,262	YO62
10/21/2016	US Homes	3890 Isaac Circle	6,767	6,767	0.16	3,188	JL28
10/21/2016	Ryan Homes	3623 Mallory Place	131,060	41,590	0.95	7,577	JL29
10/26/2016	Ryan Homes	7451 Wicks Road	8,855	7,804	0.18	2,865	JL28
10/26/2016	Ronald Curtis Builders, LLC	106 Shellbank Drive	36,337	30,884	0.71	7,274	JL30
11/1/2016	Southern Chesapeake	9904 Black Twig	16,973	12,466	0.28	3,160	YO62
11/1/2016	Walk Wright	3598 Spitwood Rd	11,931	8,830	0.20	3,670	YO62
11/1/2016	Blackrock Bldrs	109 Mahogany Run	24,524	16,034	0.37	5,099	JL31
11/1/2016	Walk Wright	105 Princeville	16,144	13,000	0.30	4,600	JL31
11/1/2016	Ryan Homes	3627 Mallory Place	145,258	46,000	1.06	5,394	JL29
11/2/2016	Glenn Wurdemann	9932 Walnut Creek	29,686	9,500	0.22	6,013	YO62
11/7/2016	Ryan Homes	3635 Mallory Place	130,683	43,938	1.01	4,807	JL29
11/14/2016	Windmill Realtors	8386 York River Park Road	87,432	26,136	0.60	3,920	YO65
11/14/2016	Harbin Bldr	2901 Elizabeth Champion Ct	22,314	21,770	0.50	6,589	JL30
11/22/2016	Ryan Homes	3846 South Orchard	5,100	4,740	0.11	3,133	JL31

For MS4 Program Plan item 5.3d

FY17 Single Family
Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
11/22/2016	Ryan Homes	8224 Bridlington Way	14,021	8,301	0.19	2,578	YO62
11/28/2016	Sky Blue Homes	104 Woodside Drive	13,053	4,750	0.11	1,260	JL35
11/28/2016	Harbin Bldr	4108 Tufton Ave	4,959	5,248	0.12	3,330	JL31
11/28/2016	Ryan Homes	3007 Meadowcrest Trail	17,474	15,581	0.36	3,387	YO62
11/28/2016	HH Hunt	8305 Sheldon Branch Place	9,001	6,911	0.16	2,656	YO62
11/29/2016	Walk Wright	4500 The Foxes	147,755	15,507	0.36	6,795	JL33
11/30/2016	Coastal Construction	112 Royal Sydney	12,720	11,106	0.25	4,755	JL31
11/30/2016	HH Hunt	3605 Lavender Lane	5,433	4,528	0.10	2,038	YO62
12/1/2016	Ryan Homes	110 Fairmont	15,070	10,170	0.23	3,727	YO62
12/2/2016	Olsen	38 Ensigne Spence	42,711	21,911	0.50	3,655	JL34
12/7/2016	HH Hunt	3670 Lavender	6,591	5,935	0.14	2,724	YO62
12/7/2016	HH Hunt	8315 Sheldon Branch	10,260	8,366	0.19	3,229	YO62
12/7/2016	HH Hunt	3658 Lavender	5,500	4,723	0.11	2,031	YO62
12/7/2016	HH Hunt	3666 Lavender	5,500	4,796	0.11	2,150	YO62
12/7/2016	HH Hunt	3659 Lavender	5,501	4,967	0.11	2,115	YO62
12/13/2016	Westmoreland	5572 Brixton Road	5,182	2,068	0.05	2,068	JL33
12/16/2016	Marquee Homes	4010 Coronation	4,186	4,186	0.10	2,775	JL31
12/16/2016	Innovative Homes	6004 New Wilkinson Way	139,946	55,533	1.27	13,924	YO65
12/19/2016	CMH Oakwood Homes	118/120 Saw Mill Road	103,914	5,940	0.14	1,292	JL29
12/21/2016	Ryan Homes	106 Fairmont	17,992	11,926	0.27	3,761	YO62
12/21/2016	Ryan Homes	5989 John Jackson Drive	11,798	8,935	0.21	2,369	JL29
12/22/2016	Ryan Homes	7452 Wicks Road	8,290	7,725	0.18	3,164	JL28
12/21/2016	Ryan Homes	7419 Wicks Road	7,914	7,914	0.18	1,983	JL28
12/22/2016	HH Hunt	3623 Lavender Lane	5,433	4,723	0.11	2,031	YO62
12/22/2016	HH Hunt	3631 Lavender Lane	5,433	4,600	0.11	2,155	YO62
12/22/2016	HH Hunt	3619 Lavender Lane	5,433	4,526	0.10	2,108	YO62
12/22/2016	HH Hunt	6375 Cordelia Rd	9,356	9,356	0.21	2,788	JL28
12/22/2016	Ryan Homes	6081 John Jackson Drive	10,971	11,266	0.26	2,640	JL29

For MS4 Program Plan item 5.3d

FY17 Single Family Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
12/27/2016	Olsen	132 Alwoodley	6,540	6,540	0.15	3,750	JL31
12/28/2016	Ryan Homes	7423 Wicks Road	8,563	8,138	0.19	2,633	JL28
1/5/2017	Hertzler Brothers	172 Old Church Road	121,927	23,504	0.54	3,858	JL28
1/12/2017	Stephen Alexander Homes	3419 Liberty Ridge Parkway	137,650	41,340	0.95	6,310	JL29
1/12/2017	Ryan Homes	5332 Arbor Place	133,718	46,207	1.06	6,178	JL29
1/13/2017	Cartwright Construction	132 River Bluffs	25,187	18,556	0.43	4,802	JL35
1/13/2017	Cleckley & Smith	624 Dock Landing	9,022	4,600	0.11	3,968	JL35
1/18/2017	Ryan Homes	3000 Meadowcrest	21,508	21,498	0.49	2,619	YO62
1/19/2017	Ryan Homes	7443 Wicks Road	8,234	7,892	0.18	2,076	JL28
1/20/2017	Lennar	3879 Isaac circle	9,472	9,472	0.22	3,677	JL28
1/20/2017	Lennar	6412 Brightwell	7,552	7,552	0.17	3,072	JL28
1/20/2017	Lennar	3875 Isaac Circle	9,468	9,468	0.22	3,218	JL28
1/20/2017	Lennar	6408 Brightwell	7,609	7,609	0.17	3,317	JL28
1/23/2017	HH Hunt	3663 Lavender Lane	5,500	4,972	0.11	2,409	YO62
1/24/2017	HH Hunt	2208 Sir Hatchett Court	22,105	13,251	0.30	4,529	JL31
1/27/2017	Cleckley & Smith	621 Dock Landing	7,197	4,600	0.11	3,970	JL35
1/27/2017	HH Hunt	4759 Peleg's Way	24,625	11,544	0.27	4,275	JL31
1/27/2017	Blackrock Bldrs	137 Ensign John Utie	21,415	10,556	0.24	4,001	JL35
1/31/2017	C. Ross	2921 Forge Road	421,661	44,550	1.02	13,290	JL28
1/31/2017	KBM	9915 Perch Tree	13,589	11,342	0.26	4,174	YO62
2/1/2017	Promark Custom Homes	201 Tralee	20,649	18,122	0.42	4,322	JL31
2/7/2017	Hallmark Builders	7580 Uncle's Neck	177,964	43,050	0.99	5,244	JL28
2/9/2017	US Homes	3878 Isaac	8,934	8,934	0.21	3,632	JL28
2/9/2017	Westmoreland	5595 Brixton Road	4,860	4,860	0.11	2,395	JL33
2/14/2017	Alexander	108 Concord	16,841	12,475	0.29	3,330	JL31
2/15/2017	Stephens Builder	9031 Diascund Road	104,980	13,068	0.30	3,384	JL27
2/16/2017	Harbin Bldr	110 Crownpoint Road	60,496	12,937	0.30	3,318	JL34
2/17/2017	Ryan Homes	3709 Jeremiah Wallace Drive	10,103	9,176	0.21	2,586	JL29

Submitted to DEQ by James City County September 30, 2017

For MS4 Program Plan item 5.3d

FY17 Single Family Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
2/17/2017	Ryan Homes	7451 Wicks Road	8,855	7,804	0.18	1,962	JL28
2/21/2017	HH Hunt	8404 Wescott Drive	8,250	6,204	0.14	1,820	YO62
2/21/2017	HH Hunt	3282 Leighton Blvd	8,499	6,980	0.16	2,460	YO62
2/22/2017	Atlantic Homes	4891 Ercil Way	5,600	3,128	0.07	1,392	JL31
2/23/2017	US Homes	6452 Brightwell Ct	10,969	10,969	0.25	4,046	JL28
2/23/2017	US Homes	6456 Brightwell Ct	8,254	8,254	0.19	4,005	JL28
2/23/2017	US Homes	6460 Brightwell Ct	10,067	10,067	0.23	4,005	JL28
2/23/2017	US Homes	6409 Brightwell Ct	6,375	6,375	0.15	3,598	JL28
2/23/2017	US Homes	6405 Brightwell Ct	9,349	9,349	0.21	3,642	JL28
2/23/2017	US Homes	6416 Brightwell Ct	7,494	7,494	0.17	2,970	JL28
2/23/2017	HH Hunt	8408 Wescott Dr	8,250	7,496	0.17	3,076	YO62
2/24/2017	HH Hunt	2212 Sir Hatchett Ct	33,361	11,578	0.27	3,312	JL33
2/24/2017	HH Hunt	2216 Sir Hatchett Ct	35,609	11,469	0.26	3,300	JL33
2/11/2017	Ryan Homes	8202 Bridlington Way	16,049	14,259	0.33	4,001	YO62
2/28/2017	Curtis	212 William Clairborne	39,560	22,400	0.51	5,775	JL34
3/1/2017	J Lloyd	2804 Forge Road	535,788	30,056	0.69	7,840	JL27
3/1/2017	Promark Custom Homes	114 Edward Wyatt	25,264	10,890	0.25	3,400	JL31
3/2/2017	Ryan Homes	3609 Mallory Place	136,485	36,387	0.84	5,169	JL29
3/3/2017	Harbin Bldr	5204 Scenic Court	42,832	16,723	0.38	5,405	JL33
3/3/2017	Ryan Homes	7427 Wicks Road	7,886	7,302	0.17	2,788	JL28
3/6/2017	Paul White	8533 Pocahontas Trail	77,694	9,000	0.21	3,760	JL35
3/9/2017	Cason Custom Homes	100 Little Aston	15,171	13,861	0.32	4,697	JL31
3/9/2017	HH Hunt	3287 Leighton	6,679	6,679	0.15	2,509	YO62
3/13/2017	Ryan Homes	6005 John Jackson Drive	11,165	7,642	0.18	3,141	JL29
3/13/2017	Ryan Homes	6100 John Jackson Drive	13,255	9,661	0.22	2,817	JL29
3/15/2017	CMH Oakwood Homes	10067 Old Stage	42,591	42,601	0.98	2,243	YO63
3/16/2017	Paul White	8535 Pocahontas Trail	41,162	9,000	0.21	3,104	JL35
3/20/2017	Ryan Homes	7459 Wicks Road	8,294	7,754	0.18	2,745	JL28

For MS4 Program Plan item 5.3d

FY17 Single Family
Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
3/16/2017	Ryan Homes	3720 Jeremiah Wallace Drive	11,660	11,432	0.26	3,209	JL29
3/21/2017	JCS Holdings LLC	1359 Oak Drive	41,465	7,463	0.17	2,934	YO68
3/22/2017	Coastal Construction	223 Oakmere Park	36,285	10,511	0.24	5,011	JL31
3/24/2017	US Homes	6415 Brightwell Ct	6,733	6,733	0.15	3,056	JL28
3/24/2017	US Homes	6420 Brightwell Ct	7,343	7,343	0.17	3,375	JL28
3/24/2017	US Homes	6400 Brightwell Ct	8,837	8,837	0.20	3,627	JL28
3/24/2017	US Homes	3816 Woodruff Rd	7,320	7,320	0.17	3,733	JL28
3/24/2017	US Homes	3871 Isaac Circle	8,423	8,423	0.19	4,013	JL28
3/24/2017	US Homes	6318 Cordelia Rd	6,561	6,561	0.15	2,421	JL28
3/24/2017	US Homes	6310 Cordelia Rd	6,561	6,561	0.15	2,522	JL28
3/24/2017	HH Hunt	4755 Peleg's Way	18,240	10,756	0.25	4,276	JL31
3/24/2017	HH Hunt	2227 Sir Hatchett Court	27,848	9,681	0.22	3,393	JL31
3/28/2017	HH Hunt	8415 Addison Terrace	7,119	6,218	0.14	2,222	YO62
3/28/2017	HH Hunt	8406 Addison Terrace	5,500	5,500	0.13	2,140	YO62
3/28/2017	Thomas Tucker	2030 Bush Neck Road	1,089,871	39,306	0.90	2,298	JL29
3/29/2017	Ryan Homes	7407 Wicks Road	7,916	6,936	0.16	2,928	JL28
3/30/2017	Walk Wright	162 Devon Rd	34,413	17,947	0.41	6,447	JL31
3/30/2017	Mills Corp	109 Jubilee	10,300	10,300	0.24	4,214	JL31
3/31/2017	J Lloyd Builder	200 Lakeview	201,944	24,001	0.55	4,617	JL28
3/31/2017	Cartwright Construction	106 Hollinwell	6,570	7,926	0.18	3,228	JL31
3/28/2017	Cason Custom Homes	110 Higland	6,540	7,560	0.17	3,877	JL31
4/4/2017	Multi-Tech Builders, Inc	201 Bulwell Forest	19,427	12,304	0.28	4,320	JL31
4/5/2017	Ryan Homes	6132 John Jackson Drive	11,046	7,228	0.17	2,286	JL29
4/6/2017	HH Hunt	3286 Leighton	9,163	7,175	0.16	3,251	YO62
4/6/2017	HH Hunt	3295 Leighton	5,500	5,500	0.13	2,354	YO62
4/6/2017	Atlantic Homes	4883 Ercil Way	4,956	4,956	0.11	2,424	JL31
4/6/2017	East Lake Builders	100 Lely	19,993	15,700	0.36	5,057	JL31
4/11/2017	McEwen	3606 Splitwood	18,839	9,600	0.22	3,380	YO62

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FY17 Single Family Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
4/11/2017	Fred Nice	277 Racefield	155,509	39,204	0.90	9,147	JL27
4/13/2017	Ryan Homes	7455 Wicks Road	6,820	6,000	0.14	2,399	JL28
4/13/2017	Ryan Homes	7411 Wicks Road	8,405	7,198	0.17	2,108	JL28
4/17/2017	Westmoreland	5587 Brixton Road	5,182	2,068	0.05	2,068	JL33
4/18/2017	Charles Ross Homes	320 Leven Links	10,800	9,800	0.22	3,957	JL31
4/18/2017	Getting Construction LLC	104 Warwick Hills	15,328	15,328	0.35	3,865	JL31
4/21/2017	Ryan Homes	6025 John Jackson Drive	10,006	9,215	0.21	2,424	JL29
4/25/2017	Walk Wright	208 Brickhampton	13,068	13,068	0.30	4,007	JL31
4/26/2017	HH Hunt	8400 Sheldon Branch	8,142	8,142	0.19	3,272	YO62
4/26/2017	HH Hunt	3290 Leighton Blvd	9,213	6,954	0.16	2,297	YO62
4/26/2017	HH Hunt	8410 Addison Terrace	5,500	5,500	0.13	2,719	YO62
4/26/2017	US Homes	3898 Isaac Circle	7,044	7,044	0.16	3,111	JL28
4/26/2017	US Homes	3894 Isaac Circle	6,698	6,698	0.15	3,483	JL28
4/26/2017	US Homes	6419 Brightwell Ct	7,570	7,570	0.17	3,248	JL28
4/26/2017	US Homes	3800 Woodruff Rd	7,320	7,320	0.17	3,832	JL28
4/26/2017	US Homes	3804 Woodruff Rd	7,320	7,320	0.17	3,836	JL28
4/26/2017	US Homes	6314 Cordelia Rd	4,715	4,715	0.11	2,413	JL28
4/26/2017	Jeff Clark	9947 Swallow Ridge	53,773	15,625	0.36	4,608	YO62
4/26/2017	Ryan Homes	5336 Arbor Place	133,306	33,934	0.78	7,837	JL29
5/1/2017	Sky Blue	4866 Hickory Signpost Rd	31,363	4,200	0.10	2,500	JL33
5/2/2017	ODH, LLC	114 Richneck Drive	113,118	23,233	0.53	7,516	JL33
5/3/2017	CMH Clayton Homes	6174 Centerville Road	24,183	8,875	0.20	3,036	JL31
5/3/2017	Ryan Homes	7439 Wicks Road	5,966	5,966	0.14	1,919	JL28
5/5/2017	Paul White	107 King Henry Way	10,532	7,825	0.18	2,530	JL31
5/8/2017	Ryan Homes	3604 Mallory Place	131,428	50,809	1.17	5,569	JL29
5/8/2017	Stephen Alexander Homes	4372 Landfall Drive	22,128	11,347	0.26	4,301	JL31
5/12/2017	Olsen Fine Homebuilding	108 Keystone	15,046	11,500	0.26	1,550	JL29
5/12/2017	Ryan Homes	7431 Wicks Road	6,053	4,811	0.11	1,971	JL28

For MS4 Program Plan item 5.3d

FY17 Single Family Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
5/15/2017	Mitchell	169 Sand Hill Road	43,167	12,000	0.28	2,200	YO62
5/15/2017	Cleckley Fine Homes	101 George Sandys	25,257	16,800	0.39	6,780	JL35
5/18/2017	Southern Chesapeake	4990 John Tyler Highway	26,691	12,207	0.28	5,931	JL33
5/18/2017	Ryan Homes	3628 Mallory Place	130,683	40,066	0.92	6,964	JL29
5/22/2017	Peninsula Habitat	1317 Moses Lane	6,506	4,055	0.09	1,170	JL34
5/22/2017	Peninsula Habitat	1315 Moses Lane	8,879	6,400	0.15	1,420	JL34
5/22/2017	Darrell Mitchell Construction	3641 Bridgewater Drive	26,136	13,068	0.30	4,000	JL33
5/22/2017	Ryan Homes	5328 Arbor Place	164,100	42,789	0.98	5,505	JL29
5/23/2017	Cason Custom Homes	118 Royal Worlington	7,630	6,540	0.15	4,489	JL31
5/23/2017	Randy Bozzel Custom	128 Turners Neck	652,534	28,548	0.66	3,758	JL28
5/23/2017	HH Hunt	8401 Addison Terrace	7,016	7,016	0.16	1,793	YO62
5/24/2017	Westmoreland	5567 Brixton Road	5,984	5,400	0.12	2,044	JL33
5/25/2017	HH Hunt	8421 Collington Lane	5,782	5,782	0.13	2,197	YO62
5/25/2017	David Johnson Builder LLC	140 Pebble Beach	30,292	15,082	0.35	4,921	JL31
5/26/2017	Brian Emerson	131 Portland Dr	13,200	9,535	0.22	3,240	JL31
5/30/2017	Lennar	5322 Cordelia	4,715	4,715	0.11	2,403	JL28
5/30/2017	Lennar	3828 Woodruff	6,120	6,120	0.14	3,293	JL28
5/30/2017	Lennar	3808 Woodruff	7,320	7,320	0.17	4,018	JL28
5/30/2017	Lennar	6423 Brightwell	7,298	7,298	0.17	3,055	JL28
5/30/2017	Lennar	6427 Brightwell	7,368	7,368	0.17	3,299	JL28
5/30/2017	HH Hunt	8402 Addison Terrace	5,782	5,782	0.13	2,662	YO62
5/30/2017	HH Hunt	4724 Peleg's Way	17,753	12,816	0.29	3,897	JL31
5/30/2017	HH Hunt	4759 Peleg's Way	24,625	11,544	0.27	4,275	JL31
5/30/2017	HH Hunt	4743 Peleg's Way	15,486	8,988	0.21	4,233	JL31
5/30/2017	HH Hunt	2223 Sir Hatchett Court	19,155	13,914	0.32	3,918	JL31
5/30/2017	HH Hunt	2228 Sir Hatchett Court	27,669	8,906	0.20	2,638	JL31
5/31/2017	Jeff Clark	6 Poindexter Ct	36,416	12,640	0.29	5,366	JL31
6/2/2017	QP Storage	7336 Merrimac Trail	13,429	8,570	0.20	2,947	JL34

For MS4 Program Plan item 5.3d

FY17 Single Family
Disturbed and Impervious Area

James City County

Date	Builder/Owner	Address	Lot size (SF)	Disturbed Area (SF)	Disturbed Area (Ac.)	Impervious Cover (SF)	HUC Code
6/5/2017	Westbridge	3310 Chickahominy	130,837	30,230	0.69	8,787	JL28
6/7/2017	Final Phase	134 Marston's Lane	19,420	12,000	0.28	1,870	JL28
6/7/2017	Hertzler Brothers	102 Neighbors Dr	3,290	2,500	0.06	660	JL31
6/8/2017	Ryan Homes	6102 Pricket	6,498	5,074	0.12	2,537	JL28
6/8/2017	Ryan Homes	7400 Wicks	8,050	6,086	0.14	3,587	JL28
6/8/2017	Ryan Homes	7435 Wicks	8,356	6,500	0.15	3,048	JL28
6/8/2017	Marquee Homes	4008 Coronation	4,186	4,186	0.10	2,349	JL31
6/12/2017	Walk Wright	105 Eaglescliffe	13,503	13,068	0.30	4,642	JL31
6/13/2017	Karsan	105 James Bray	21,619	13,272	0.30	4,152	JL31
6/13/2017	Ryan Homes	3600 Mallory Place	159,167	40,544	0.93	5,206	JL29
6/14/2017	Final Phase	130 Howard Drive	14,543	6,100	0.14	2,103	JL35
6/21/2017	Ryan Homes	3631 Mallory Place	133,850	26,211	0.60	4,167	JL29
6/22/2017	Ryan Homes	7464 Wicks	6,325	6,086	0.14	2,160	JL28
6/22/2017	Lennar	3835 Woodruff	8,694	8,694	0.20	3,268	JL28
6/22/2017	Lennar	3831 Woodruff	6,120	6,120	0.14	3,268	JL28
6/22/2017	Lennar	3827 Woodruff	6,120	6,120	0.14	3,025	JL28
6/22/2017	Lennar	3832 Woodruff	6,126	6,126	0.14	3,363	JL28
6/22/2017	Lennar	6358 Cordelia	5,865	5,865	0.13	2,424	JL28
6/28/2017	Cason Custom Homes	136 Shinnecock	17,253	16,295	0.37	6,164	JL29
6/28/2017	HH Hunt	4735 Pelegs Way	15,486	8,988	0.21	4,233	JL31
6/28/2017	CMH Homes	3041 Jolly Pond Rd	96,703	5,000	0.11	6,508	JL29
6/29/2017	Westbridge	5208 Scenic Court	36,974	9,800	0.22	4,631	JL33
	330 Plans	***TOTALS:***	***16,051,649***	***4,325,221***	***75.41***	***1,234,047***	

Submitted to DEQ by James City County September 30, 2017

BMPs Installed in FY17 (PY4) - James City County, Virginia

ID Code	Plan No.	HUC	Project Name/Applicant	BMP Type	Drain. Area	DOC - I/M Agree	Dev Type
GC031	SP-083-13	JL29	JCC- Landfill Improvement	Pretreatment Sediment Forebay	2.67	No	Retrofit
JR073	SP-012-16	JL35	Columbia Gas Station Rebuild	Level Spreader	0.32	Yes	New
YC079	S-036-15	JL28	Villages at Candle Station	Bioretention	0.80	Yes	New
YC080	SP-087-12	JL28	Villages at Candle Station	Bioretention	1.92	Yes	New
YC081	SP-087-12	JL28	Villages at Candle Station	Bioretention	1.76	Yes	New
YC082	SP-087-12	JL28	Villages at Candle Station	Bioretention	1.08	Yes	New
YC083	SP-087-12	JL28	Villages at Candle Station	Bioretention	0.52	Yes	New
YC084	SP-087-12	JL28	Villages at Candle Station	Dry Swale	0.98	Yes	New
YC085	SP-087-12	JL28	Villages at Candle Station	Dry Swale	0.51	Yes	New
YC086	S-036-15	JL28	Villages at Candle Station	Bioretention	3.73	Yes	New
YC087	S-036-15	JL28	Villages at Candle Station	Dry pond	4.90	Yes	New
YC088	SP-087-12	JL28	Villages at Candle Station	Dry Swale	2.50	Yes	New
YC089	SP-087-12	JL28	Villages at Candle Station	Dry Swale	1.83	Yes	New
WC009	SP-115-13	YO62	JCC- Fire Station 1	Dry pond	4.14	No	Retrofit
WC130	SP-115-13	YO62	JCC- Fire Station 1	Bioretention	0.52	No	New
WC131	SP-115-13	YO62	JCC- Fire Station 1	Bioretention	1.54	No	New
YC090	S-117-05	JL29	Lightfoot Marketplace	Porous Concrete	0.56	Yes	New
YC091	S-117-05	JL29	Lightfoot Marketplace	Wet Swale	0.96	Yes	New
MC074	SP-041-16	JL33	JCC Brookhaven Drainage Improvements	Dry Swale	1.70	No	New
MC075	SP-045-15	JL33	JCC Brookhaven Drainage Improvements	Dry Swale	1.20	No	New
MC076	SP-045-15	JL33	JCC Brookhaven Drainage Improvements	Dry Swale	0.40	No	New
MC077	SP-045-15	JL33	JCC Brookhaven Drainage Improvements	Dry Swale	0.20	No	New
MC078	SP-045-15	JL33	JCC Brookhaven Drainage Improvements	Dry Swale	0.15	No	New
MC079	SP-045-15	JL33	JCC Brookhaven Drainage Improvements	Dry Swale	0.10	No	New
JR074	SP-092-14	JL35	JCC- James River Elementary School Stream Rest	Bioretention	35.10	No	Retrofit
PC326	SP-095-15	JL31	4037 Ironbound Road Parking Improvements	Bioretention	0.40	Yes	Retrofit
PC327	SP-004-16	JL31	JCC- Clara Byrd Baker Elementary School	Bioretention	4.70	No	Retrofit
PC328	SP-004-16	JL31	JCC- Clara Byrd Baker Elementary School	Bioretention	2.67	No	Retrofit
PC329	SP-028-08	JL31	New Dawn/Berkeley Oaks	Dry Swale	2.14	Yes	New
YR023	SP-102-15	YO65	JCC- Upper County Library	Bioretention	1.75	No	Retrofit
PC330	SP-070-16	JL31	JCC- Marina and Brewery	Bioretention	0.08	No	New
PC331	SP-070-16	JL31	JCC- Marina and Brewery	Bioretention	0.15	No	New
PC332	SP-070-16	JL31	JCC- Marina and Brewery	Bioretention	0.18	No	New
PC333	SP-020-16	JL31	WISC Indoor Pool Facility	Dry Swale	3.22	Yes	New

34 total new BMPs in FY17 (PY4). **Total (acres)** **83.84**

Appendix C-6

Exhibits for Minimum Control Measure #6 – Pollution Prevention/Good Housekeeping for Municipal Operations

James City County Compliance Summary Statement

MCM 6 Pollution Prevention and Good Housekeeping for Municipal Operations

Permit Year4 - FY17

County-wide participation and training in pollution prevention continues to be a prime focus of employees in this permit year.

As described in MCM3, the Pollution Prevention Team has been established earlier in this permit cycle for education and collaboration between departments. This team has accomplished the following:

- Continued implementation of SWPPPs for county facilities
- Supported a county-wide pollution prevention training program
- Provided valuable departmental information to the team in order to move forward with collaborative prevention efforts

Street sweeping continues to be a part of the stormwater program. This permit year, 80.58 tons of debris were removed from MS4-owned and operated facilities including WJCC schools.

At this time all 6 SWPPPs for county facilities, including the James City Service Authority Complex, the Law Enforcement Center, the Convenience Centers (2), Fleet Maintenance Center, and the Williamsburg-James City County Schools Operations Center have been completed. Implementation of SWPPPs has begun and continues to be on-going. The five Fire stations in James City County are not considered high priority facilities for pollution prevention, but Standard Operating Procedures have been written for each station that focus on spill cleanup and good housekeeping.

For the Turf and Landscape Management program, the county has developed and implemented three (3) new certified nutrient management plans (NMPs) for MS4 owned properties, covering 13.54 acres in PY4. This brings the acres under NMPs to 56.42 of the 70.55 acres total, or 80%. For the facilities that have been completed, thoughtful and appropriate attention to the management plan is on-going.

County-wide good housekeeping trainings have been implemented throughout PY4 using the Raincheck Program and quiz materials developed by the Pollution Prevention Team. Departmental training will take place biennially. In addition to this training, all current pesticide applicators, hazmat operators, ESC, and stormwater certifications are up to date.

MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
6.1	Operations & Maintenance Program						See Detail Below
6.1a	*Support the County-wide Pollution Prevention Team*	Continue to secure advice and recommendations on pollution prevention efforts from County deprtments and agencies through regularly scheduled public meetings of the Team and implement the Pollution Prevent Program contained in the James City County Administrative Regulation # 28, Pollution Prevention Program	Number of meetings and agendas	Stormwater Division	Twice per year	Meeting minutes and publications, AR# 28	Pollution Prevention Team update flyer in July 2016 and meeting on 2/6/17. See details in Appendix C-6.
6.1b	*Implement Current Standard Operating Procedures (SOPs) for General Services and Parks & Recreation Facilities*						See Detail Below
		Continue to implement SOPs for General Services facilities to include activities, schedules, and inspection procedures that include provisions and controls to reduce pollutant discharges into the regulated small MS4 and receiving surface waters.	SOPs	Stormwater Division/ General Services	Ongoing	SOPs	Current SOPs were submitted in PY1
		Continue to implement SOPs for Parks and Recreation facilities to include activities, schedules, and inspection procedures that include provisions and controls to reduce pollutant discharges into the regulated small MS4 and receiving surface waters.	SOPs	Stormwater Division/ Parks and Recreation	Ongoing	SOPs	Current SOPs were submitted in PY1
6.1c	*Spill Prevention & Control Plans*	Continue to implement and update plans describing spill prevention and control procedures for municipal facilities developed during past permit cycle.	Standard Operating Procedure (SOP) Implementation	Stormwater Division	Ongoing	SPCC Plans	SOPs added for Fire Station 1 and Fire Station 4. See all Fire Station SOPs in Appendix C-6.
6.1d	*Update and/or Develop Written Procedures*	Ensure that actions included in written procedures and SOPs (a) prevent illegal discharges; (b) ensure proper disposal of waste materials; (c) prevent discharge of vehicle wash water w/o a separate VPDES permit; (d) prevent the discharge of wastewater; (e)require BMPs when discharging pumped water from maintenance activities; (f) minimize pollutants from stockpiles; (g) prevent pollutants from municipal vehicles; and (h) ensure that chemicals are used or applied in accordance with product labels.	Updated Written Procedures	Pollution Prevention Team and Stormwater Division	Ongoing	Updated Written Procedures	All SWPPPs complete. Current SWPPPs submitted in PY2
6.2	Stormwater Pollution Prevention Plans (SWPPPs)	Update SWPPPs as needed for Fleet, the James City Service Authority Complex, the Law Enforcement Center , the Convenience Centers (2) and the Williamsburg-James City County Schools Operations Center.	6 SWPPPs	Pollution Prevention Team and Stormwater Division	ongoing	SWPPPs	All SWPPPs complete. Current SWPPPs submitted in PY2

MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations							
BMP	**BMP Description**	**Measurable Goals**	**Metric**	**Responsible Party**	**Timeline**	**Associated Documents**	**PY4 Status**
6.2a	*SWPPP Implementation*	Complete implementation of final SWPPPs, including installing needed site upgrades	Site Improvements	Pollution Prevention Team and Stormwater Division	PY4	Site Improvements	Final SWPPPs implemented. Current SWPPPs submitted in PY2
6.3	Turf and Landscape Management	Continue developing and implementing certified nutrient management plans (NMPs) on at least 7.75 acres or 20% of the identified acreage meeting the requirement threshold	Completed NMPs	Turf Love and General Services Grounds Maintenance Division	PY4	GIS Layer and information table	NMPs created for 56.42 acres of managed turf by end of PY4, of the 70.55 acres required. See details in Appendix C-6.
		Continue developing and implementing certified nutrient management plans (NMPs) on at least 9.70 or 25% of the identified acreage meeting the requirement threshold	Completed NMPs	Turf Love and General Services Grounds Maintenance Division	PY5	GIS Layer and information table	To be completed in PY5
6.4	Employee Education & Training	Implement employee training in accordance with AR#28 and the biennial Pollution Prevention Training Plan developed in PY1.	Number of training events and topics	Pollution Prevention Team and Stormwater Division	Ongoing	Number of training events and topics	Pollution prevention training for Police in PY4. See details in Appendix C-6.
6.4a	*Regional Training Program*	Distribute pollution prevention educational materials developed through the HRPDC/askHRgreen to James City County employees engaging in operations with a high risk of discharging pollutants into the MS4.	Number of items distributed	HRPDC and Phase II Localities	Ongoing	training materials	117 Staff trained with Municipal Storm Water Pollution program. See details in Appendix C-6.
6.4b	*Regulated Certifications*	Ensure that employees hold the appropriate required State or federal regulated certifications	Pesticide applicators, Hazmat certifications, ESC certifications, Stormwater certifications	Pollution Prevention Team and Stormwater Division	Ongoing	Types of Certifications and Certficate Number	All 17 pesticide applicators certified, 117 trained Hazmat operators in the county, ESC and Stormwater up to date.
6.5	Evaluation and Assessment	Evaluate and assess progress towards meeting measurable goals.	In accordance with VAR040037, Section II E	Stormwater Division	Annually	Annual Report	Compliance with this measurable goal is met through the submission of this annual report.

Pollution Prevention Team

July 2016 Update

PP Team updates:

1. DEQ MS4/SWPPP Audit was completed on July 14. Positive comments were made in regards to Pollution Prevention efforts and the SWPPP documents
2. Quarterly inspections need to be kept up to date and entered on the inspection sheet located in SWPPP binders (Q1:July-Sept, Q2:Nov-Dec, Q3: Jan-Mar, Q4: Apr-June)
3. Staff will continue to visit sites and make recommendations

Concerns and Needs:

If there is any need for pollution prevention materials such as spill kits, hydrocarbon filters, etc. please contact Paul, SWPPP Coordinator, at 757-259-1445.

Training Updates:

1. Staff is putting together training materials for FY17 training
2. Submit all training records to stormwater staff as well as inserting a copy into SWPPP
3. Please let staff know if you have any questions regarding training or pollution prevention
4. Keep up the good work!

Reminder: Don't underestimate the value of a clean, litter free site with everything in its place

Summary

Pollution Prevention Team

Update Meeting
02/06/2017 1:30 – 2:30
Gen. Serv. Admin Conference Room

Committee Members Present:	Matt Austin, Grace Boone, Paul Cuomo, Nancy Ellis, Billy Estes, Fran Geissler, Jeff Hicklin, Buddy Stewart, Doug Lang
Committee Members Absent:	
Other Attendees:	

Meeting Summary

Item	Description	Discussion Highlights	Decisions
Review of 2016 Audit	Discussion about the 2016 DEQ MS4 program and SWPPP audit	SWPPPs and SOPs looked good and regulators were appreciative of the work we have been doing	
Review AR28	Stormwater staff discussed AR28	PPT members need to remind staff on AR28 and train new staff	
FS#1 SOP	Final draft of FS#1 SOP	Staff is in the process of completing SOPs and will forward to Miles when complete	
Training Discussion	Training PPT, Department training updates	NCTCG Municipal Employee Training Series DVD was shown and will be used for FY17 training	Continue to train and staff as needed
FY18 training	Options for FY18 training	Stormwater staff will look into the purchase of new training materials on different topics to help keep training interesting and informative	
Other Issues and Concerns	Quarterly inspections	Staff reminded PPT members to keep quarterly inspections up to date	Next meeting will take place July 2017

Standard Operating Procedure

James City County- Fire Station #1

3135 Forge Rd
Toano, Virginia 23168

Prepared for **James City County**
Stormwater Division
107 Tewning Rd
Williamsburg, Virginia 21388

Prepared by **VHB/Vanasse Hangen Brustlin, Inc.**
351 McLaws Circle, Suite 3
Williamsburg, VA 23185-6316
(757) 220-0500

June 2017

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Vanasse Hangen Brustlin, Inc.

1

Standard Operation Procedures (SOPs) Overview

Facility Name and Address

Fire Station #1
3135 Forge Rd , Toano, Virginia 23168
Contact: Station Captain
Phone: (757) 566-1905

Standard Operation Procedures Background & Overview

This plan is designed to reduce pollution at the source, before it can contaminate stormwater and cause environmental impacts.

The SOP includes the following goals:

- Identify potential sources of pollutants that may impact stormwater discharges from the Site;
- Describe the practices that will be implemented to prevent or control the release of pollutants in stormwater discharges;
- Create a schedule to ensure that practices included in the SOPs are followed and measures are implemented according to the SOPs; and
- Evaluation of SOPs and its effectiveness at reducing pollutant discharge.

This SOP includes the following elements:

- Identifies the SOP coordinator with a description of the coordinator's duties;
- Identifies members of the SOP Team and lists their responsibilities;
- Describes the facility, with information on location and type of activities occurring at the site, a site map, and a description of the stormwater drainage system;

- Identifies potential stormwater contaminants;
- Describes stormwater management controls and various best management practices (BMPs) needed to reduce pollutants in stormwater discharges;
- Describes the facility's monitoring plan;
- Describes employee training for stormwater pollution prevention; and,
- Describes the implementation schedule and provisions for amendment of the plan.

This plan has been developed as a 3-ring binder that allows for updates and revisions as appropriate. Revision dates will be shown on the right hand corner of edited pages. Blank copies of the worksheets included in this report can be found at the back of this report..

2

SOP Coordinator and Team

The following roster lists the pollution prevention team and responsibilities for each member. This team is responsible for implementing all aspects of the SOP. Attached is a typed roster that can be posted in highly visible locations to alert staff to the appropriate contact for stormwater and/or spill related issues. A blank roster (Worksheet #1) is also included in SOP Attachment 2 so changes may be made as necessary and reposted.

SOP Coordinator

Title Stormwater Coordinator
Office Phone: (757) 259-1445
Cell Phone: (757) 645-7064

Responsibilities:
Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted; and oversees sampling program.

Member - Spill Response Coordinator

Title Assistant Fire Chief
Office Phone: (757) 565-7603

Responsibilities:
Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.

Member

Name Station Captain
Office Phone: (757) 566-1905

Responsibilities:
Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.

PLEASE POST

Worksheet #1

Pollution Prevention Team	
SWPPP Coordinator:	**Office Phone:** (757) 259-1445 **Cell Phone:** (757) 645-7064
Title: Stormwater Coordinator	
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.	
Member:	**Office Phone:** (757) 565-7603
Title: Assistant Fire Chief	
Responsibilities: Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.	
Member: Station Captain	**Office Phone:** (757) 566-1905
Title: N/A	
Responsibilities: Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.	

3

Site Assessment

The following Site information is based on the conditions observed at the facility during an inspection on June 2017.

Facility Location and Description

Location

The James City County – Fire Station #1 facility is located at 3135 Forge Road in Toano, Virginia. The Site Location Map (Figure 1) shows the location of the facility at coordinates 37.381424, -76.807358. The fire station is located in a rural area of James City County along the southwest corner of the Forge Road (Route 610) and Richmond Road (Route 60) intersection.The Emergency Operations Center is located adjacent and west of Fire Station #1, and the two facilities share a driveway off of Forge Road. A Farmer's Market exists across Forge Road from the Fire Station, and sparse residential houses and farms with ancillary structures are located in the surrounding area. Commercial and retail businesses are located along Richmond Road in close proximity to the site.

Facility Description

According to the James City County GIS, Fire Station #1 (also called Bruton Fire Station)and the Emergency Operations Center (EOC) occupy the same parcel and the parcel consists of approximately 6.9 acres. The EOC is comprised of two buildings connected by a breezeway. A paved parking lot is located to the east of the buildings and a gravel lot to the west of the building is also used for parking. The western portion of the EOC facility is fenced, including an emergency generator, an associated fuel tank, and a concrete drainage flume. The Fire Department shares the same driveway and parking lot with the EOC, but has parking spaces adjacent to the fire department building and south of the building. The Fire Station consists of a central garage for the fleet of fire and emergency vehicles with a wing which house administrative offices, a kitchen, rooms for the firefighters, training rooms and common areas. Minor maintenance is performed in the vehicle bay structure, and vehicle washing occurs just outside of the warehouse bay

door. Dumpsters are present to the west of the EOC and the Fire Station and are shared use. The site layout and buildings are shown on Figure 2.

The driveway, parking lot between the Fire Station and EOC, the rear of the fire station is impervious pavement, but behind the EOC remains gravel and exposed soil. The front of the Fire Station and EOC are grassy with the exception of the concrete ditches and the fire truck exit driveway at the front of Forge Road. The eastern side of the fire station is also grassy.

Facility Activities

The facility has two main operations, the Emergency Operations Center and the Fire Station. The Emergency Operations Center is primarily administrative with the ability to dispatch appropriate resources as needed in times of emergency. The Fire Station is a volunteer, yet active responder to fire and other emergencies in the surrounding area. Though no activities are performed outside of the EOC, the EOC side of the facility does have an emergency generator with a diesel fuel tank serving as the emergency fuel source, and parking occurs in pervious areas of the facility exposed to storm water runoff.

Most activities within the fire station are not pertinent to storm water with exception to the potential for leaks from the fire trucks and emergency vehicles stored within the garage portion of the fire station. Minor maintenance is performed within the fire station. Fire truck and vehicle washing occurs on the front apron of the first station. The dumpsters located by the fuel pumps are used by the Fire Station and EOC to dispose of municipal waste and are covered at all times.

A fueling area is present behind the fire station and serves the fire station fleet of vehicles. It consists of two pump dispensers elevated on a concrete platform, each connected to an underground storage tank. A divided fuel tank contains diesel fuel and gasoline. A canopy is present above the fueling area.

Stormwater Drainage System

The stormwater drainage system at Fire Station #1 consists of seven (7) storm drain catch basins, which drain most impervious areas of the site, and all feed into the on-site BMP pond. The BMP pond has a concrete riser along the eastern edge of the BMP, which directs stormwater to an outfall at the property line.

The southern side of the property is drained via sheet flow to a bio-retention basin #1 which also capture runoff from the rear parking lot. The remaining catch basins collect the runoff from the front parking areas and direct runoff towards the bio-retention basin #2 which has an overflow discharge towards the onsite BMP.

Drainage in the area of the fueling station sheet flows east/southeast with some drainage intercepted by a small drain at the corner of the concrete fueling pad, but most drainage from the fueling area is suspected to sheet flow towards the road or enters the catch basin nearest the entrance. Figure 2 shows stormwater drainage features, including location of BMP, outfalls, and catch basins.

The circular interior drains in the garage portion of the fire station and storage room drain into an oil water separator present at the rear of the new fire station before entering the MS4.

FIRE STATION #2
Pocahontas Trail, Williamsburg, Virginia

Vanasse Hangen Brustlin, Inc.

FIGURE 1
Project Location Map

Rev. Date:_____

Figure 2 Aerial Site Map

Potential Stormwater Contaminants & Significant Material Inventory

A list of materials that are handled, treated, stored or disposed of at the site that may potentially be exposed to stormwater or snow melt are shown on the attached Worksheet 2. The purpose and location of use or storage, volumes (used/ produced or stored) and likelihood of contact with runoff is also presented in Worksheet 2.

Worksheet #2
Stormwater Pollution Prevention Plan Material/Activity Inventory

This attachment is a list of materials stored and/or activities that may potentially be exposed to stormwater at the James City County – Fire Station #2. These areas are identified on the Site Layout and Areas of Storage and Activities Map, Figure 2.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Current Practices with comments
Vehicles/Equipment	Washing	Various amounts	Salt, grease, oils, detergent, automotive fluids	High; sheet flow to grass area	Vehicles are washed on the front apron with phosphate free soap and drains to the grass area, along with daily inspections of vehicles for leaks.
Dumpster	Household waste/garbage generated on-site	Various, 2 dumpsters (4-yard capacity)	Leachate, organics	Medium, when dumpster not covered	Should remain covered and plug bottom drainage hole.
Fueling area	Fueling of fleet vehicles, fire and county vehicles	1 – 15,000 gallon divided fuel tank (10,000 gall unladed, 5,000 gallon diesel), installed 2016	Petroleum hydrocarbons; Diesel fuel and gasoline	High; Flow into oil interceptor	Follow all vehicle fueling procedures, and spill response procedures if necessary
Garage drains	Storage of emergency vehicle fleet	Various amounts	Salt, grease, oils, automotive fluids	Low; interior grading allows for any leaks from trucks to runoff (under cover) into interior drains	Interior drains lead to sanitary sewer

Past Spills and Leaks

The regulations require a listing of past spills or leaks of toxic or hazardous substances that have occurred within the last three years. No past releases or spills are known to have occurred in the past three years at Fire Station #1. Any future releases or spills will be documented on Worksheet #3 contained in Attachment #2.

Areas Associated with Industrial Activity

The areas associated with industrial activity as shown on Figures 2 and Worksheet #2 are described as follows:

Dumpsters

There are two (2) dumpsters located in the parking lot to the rear (south-west) of the fire station facility. A concrete pad is located beneath the 4-yard capacity dumpsters. The dumpster is used by the fire department to temporarily dispose of household waste accumulated daily from the fire station, and it does not serve as a residential drop-off. The dumpster is filled with daily household type trash, and no hazardous materials are disposed of in this receptacle. An impervious concrete pad is beneath the dumpster. A cover on the dumpster is kept closed to prevent rainwater from entering or wind transport of debris.

Fueling Area

The fueling area at Fire Station #1 is surrounded by concrete. The pump island consists of two pump dispensers on a slightly elevated concrete platform. The pump dispensers are connected to one double-walled fiberglass underground storage tank containing diesel fuel and gasoline. A small drain is located at the easternmost corner of the concrete, above the underground storage tanks in the fueling area. A canopy protects the fueling area.

Emergency Vehicle Garage

Fire Station #1 has floor drains within the garage area where the emergency vehicles are garaged. The contents of the drains are sent into the sanitary sewer.

Emergency Vehicle Washing Area

Vehicles are washed within the apron area at the front of the fire station, just outside of the garage, though no formal "washing area" has been designated and equipped with an oil water separator and sediment trap. Runoff from this location washes towards Forge Road between the fire station and Richmond Rd and ends on the grassy area. Washing does not enter an MS4.

Non-Stormwater Discharges

Non-stormwater discharges are present at the facility. Circular drains within the garage and storage room of the new fire department building drain into an oil water separator before entering the MS4. Discharges into these drains could potentially carry petroleum hydrocarbons and other automotive fluids as well as typical household cleaners. Condensation from an icemaker is also shown to runoff into an interior drain. The contents of the drain are said to merge into the sanitary sewer. All other drainage at the facility appears to be collected into on-site catch basins located within the driveway of the facility, at the end of the grassy swale, and in the grassy yard to the west of the new fire station. Drainage is then directed into the BMP pond. Areas drained by the swale and catch basins that direct drainage to the BMP pond include the parking lot, the dumpster area, the vehicle wash area, and likely some drainage from the fueling area. Although an oil water separator was observed at the rear of the new fire station, it manages drainage from interior drains and no oil water separator was observed in the vicinity of the fueling area in front of the former fire station. A small drain is located adjacent to the fueling area and the destination of the drainage is to the BMP.

Potential Allowable Non-Stormwater Discharges

No known allowable non-stormwater sources of discharge have been identified at the Fire Station #1. However, Fire Station #1 has fire hydrants on the premises. Flushing of fire hydrants is typically an allowable non-stormwater discharge. Drainage from rood leaders is also a typical allowable source of discharge.

Existing Stormwater Monitoring Data

Fire Station #1 does not report having historical monitoring data. When stormwater monitoring data is available it will be presented in this section.

Site Summary (Sources of Pollution with a Medium to High Risk of Contaminating Stormwater)

The list of pollutants associated with materials and activities that have been identified in Worksheet #2 as having a medium to high likelihood of contaminating stormwater at Fire Station #1 are described below.

The following areas are potential sources of contamination:

- The fueling area presents several potential sources of contamination to the stormwater. Leaking pump and hose components exposed to the elements, overfill and spills during refueling of fleet vehicles, and overfill and spills during filling of underground storage tanks by container trucks can release petroleum hydrocarbons onto the impervious surface. During stormwater events, these pollutants can wash into nearby bioretention areas or grassy areas.
- The dumpsters containing generic trash may release leachate and other organics if not covered and the drainage hole is not plugged. Contents of dumpsters can be sources of stormwater pollution and other contaminants.
- Outside vehicle washing on the impervious surface at the front of the fire station has the potential to leave residue on the ground that could rinse off and transport oil, fuel, automotive fluids, and soil.

4

Standard Operating Procedures Best Management Practices

This section describes practices that are in place or that will be implemented to control pollutants that have the potential to contaminate stormwater. These include Good Housekeeping Measures, Preventative Maintenance Practices, as well as Response Practices.

Good Housekeeping/Preventive Maintenance

Good housekeeping practices are the most effective first step towards preventing pollution in stormwater. The following is a list of good housekeeping practices followed at this facility:

- Spills are immediately contained and cleaned up with an absorbent.
- All fluid products and wastes are kept indoors.
- Maintenance of fleet vehicles is not performed on-site, but rather at the off-site Fleet & Maintenance facility on Tewning Road.
- Spillage that occurs in the fueling area during re-fueling of fleet vehicles and container truck filling of USTs, as well as equipment leaks is promptly cleaned up using spill kit.
- Dumpster is kept covered except when in use, drain plugs are installed.
- Unauthorized waste will not be stored in the dumpster.
- Should any metal materials be stored outdoors, they will be lifted from the ground (i.e. resting on pallets) and appropriately covered, if practical
- Wash vehicles with phosphate free soap at front of building near grassed area.
- Spill kits are inventoried after every use and used materials replaced promptly at the fueling area.
- The fueling pumps, nozzles, hose, and fittings are inspected weekly for any signs of leaks or deterioration. Any identified leaks or equipment failures are reported to James City County for scheduling immediate maintenance.
- The dumpster is fenced to prevent unauthorized dumping.
- All staff is aware of spill prevention and response procedures. They are trained annually on spill identification, response, and notification procedures.

- Spill prevention and response equipment (spill kit) is located at the pump island and can be used at garage bays where spills and vehicle leaks could occur.
- All materials on site are labeled describing contents therein.
- Vehicle fleet is kept in good repair to prevent leaks.
- The fueling island has an emergency shut-off switch and an alarm.

Best Management Practices (BMPs)

The following is a list of planned Best Management Practices. When implemented, the BMPs will prevent or reduce the discharge of potential pollutants in stormwater runoff for each area of concern listed in the Site Summary of Activities.

Sediment and Erosion Control

The topography of the site is fairly flat, though certain areas of the site are slightly sloping. The eastern and southern sides of the new fire station slope to the southwest, whereas the center of the site where the driveway is located has been graded to slope northeast. The western side of the former fire station slopes westward towards the on-site BMP pond. North of the former fire station the topography gently slopes to the north-northeast. Areas not paved on site are generally vegetated. Any areas that are lacking vegetation are vulnerable to erosion and the potential for transport of sediment directly into the BMP pond is likely. To minimize the potential for erosion in these areas added topsoil and reseeding might be a preventative measure to erosion.

Management of Stormwater Runoff

The following are runoff management practices used at the facility.

- Runoff from the site flow to a system of catch basins and bio-retention basins. Stormwater from these catch basins and bio-retention areas are then discharged to the on-site BMP pond before discharging along the eastern property boundary
- Impervious areas have no curbs to the rear of the property in order to encourage sheet flow runoff to vegetative areas

Spill Prevention and Response

A Spill Response Plan has been prepared and installed at the fuel island. This document contains information regarding spill/release response activities and contact numbers for proper notification.

Employee Training

The James City County – Fire Station #1 facility will maintain trained in-house personnel to understand and implement all aspects of the SOPs. These individuals will be trained once a year. Training records will be maintained for at least 5 years. Pollution prevention team members will meet twice a year to discuss the effectiveness of and improvements to the Plan. The training records should be maintained for at least 5 years. Worksheet #6, in SOP Attachment 2 may be used to document employee training at the James City County- Fire Station #1 facility.

5

Monitoring/Inspections/ Record Keeping

Quarterly Visual Monitoring

Every quarter, stormwater discharges will be visually examined at the last exiting outfall from the facility. The visual examination will be made during daylight hours and within 30 minutes after stormwater begins to runoff. The designated Member of Fire Station #1 will complete site surveys and outfall inspections. A blank worksheet, Worksheet #4, in SOP Attachment 2 will be used for the visual monitoring.

Annual Site Inspections (Comprehensive Site Compliance Evaluation)

The entire facility will be inspected at least once a year for evidence of pollution, to evaluate BMPs that have been implemented, and to inspect areas having the potential to pollute or contaminate stormwater. The site inspection report will include date of inspection, name of personnel conducting the inspection, observations, assessment of BMPs, corrective actions taken, and a signed certification.

Worksheet #5 identifies annual BMPs and describes activities or improvements for the Fire Station #1 facility. This information will be included in an annual Compliance Evaluation Report. The annual Report shall be kept with the SOP. Both the Evaluation Report and any reports of follow-up action will be certified.

Record Keeping and Reporting

Records described in this SOPs will be retained on site for 5 years from the date of the cover letter that notifies this facility of coverage under the stormwater permit. These records will be made available to state or federal inspectors upon request. Additionally, employee-training records shall also be maintained.

Plan Revisions

If this facility expands its operations, or changes any significant material handling or storage practices, which could impact stormwater, this SOP will be amended. The amended Plan will describe the new activities that contribute to increased pollution and planned control measures. This Plan will also be amended if a state or federal inspector determines that it is not effective in controlling stormwater pollutants discharged to waterways.

Worksheet #5

Annual BMP Identification				
BMPs	Description of Activities or Improvements	Completion Date	Person Responsible of Action	Notes/Recommended Changes
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____

Title:_____

Date:_____

Signature:_____

6

Certifications

Non-Stormwater Discharges

Stormwater outfalls to surface waters at this facility have not been evaluated thus far; therefore, they have not been certified to free of non-stormwater discharge at this time.

Standard Operation Procedure Certification

This Stormwater Pollution Prevention Plan has been prepared in accordance with good engineering practices. Qualified personnel properly gathered and evaluated information submitted for this Plan. The information in this Plan, to the best of my knowledge, is accurate and complete.

Paul Cuomo

Name

Stormwater Coordinator

Title

07/01/2017

Date

SOP Attachments

- SOP Attachment 1 Emergency Response Phone Numbers
- SOP Attachment 2 Blank Worksheets

SOP Attachment 1
Emergency Response Phone Numbers

SPILL RESPONSE
EMERGENCY NOTIFICATION PHONE NUMBERS

1. SUPERVISOR/MANAGER
   NAME: _____ CELL PHONE: _____
   PHONE: _____

   ALTERNATE:
   NAME: _____ CELL PHONE: _____
   PHONE: _____

2. JAMES CITY COUNTY FIRE DEPARTMENT
   EMERGENCY: 911
   BUSINESS:

   JAMES CITY COUNTY POLICE DEPARTMENT
   EMERGENCY: 911
   GENERAL NUMBER:

3. CLEANUP CONTRACTOR: PETROCHEM
   ADDRESS: PO BOX 1458, NORFOLK, VA 23501
   PHONE: (800) 723-6951 or (757) 627-8791

4. VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT (DEM)
   EMERGENCY: 1-800-468-8892

5. POLLUTION RESPONSE PROGRAM (PREP) TIDEWATER REGIONAL OFFICE
   PHONE: 757-518-2000 (8:30am – 4:30pm Monday-Friday)

6. NATIONAL EMERGENCY RESPONSE CENTER
   PHONE: 1-800-424-8802

7. JAMES CITY COUNTY EMERGENCY SERVICES DIVISION/EMERGENCY OPERATIONS CENTER

   County Administrator/Emergency Management Director: Bryan Hill
   Fire Chief/Coordinator of Emergency Management: Ryan Ashe (Interim Fire Chief)
   Director of Emergency Services/Deputy Coordinator of Emergency Management: Kathleen Hale
   Phone: 757-564-2140

   EMERGENCY OPERATIONS CENTER
   3127 Forge Road
   Toano, Virginia 23168

SOP Attachment 2
Blank Worksheets

Worksheet #1

Pollution Prevention Team	
SOP Coordinator:	**Title:** **Office Phone:**
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Implements the preventive maintenance program; oversees good housekeeping activities, serves as spill coordinator, coordinates employee training programs, keeps all records, and conducts and assists with inspections.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Member:	**Title** **Office Phone:**
Responsibilities:	**Cell Phone:**
Alternate Member:	**Title:** **Office Phone:**
Responsibilities:	

Vanasse Hangen Brustlin, Inc.

Worksheet #2
Standard Operating Procedure Plan Material /Activity Inventory

This is a list of materials stored and/or activities that may potentially be exposed to stormwater at the municipal facility.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Comments

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #3
List of Significant Spill and Leaks

List all spills and leaks (as indicated on Worksheet #2) of toxic or hazardous pollutants within the past 3 years that were significant. Significant spills and leaks include but are not limited to, release of oil or hazardous substances in excess of reportable quantities. Reportable quantities are defined as 25 gallons or greater in volume.

Date (m/day/yr)	Location (as indicated on site map)	Description				Response Procedure		Prevention Measure Taken
		Type of Material	Quantity	Source (if known)	Reason for spill or leak	Amount of Material Recovered	Material no longer exposed to stormwater	

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #4
Quarterly Visual Monitoring Inspection Log for Stormwater Discharges

Stormwater outfalls at the facility must be visually inspected every quarter.

Date/ Time	Outfall # or Description	Weather Conditions	Observations (Contaminants Observed/ Erosion/Sediment)	Probable Source of Any Observed Contamination	Action Taken to Prevent in Future	Person(s) Conducting the Test - Signature
1st Quarter		Time since last rain: Quantity of last rain: Flow observed:				
2nd Quarter						
3rd Quarter						
4th Quarter						

Completed by:_____
Title:_____
Date:_____
Signature:_____

Attachments

Vanasse Hangen Brustlin, Inc.

Worksheet #5
Annual Stormwater Management Plan – Inspection Checklist

Annual BMP Identification				
BMPs	**Description of Activities or Improvements**	**Completion Date**	**Person Responsible of Action**	**Notes/Recommended Changes**
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____
Title:_____
Date:_____
Signature:_____

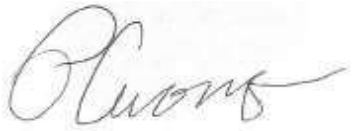
Vanasse Hangen Brustlin, Inc.

Worksheet #6

Employee Training			
Describe the employee-training program for your facility. The program should, at a minimum, address spill prevention and response, good housekeeping, and material management practices. Provide a schedule for the training program and list the employees who attend training sessions.			
Training Topics	**Brief Description of Training Program/Materials**	**Schedule of Training (list dates)**	**Attendees**
Spill Prevention and Response			
Good Housekeeping			
Material Management Practices			
Other Topics			

Completed by:_____
Title:_____
Date:_____
Signature:_____

Worksheet #7

Stormwater Standard Operation Procedure Compliance Evaluation Report Certification
Qualified personnel who properly gathered and evaluated the information included herein have prepared this Compliance Evaluation Report. The information in this report, to the best of my knowledge is accurate and complete.
Municipality Name __James City County_____  Signature _____ Date __07/01/2017_____

Standard Operationing Procedure

James City County- Fire Station #2

8429 Pocahontas Trail
Williamsburg, Virginia 23185

Prepared for **James City County**
Stormwater Division
107 Tewning Rd
Williamsburg, Virginia 21388

Prepared by **VHB/Vanasse Hangen Brustlin, Inc.**
351 McLaws Circle, Suite 3
Williamsburg, VA 23185-6316
(757) 220-0500

June 2015

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Vanasse Hangen Brustlin, Inc.

1

Standard Operation Procedures (SOPs) Overview

Facility Name and Address

Fire Station #2
8429 Pocahontas Trail, Williamsburg, Virginia 23185
Contact: Station Captain
Phone: (757) 220-3640

Standard Operation Procedures Background & Overview

This plan is designed to reduce pollution at the source, before it can contaminate stormwater and cause environmental impacts.

The SOP includes the following goals:

- Identify potential sources of pollutants that may impact stormwater discharges from the Site;
- Describe the practices that will be implemented to prevent or control the release of pollutants in stormwater discharges;
- Create a schedule to ensure that practices included in the SOPs are followed and measures are implemented according to the SOPs; and
- Evaluation of SOPs and its effectiveness at reducing pollutant discharge.

This SOP includes the following elements:

- Identifies the SOP coordinator with a description of the coordinator's duties;
- Identifies members of the SOP Team and lists their responsibilities;
- Describes the facility, with information on location and type of activities occurring at the site, a site map, and a description of the stormwater drainage system;

- Identifies potential stormwater contaminants;
- Describes stormwater management controls and various best management practices (BMPs) needed to reduce pollutants in stormwater discharges;
- Describes the facility's monitoring plan;
- Describes employee training for stormwater pollution prevention; and,
- Describes the implementation schedule and provisions for amendment of the plan.

This plan has been developed as a 3-ring binder that allows for updates and revisions as appropriate. Revision dates will be shown on the right hand corner of edited pages. Blank copies of the worksheets included in this report can be found at the back of this report..

2

SOP Coordinator and Team

The following roster lists the pollution prevention team and responsibilities for each member. This team is responsible for implementing all aspects of the SOP. Attached is a typed roster that can be posted in highly visible locations to alert staff to the appropriate contact for stormwater and/or spill related issues. A blank roster (Worksheet #1) is also included in SOP Attachment 2 so changes may be made as necessary and reposted.

SOP Coordinator

Title Stormwater Coordinator
Office Phone: (757) 259-1445
Cell Phone: (757) 645-7064

Responsibilities:
Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted; and oversees sampling program.

Member - Spill Response Coordinator

Title Assistant Fire Chief
Office Phone: (757) 565-7603

Responsibilities:
Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.

Member

Name Station Captain
Office Phone: (757) 220-3640

Responsibilities:
Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.

PLEASE POST

Worksheet #1

Pollution Prevention Team		
SWPPP Coordinator:	**Office Phone:** **Cell Phone:**	(757) 259-1445 (757) 645-7064
Title: Stormwater Coordinator		
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.		
Member:	**Office Phone:**	(757) 565-7603
Title: Assistant Fire Chief		
Responsibilities: Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.		
Member: Station Captain	**Office Phone:**	(757) 220-3640
Title: N/A		
Responsibilities: Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.		

3

Site Assessment

The following Site information is based on the conditions observed at the facility during an inspection on June 25, 2015.

Facility Location and Description

Location

The James City County – Fire Station #2 is located at 8429 Pocahontas Trail in Williamsburg, Virginia. The Site Location Map (Figure 1) shows the location of the facility at 37°14'01"N; 76°37'46"W. The facility is generally located east of Busch Gardens and the Route 60 and Interstate 64 interchange, and north of the Kingsmill Resort and Golf Club. Fire Station #2 and the former fire station, now used as a storage building for the fire station, are accessed via two ingress/egress driveways from Pocahontas Trail (Route 60). The Fire Station #2 facility is southeast and adjacent to a driveway access to the Dominion Virginia Power Sub-station located to the west of the site. The driveway to this facility provides a division between the fire station and a junkyard north of the Virginia Power driveway. A wide power line easement is located at the rear of the fire station, along the southwest Property line, and a dirt driveway cut through the woods is present to the southeast of the facility. The vicinity would be considered rural.

Facility Description

Fire Station #2 is located on approximately 2.72 acres. The Fire Station property consists largely of two main buildings, the old fire station and the new fire station, and paved surfacing for the driveway and parking lots, with the remaining area consisting of grass and BMP structures (designed swales and pond). Several sheds are used for storage near the old fire station building, and some vehicles are typically parked in the driveway to the sheds. The facility operates as an active fire and rescue station serving the local population with emergency response service. The fire station serves primarily to garage the fire and rescue vehicles, though no maintenance is performed on the vehicles at this location. Two fueling pumps are located on the premises and dispense gasoline and diesel fuels from underground storage tanks beneath a concrete pad. The fleet of vehicles at this facility, as well as other James City County fleet vehicles, are fueled on an as need basis at this fueling station. The former fire station building and the sheds near the former fire station serve as general dry storage for the fire station. The interior of the new Fire Station #2 consists of local administrative offices, equipment rooms,

bedrooms, bathrooms, kitchen, and other common areas used by fire and rescue personnel who are on-call. The garage portion of the fire station is where the trucks are garaged, and the vehicle fleet is washed outside of the garage, at the rear of the facility. Though this is the location of truck washing, there is no dedicated wash pad.

The southeastern side of the facility consists of a grassy swale that transports drainage to the rear of the site. Three (3) catch basins are located on site and direct stormwater into a fore bay and BMP pond to the west/southwest of the former fire station building. At the facility, one (1) oil water separator, a grease trap, and a grinder pump (rear of the former fire station) are all connected to the MS4. An additional small drain was observed at the corner of the concrete pad associated with the fueling area; however, this drain is not known to have an oil water separator, and the destination of drainage from this point is unknown at this time.

Facility Activities

The facility consists predominantly of a garage area that houses the Station #2 fleet of fire trucks and rescue vehicles. Activities pertinent to stormwater are minimal at the facility. No maintenance of Station #2 fleet vehicles is performed on-site. However, in front of the former fire station building are two active fuel pumps on a concrete pad, connected to gasoline and diesel underground storage tanks. The fleet of vehicles garaged at Fire Station #2 is fueled on-site, as are other James City County fleet vehicles. The vehicle fleet is washed outside of the garage, at the rear of the facility where runoff sheet flows across the parking lot and enters the nearby swale and catch basin. Ultimately, this drainage enters the BMP pond. Contaminants that may be leaked by vehicles under the cover of the garage would flow into the interior drain system that connects to the oil water separator before advancing into the MS4. The facility also serves to accommodate emergency response personnel who are on-call during the days and nights by having a kitchen, bedrooms, bathrooms, and other common areas, but these areas are enclosed in the on-site structure. Trash from the facility is collected and temporarily stored in an on-site dumpster located on a concrete pad along the southeastern portion of the property. The contents are emptied and taken to the landfill on a frequent basis.

Stormwater Drainage System

The stormwater drainage system at Fire Station #2 consists of three (3) storm drain catch basins, which drain most impervious areas of the site, and all feed into the forebay of the on-site BMP pond. The BMP pond has a concrete riser along the western edge of the BMP, which directs stormwater to an outfall at the property line consisting of a drainage easement of approximately 492.03 square feet.

The southeastern side of the property is drained via grassy swale directing flow to the southern corner of the site where the swale bends to the northwest around the outskirts of the paved parking lot and ultimately enters a catch basin that merges with other catch basins on site via culverts to enter the on-site BMP pond. The parking lot and truck washing area in the rear of the new fire station also drains via sheet flow off the parking lot into the swale along the southwestern property line and ultimately into the catch basin and BMP pond. The remaining catch basins collect the runoff from the low lying grassy area immediately west of the new fire station, and the other impervious areas of the site including the garage exit from the fire station, the front of the fire station, and the side parking lot. The rear and southern side of the former fire station sheet flow towards the BMP, whereas the impervious area in front of the former fire station sheet flows towards the vegetated areas off the pavement and into the ditch that parallels Pocahontas Trail.

Drainage in the area of the fueling station sheet flows east/southeast with some drainage intercepted by a small drain at the corner of the concrete fueling pad, but most drainage from the fueling area is suspected to sheet flow towards the road or enters the catch basin nearest the entrance. Figure 2 shows stormwater drainage features, including location of BMP, outfalls, and catch basins.

The circular interior drains in the garage portion of the fire station and storage room drain into an oil water separator present at the rear of the new fire station before entering the MS4.

FIRE STATION #2
Pocahontas Trail, Williamsburg, Virginia

Vanasse Hangen Brustlin, Inc.

FIGURE 1
Project Location Map


FIRE STATION #2
Pocahontas Trail, Williamsburg, Virginia
FIGURE 2
Site Layout
BMP
Forebay
Accumulation of Sediment
Ditch
Oil Water Separator
Pocahontas Trail
Fire Hydrant
Grease Trap
Oil Water Separator
Grassy Swale

Potential Stormwater Contaminants & Significant Material Inventory

A list of materials that are handled, treated, stored or disposed of at the site that may potentially be exposed to stormwater or snow melt are shown on the attached Worksheet 2. The purpose and location of use or storage, volumes (used/ produced or stored) and likelihood of contact with runoff is also presented in Worksheet 2.

Worksheet #2
Stormwater Pollution Prevention Plan Material/Activity Inventory

This attachment is a list of materials stored and/or activities that may potentially be exposed to stormwater at the James City County – Fire Station #2. These areas are identified on the Site Layout and Areas of Storage and Activities Map, Figure 2.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Current Practices with comments
Vehicles/Equipment	Washing	Various amounts	Salt, grease, oils, detergent, automotive fluids	High; sheet flow to swale and storm drain at rear of property, enters BMP pond.	Vehicles are washed in the rear parking lot with phosphate free soap and it drains to the grass area, along with daily inspections of vehicles for leaks.
Dumpster	Household waste/garbage generated on-site	Various, 1 dumpster (4-yard capacity)	Leachate, organics	Medium, when dumpster not covered	Should remain covered and plug bottom drainage hole.
Fueling area	Fueling of fleet vehicles, fire and county vehicles	1 – 2,000 gallon singlewall fiberglass UST (diesel) 1 – 2,000 gallon singlewall fiberglass UST (gasoline); both installed June 1994	Petroleum hydrocarbons; Diesel fuel and gasoline	High; Flow into storm drain and sheet flow towards Pocahontas Trail carrying any petroleum leaked onto the impervious surface	Follow all vehicle fueling procedures, and spill response procedures if necessary
Garage drains	Storage of emergency vehicle fleet	Various amounts	Salt, grease, oils, automotive fluids	Low; interior grading allows for any leaks from trucks to runoff (under cover) into interior drains	Interior drains lead to an oil water separator connected to the MS4.

Past Spills and Leaks

The regulations require a listing of past spills or leaks of toxic or hazardous substances that have occurred within the last three years. A past release occurred and was remediated in 1994 with regards to a tank within the fuel pump area. No past releases or spills are known to have occurred in the past three years at Fire Station #2. Any future releases or spills will be documented on Worksheet #3 contained in Attachment #2.

Areas Associated with Industrial Activity

The areas associated with industrial activity as shown on Figures 2 and Worksheet #2 are described as follows:

Dumpsters

There is one (1) dumpster located in the parking lot to the rear (south) of the new fire station facility. A concrete pad is located beneath the 4-yard capacity dumpster. The dumpster is used by the fire department to temporarily dispose of household waste accumulated daily from the fire station, and it does not serve as a residential drop-off. The dumpster is filled with daily household type trash, and no hazardous materials are disposed of in this receptacle. An impervious concrete pad is beneath the dumpster. A cover on the dumpster is kept closed to prevent rainwater from entering or wind transport of debris.

Fueling Area

The fueling area at Fire Station #2 is partially surrounded by concrete, although asphalt abuts the northern side of the pump island. The pump island consists of two pump dispensers on a slightly elevated concrete platform. The pump dispensers are connected to two single-walled fiberglass underground storage tanks containing diesel fuel and gasoline. A small drain is located at the easternmost corner of the concrete, above the underground storage tanks in the fueling area; however, the destination of runoff entering this drain is to the BMP at this time under normal conditions, it appears that a spill or release will flow to the 12-inch drain. A cover or canopy does not protect the fueling area.

Emergency Vehicle Garage

Fire Station #2 has floor drains within the garage area where the emergency vehicles are garaged as well as within a janitorial room. The contents of the drains are sent into an oil water separator and ultimately enter the MS4.

Emergency Vehicle Washing Area

Vehicles are washed within the paved area at the rear of the fire station, just outside of the garage, though no formal "washing area" has been designated and equipped with an oil water separator and sediment trap. Fleet vehicles and police vehicles are washed at this location. Runoff from this location washes towards Forge Road between the fire station and EOC buildings, or into the concrete flume located east of the wash area. Washing does not enter an MS4, but ultimately outfalls into a ditch along Richmond Road.

Non-Stormwater Discharges

Non-stormwater discharges are present at the facility. Circular drains within the garage and storage room of the new fire department building drain into an oil water separator before entering the MS4. Discharges into these drains could potentially carry petroleum hydrocarbons and other automotive fluids as well as typical household cleaners. Condensation from an icemaker is also shown to runoff into an interior drain. The contents of the drain are said to merge into the sanitary sewer. All other drainage at the facility appears to be collected into on-site catch basins located within the driveway of the facility, at the end of the grassy swale, and in the grassy yard to the west of the new fire station. Drainage is then directed into the BMP pond. Areas drained by the swale and catch basins that direct drainage to the BMP pond include the parking lot, the dumpster area, the vehicle wash area, and likely some drainage from the fueling area. Although an oil water separator was observed at the rear of the new fire station, it manages drainage from interior drains and no oil water separator was observed in the vicinity of the fueling area in front of the former fire station. A small drain is located adjacent to the fueling area and the destination of the drainage is to the BMP.

Potential Allowable Non-Stormwater Discharges

No known allowable non-stormwater sources of discharge have been identified at the Fire Station #2. However, Fire Station #2 has fire hydrants on the premises. Flushing of fire hydrants is typically an allowable non-stormwater discharge. Drainage from rood leaders is also a typical allowable source of discharge.

Existing Stormwater Monitoring Data

Fire Station #2 does not report having historical monitoring data. When stormwater monitoring data is available it will be presented in this section.

Site Summary (Sources of Pollution with a Medium to High Risk of Contaminating Stormwater)

The list of pollutants associated with materials and activities that have been identified in Worksheet #2 as having a medium to high likelihood of contaminating stormwater at Fire Station #2 are described below.

The following areas are potential sources of contamination:

- The fueling area presents several potential sources of contamination to the stormwater. Leaking pump and hose components exposed to the elements, overfill and spills during refueling of fleet vehicles, and overfill and spills during filling of underground storage tanks by container trucks can release petroleum hydrocarbons onto the impervious surface. During stormwater events, these pollutants can wash into nearby catch basin and be transported to the BMP pond, and enter the small drain adjacent to the fueling area where the destination of runoff is to the BMP.
- The dumpster containing generic trash may release leachate and other organics if not covered and the drainage hole is not plugged. Contents of dumpsters can be sources of stormwater pollution and other contaminants.
- Outside vehicle washing on the impervious surface at the rear of the fire station has the potential to leave residue on the ground that could rinse off and transport oil, fuel, automotive fluids, and soil into the on-site BMP pond via sheet flow to the grassy swale and drop inlet drains.

4

Standard Operating Procedures Best Management Practices

This section describes practices that are in place or that will be implemented to control pollutants that have the potential to contaminate stormwater. These include Good Housekeeping Measures, Preventative Maintenance Practices, as well as Response Practices.

Good Housekeeping/Preventive Maintenance

Good housekeeping practices are the most effective first step towards preventing pollution in stormwater. The following is a list of good housekeeping practices followed at this facility:

- Spills are immediately contained and cleaned up with an absorbent.
- All fluid products and wastes are kept indoors.
- Maintenance of fleet vehicles is not performed on-site, but rather at the off-site Fleet & Maintenance facility on Tewning Road.
- Spillage that occurs in the fueling area during re-fueling of fleet vehicles and container truck filling of USTs, as well as equipment leaks is promptly cleaned up using spill kit.
- Dumpster is kept covered except when in use, drain plugs are installed.
- Unauthorized waste will not be stored in the dumpster.
- Should any metal materials be stored outdoors, they will be lifted from the ground (i.e. resting on pallets) and appropriately covered, if practical
- Wash vehicles with phosphate free soap at rear of building near grassed area.
- Spill kits are inventoried after every use and used materials replaced promptly at the fueling area.
- The fueling pumps, nozzles, hose, and fittings are inspected weekly for any signs of leaks or deterioration. Any identified leaks or equipment failures are reported to James City County for scheduling immediate maintenance.
- The dumpster is fenced to prevent unauthorized dumping.
- All staff is aware of spill prevention and response procedures. They are trained annually on spill identification, response, and notification procedures.

- Spill prevention and response equipment (spill kit) is located at the pump island and can be used at garage bays where spills and vehicle leaks could occur.
- All materials on site are labeled describing contents therein.
- Vehicle fleet is kept in good repair to prevent leaks.
- The fueling island has an emergency shut-off switch and an alarm.

Best Management Practices (BMPs)

The following is a list of planned Best Management Practices. When implemented, the BMPs will prevent or reduce the discharge of potential pollutants in stormwater runoff for each area of concern listed in the Site Summary of Activities.

Sediment and Erosion Control

The topography of the site is fairly flat, though certain areas of the site are slightly sloping. The eastern and southern sides of the new fire station slope to the southwest, whereas the center of the site where the driveway is located has been graded to slope northeast. The western side of the former fire station slopes westward towards the on-site BMP pond. North of the former fire station the topography gently slopes to the north-northeast. Areas not paved on site are generally vegetated; however, the ground surface surrounding the BMP pond appears to be sparse with exposed soil. These areas are vulnerable to erosion and the potential for transport of sediment directly into the BMP pond is likely. To minimize the potential for erosion around the BMP and sedimentation into the BMP, added topsoil and reseeding might be a preventative measure to erosion in these areas

Management of Stormwater Runoff

The following are runoff management practices used at the facility.

- Runoff from the site drains to a system of catch basins along the driveway and within the grassy swale and grassy side yard to the west of the new fire station. Stormwater from these catch basins is then discharged to the on-site BMP pond before discharging along the westernmost property boundary within a drainage easement.
- Impervious areas have no curbs to the rear of the property in order to encourage sheet flow runoff to vegetative areas.
- Impervious areas between the old fire station building and Pocahontas Trail have no curbing to allow sheet flow into vegetative areas that feed a ditch, which parallels Pocahontas Trail.

- Runoff from the rear of the former fire station sheet flows directly into the BMP pond downslope.

Spill Prevention and Response

A Spill Response Plan has been prepared and installed at the fuel island. This document contains information regarding spill/release response activities and contact numbers for proper notification.

Employee Training

The James City County – Fire Station #2 facility will maintain trained in-house personnel to understand and implement all aspects of the SOPs. These individuals will be trained once a year. Training records will be maintained for at least 5 years. Pollution prevention team members will meet twice a year to discuss the effectiveness of and improvements to the Plan. The training records should be maintained for at least 5 years. Worksheet #6, in SOP Attachment 2 may be used to document employee training at the James City County-Fire Station #2 facility.

5

Monitoring/Inspections/ Record Keeping

Quarterly Visual Monitoring

Every quarter, stormwater discharges will be visually examined at the last exiting outfall from the facility. The visual examination will be made during daylight hours and within 30 minutes after stormwater begins to runoff. The designated Member of Fire Station #2 will complete site surveys and outfall inspections. A blank worksheet, Worksheet #4, in SOP Attachment 2 will be used for the visual monitoring.

Annual Site Inspections (Comprehensive Site Compliance Evaluation)

The entire facility will be inspected at least once a year for evidence of pollution, to evaluate BMPs that have been implemented, and to inspect areas having the potential to pollute or contaminate stormwater. The site inspection report will include date of inspection, name of personnel conducting the inspection, observations, assessment of BMPs, corrective actions taken, and a signed certification.

Worksheet #5 identifies annual BMPs and describes activities or improvements for the Fire Station #2 facility. This information will be included in an annual Compliance Evaluation Report. The annual Report shall be kept with the SOP. Both the Evaluation Report and any reports of follow-up action will be certified.

Record Keeping and Reporting

Records described in this SOPs will be retained on site for 5 years from the date of the cover letter that notifies this facility of coverage under the stormwater permit. These records will be made available to state or federal inspectors upon request. Additionally, employee-training records shall also be maintained.

Plan Revisions

If this facility expands its operations, or changes any significant material handling or storage practices, which could impact stormwater, this SOP will be amended. The amended Plan will describe the new activities that contribute to increased pollution and planned control measures. This Plan will also be amended if a state or federal inspector determines that it is not effective in controlling stormwater pollutants discharged to waterways.

Vanasse Hangen Brustlin, Inc.

Worksheet #5

Annual BMP Identification				
BMPs	Description of Activities or Improvements	Completion Date	Person Responsible of Action	Notes/Recommended Changes
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____

Title:_____

Date:_____

Signature:_____

6

Certifications

Non-Stormwater Discharges

Stormwater outfalls to surface waters at this facility have not been evaluated thus far; therefore, they have not been certified to free of non-stormwater discharge at this time.

Standard Operation Procedure Certification

This Stormwater Pollution Prevention Plan has been prepared in accordance with good engineering practices. Qualified personnel properly gathered and evaluated information submitted for this Plan. The information in this Plan, to the best of my knowledge, is accurate and complete.

Paul Cuomo

Name

Stormwater Coordinator

Title

09/08/2015

Date

SOP Attachments

- SOP Attachment 1 Emergency Response Phone Numbers
- SOP Attachment 2 Blank Worksheets

SOP Attachment 1
Emergency Response Phone Numbers

SPILL RESPONSE
EMERGENCY NOTIFICATION PHONE NUMBERS

1. SUPERVISOR/MANAGER
   NAME: _____ CELL PHONE: _____
   PHONE: _____

   ALTERNATE:
   NAME: _____ CELL PHONE: _____
   PHONE: _____

2. JAMES CITY COUNTY FIRE DEPARTMENT
   EMERGENCY: 911
   BUSINESS:

   JAMES CITY COUNTY POLICE DEPARTMENT
   EMERGENCY: 911
   GENERAL NUMBER:

3. CLEANUP CONTRACTOR: PETROCHEM
   ADDRESS: PO BOX 1458, NORFOLK, VA 23501
   PHONE: (800) 723-6951 or (757) 627-8791

4. VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT (DEM)
   EMERGENCY: 1-800-468-8892

5. POLLUTION RESPONSE PROGRAM (PREP) TIDEWATER REGIONAL OFFICE
   PHONE: 757-518-2000 (8:30am – 4:30pm Monday-Friday)

6. NATIONAL EMERGENCY RESPONSE CENTER
   PHONE: 1-800-424-8802

7. JAMES CITY COUNTY EMERGENCY SERVICES DIVISION/EMERGENCY OPERATIONS CENTER

   County Administrator/Emergency Management Director: Bryan Hill
   Fire Chief/Coordinator of Emergency Management: Ryan Ashe (Interim Fire Chief)
   Director of Emergency Services/Deputy Coordinator of Emergency Management: Kathleen Hale
   Phone: 757-564-2140

   EMERGENCY OPERATIONS CENTER
   3127 Forge Road
   Toano, Virginia 23168

SOP Attachment 2
Blank Worksheets

Vanasse Hangen Brustlin, Inc.

Worksheet #1

Pollution Prevention Team	
SOP Coordinator:	**Title:** **Office Phone:**
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Implements the preventive maintenance program; oversees good housekeeping activities, serves as spill coordinator, coordinates employee training programs, keeps all records, and conducts and assists with inspections.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Member:	**Title** **Office Phone:**
Responsibilities:	**Cell Phone:**
Alternate Member:	**Title:** **Office Phone:**
Responsibilities:	

Vanasse Hangen Brustlin, Inc.

Worksheet #2
Standard Operating Procedure Plan Material /Activity Inventory

This is a list of materials stored and/or activities that may potentially be exposed to stormwater at the municipal facility.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Comments

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #3
List of Significant Spill and Leaks

List all spills and leaks (as indicated on Worksheet #2) of toxic or hazardous pollutants within the past 3 years that were significant. Significant spills and leaks include but are not limited to, release of oil or hazardous substances in excess of reportable quantities. Reportable quantities are defined as 25 gallons or greater in volume.

Date (m/day/yr)	Location (as indicated on site map)	Description				Response Procedure		Prevention Measure Taken
		Type of Material	Quantity	Source (if known)	Reason for spill or leak	Amount of Material Recovered	Material no longer exposed to stormwater	

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #4
Quarterly Visual Monitoring Inspection Log for Stormwater Discharges

Stormwater outfalls at the facility must be visually inspected every quarter.

Date/ Time	Outfall # or Description	Weather Conditions	Observations (Contaminants Observed/ Erosion/Sediment)	Probable Source of Any Observed Contamination	Action Taken to Prevent in Future	Person(s) Conducting the Test - Signature
1st Quarter		Time since last rain: Quantity of last rain: Flow observed:				
2nd Quarter						
3rd Quarter						
4th Quarter						

Completed by:_____
Title:_____
Date:_____
Signature:_____

Attachments

Vanasse Hangen Brustlin, Inc.

Worksheet #5
Annual Stormwater Management Plan – Inspection Checklist

Annual BMP Identification				
BMPs	**Description of Activities or Improvements**	**Completion Date**	**Person Responsible of Action**	**Notes/Recommended Changes**
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____
Title:_____
Date:_____
Signature:_____

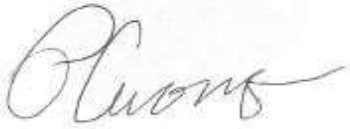
Vanasse Hangen Brustlin, Inc.

Worksheet #6

Employee Training			
Describe the employee-training program for your facility. The program should, at a minimum, address spill prevention and response, good housekeeping, and material management practices. Provide a schedule for the training program and list the employees who attend training sessions.			
Training Topics	**Brief Description of Training Program/Materials**	**Schedule of Training (list dates)**	**Attendees**
Spill Prevention and Response			
Good Housekeeping			
Material Management Practices			
Other Topics			

Completed by:_____
Title:_____
Date:_____
Signature:_____

Worksheet #7

Stormwater Standard Operation Procedure **Compliance Evaluation Report Certification**
Qualified personnel who properly gathered and evaluated the information included herein have prepared this Compliance Evaluation Report. The information in this report, to the best of my knowledge is accurate and complete.
Municipality Name __James City County_____  Signature _____ Date __09/08/2015_____

Standard Operationing Procedure

James City County- Fire Station #3

5077 John Tyler Highway
Williamsburg, Virginia 23185

Prepared for **James City County**
Stormwater Division
107 Tewning Rd
Williamsburg, Virginia 21388

Prepared by **VHB/Vanasse Hangen Brustlin, Inc.**
351 McLaws Circle, Suite 3
Williamsburg, VA 23185-6316
(757) 220-0500

June 2015

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Vanasse Hangen Brustlin, Inc.

1

Standard Operation Procedures (SOPs) Overview

Facility Name and Address

Fire Station #3
5077 John Tyler Highway, Williamsburg, Virginia 23185
Contact: Station Captain
Phone: (757) 565-7642

Standard Operation Procedures Background & Overview

This plan is designed to reduce pollution at the source, before it can contaminate stormwater and cause environmental impacts.

The SOP includes the following goals:

- Identify potential sources of pollutants that may impact stormwater discharges from the Site;
- Describe the practices that will be implemented to prevent or control the release of pollutants in stormwater discharges;
- Create a schedule to ensure that practices included in the SOPs are followed and measures are implemented according to the SOPs; and
- Evaluation of SOPs and its effectiveness at reducing pollutant discharge.

This SOP includes the following elements:

- Identifies the SOP coordinator with a description of the coordinator's duties;
- Identifies members of the SOP Team and lists their responsibilities;
- Describes the facility, with information on location and type of activities occurring at the site, a site map, and a description of the stormwater drainage system;

- Identifies potential stormwater contaminants;
- Describes stormwater management controls and various best management practices (BMPs) needed to reduce pollutants in stormwater discharges;
- Describes the facility's monitoring plan;
- Describes employee training for stormwater pollution prevention; and,
- Describes the implementation schedule and provisions for amendment of the plan.

This plan has been developed as a 3-ring binder that allows for updates and revisions as appropriate. Revision dates will be shown on the right hand corner of edited pages. Blank copies of the worksheets included in this report can be found at the back of this report..

2

SOP Coordinator and Team

The following roster lists the pollution prevention team and responsibilities for each member. This team is responsible for implementing all aspects of the SOP. Attached is a typed roster that can be posted in highly visible locations to alert staff to the appropriate contact for stormwater and/or spill related issues. A blank roster (Worksheet #1) is also included in SOP Attachment 2 so changes may be made as necessary and reposted.

SOP Coordinator

Title Stormwater Coordinator
Office Phone: (757) 259-1445
Cell Phone: (757) 645-7064

Responsibilities:
Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted; and oversees sampling program.

Member - Spill Response Coordinator

Title Assistant Fire Chief
Office Phone: (757) 565-7603

Responsibilities:
Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.

Member

Name Station Captain
Office Phone: (757) 565-7642

Responsibilities:
Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.

PLEASE POST

Worksheet #1

Pollution Prevention Team	
SWPPP Coordinator:	**Office Phone:** (757) 259-1445 **Cell Phone:** (757) 645-7064
Title: Stormwater Coordinator	
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.	
Member:	**Office Phone:** (757) 565-7603
Title: Assistant Fire Chief	
Responsibilities: Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.	
Member: Station Captain	**Office Phone:** (757) 5657642
Title: N/A	
Responsibilities: Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.	

3

Site Assessment

The following Site information is based on the conditions observed at the facility during an inspection on June 25, 2015.

Facility Location and Description

Location

The James City County – Fire Station #3 is located at 5077 John Tyler Highway in Williamsburg, Virginia. The Site Location Map (Figure 1) shows the location of the facility at 37°15'24"N; 76°44'40"W. The facility is located southwest of the Fire Administration and Training Facility at the intersection of Carolina Boulevard and John Tyler Highway. Multifamily residential housing is located to the southeast of Fire Station #3 and a single family residence and woods are located to the west of the fire station. The facility is accessible from two access driveways off of John Tyler Highway, and via an access road from the parking lot at the adjacent Fire Administration and Training facility. Fire Station #3 and the Fire Administration Training facility share one of the driveways from John Tyler Highway. The driveways also provide access to the rear of the fire station where parking is available and a detached shed and fueling area exist.

Facility Description

Fire Station #3 is located on approximately 1 acre. The majority of the Property consists of the Fire Station and paved surfacing for the driveways and parking lot, with the remaining area consisting of grass and BMP structures (designed swales and pond). The facility operates as an active fire and rescue station serving the local population with emergency response service. The fire station serves primarily to garage the fire and rescue vehicles, though no maintenance is performed on the vehicles at this location. Fueling pumps on the premises dispense gasoline and diesel fuels from underground storage tanks beneath an adjacent concrete pad. The fleet of vehicles at this facility are fueled on an as need basis. The vehicle fleet is washed outside of the garage bays, at the rear of the facility where runoff sheet flows towards the woods in a westward direction. A detention pond is located between the fire station and woods fronting John Tyler Highway. A shed at the rear of the property serves as general dry storage for the fire station. The interior of Fire Station #3 also consists of local administrative offices, equipment rooms, bedrooms, bathrooms, kitchen, and other

common areas used by fire and rescue personnel who are on-call. Circular floor drains are present within the garage area of the fire station where trucks are garaged and in the storage and janitorial rooms of the fire station where small quantities of cleaning chemicals and soaps are stored, as well as paints, degreasers, oils, antifreeze, Chemguard, and other cleaners in a flammable cabinet. An oil water separator is located within the garage bays, and all interior drains are said to connect to the sanitary sewer.

The majority of the facility is impervious with exception to the front of the fire station and to the western sliver of the site along the property boundary. The site layout with buildings and areas of material storage or activities are shown on *Figure 2.*

Facility Activities

The facility consists of a building with a garage for housing the Station #3 fleet of fire trucks and rescue vehicles. No maintenance of Station #3 fleet vehicles is performed on-site, but interior drains are located in the garage and capture any contaminants that may leak from the fleet while garaged. The interior of the fire station also has storage room and janitorial rooms where drains are located. Chemicals, soaps, degreasers, paints in small quantities are stored in the station and can make their way to the drains if they are spilled and not cleaned up promptly. The icemaker also drains into these interior drains. Outside of the main facility are two fuel pumps on an elevated concrete pad, connected to gasoline and diesel underground storage tanks. The fleet of vehicles garaged at Fire Station #3 is fueled on-site. The vehicle fleet is washed on-site, just outside of the garage, at the rear (northeast side) of the facility, though no dedicated wash station is present.

The facility serves to accommodate emergency response personnel who are on-call during the days and nights by having a kitchen, bedrooms, bathrooms, and other common areas, but these areas are enclosed in the on-site structure.

Stormwater Drainage System

Drainage at the site generally is directed away from the building. Runoff occurs via sheet flow throughout the property. Along the northern impervious areas runoff, including drainage from washing fleet vehicles, is transported northward towards the drainage swale and culverts between Fire Station #3 and the adjacent Fire Administration and Training Building, with some drainage entering a catch basin at the entrance to the Administration Building off of the driveway, or draining into the fore bay to the north of the driveway before being transported beneath the driveway into the BMP detention pond in front of Fire Station #3. Drainage at the rear of the property is bi-directional with drainage split, sheet flowing to the northeast and the southwest towards the shed and fueling area. Stormwater along the western driveway flows partly into the detention pond, but the southernmost areas of the driveway outside of the garage bays and the fueling area, appear to sheet flow into the vegetated areas to the southwest and along a swale that outfalls on the adjacent property.

FIRE STATION #3
5077 John Tyler Highway
Williamsburg, Virginia

FIGURE 1
Project Location Map

FIRE STATION #3
5077 John Tyler Highway
Williamsburg, Virginia

Vanasse Hangen Brustlin, Inc.

FIGURE 2
Site Layout

Rev. Date:_____

Potential Stormwater Contaminants & Significant Material Inventory

A list of materials that are handled, treated, stored or disposed of at the site that may potentially be exposed to stormwater or snow melt are shown on the attached Worksheet 2. The purpose and location of use or storage, volumes (used/ produced or stored) and likelihood of contact with runoff is also presented in Worksheet 2.

Worksheet #2
Stormwater Pollution Prevention Plan Material/Activity Inventory

This attachment is a list of materials stored and/or activities that may potentially be exposed to stormwater at the James City County – Fire Station #3. These areas are identified on the Site Layout and Areas of Storage and Activities Map, Figure 2.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Current Practices with comments
Vehicles/Equipment	Washing	Various amounts	Salt, grease, oils, detergent, automotive fluids	High; sheet flow to swale and storm drain at rear of property, enters BMP pond.	Daily inspection of vehicles and leaks; keep vehicles in good working condition; wash vehicles in grassed areas with phosphate free soap in grassed areas.
Fueling area	Fueling of fleet vehicles, fire and county vehicles	1 – 2,000 gallon singlewall fiberglass UST (diesel) 1 – 2,000 gallon singlewall fiberglass UST (gasoline); both installed June 1994	Petroleum hydrocarbons; Diesel fuel and gasoline	High; Flow into storm drain and sheet flow towards Pocahontas Trail carrying any petroleum leaked onto the impervious surface	Follow all vehicle fueling procedures, and spill response procedures if necessary
Garage drains	Storage of emergency vehicle fleet	Various amounts	Salt, grease, oils, automotive fluids	Low; interior grading allows for any leaks from trucks to runoff (under cover) into interior drains	Interior drains lead to an oil water separator connected to the MS4.

Past Spills and Leaks

The regulations require a listing of past spills or leaks of toxic or hazardous substances that have occurred within the last three years. No past releases or spills are known to have occurred in the past three years at Fire Station #3. Any future releases or spills will be documented on Worksheet #3 contained in Attachment 2.

Areas Associated with Industrial Activity

The areas associated with industrial activity as shown on Figures 2 and Worksheet #2 are described as follows:

Fueling Area

A fueling area is located to the southwest corner of the facility. Two pump dispensers are located on an elevated concrete platform adjacent to asphalt and concrete surfacing on one side. The southwest side of the pump island is a sloping grassy swale. The pumps are connected to two 2,000-gallon fiberglass underground storage tanks, one containing gasoline and the other diesel fuel. No drains are located in the proximity of the fueling area, and the fueling area is not under cover, but will be within a one (1) year period.

Emergency Vehicle Washing Area

Fire Station #3 has floor drains within the garage area that are connected to an oil water separator and feed into the sanitary sewer. Washing of vehicles was observed to occur outside the bay doors on the southeast side of the building. A phosphate free soap is used in the grassed areas during vehicle washing the amount of runoff is insignificant since most percolates into the ground.

Non-Stormwater Discharges

Fire Station #3 has drains within the garage portion and storage and janitorial rooms within the interior of the facility. It appears small quantities of soap, degreaser, fuel, household cleaners, and paint are present in these rooms. Drainage into the interior drain system merges into the sanitary sewer system according to employees. Other

non-stormwater drainage at the facility includes drainage from the fueling area that is runoff into the vegetated area along the property boundary and vehicle wash and rinse water entering the detention pond. An oil water separator was said to be present in the garage bay and connected to the sanitary sewer. Drainage collected in the detention pond flows under the western driveway and outfalls beside a house along the driveway. A blank Visual Monitoring Inspection Form-Worksheet #4 found in SWPPP Attachment 2 may be used to perform Quarterly Visual Monitoring at the discharge locations.

Potential Allowable Non-Stormwater Discharges

No known allowable non-stormwater sources of discharge have been identified at the Fire Station #3; however, the Fire Station has a fire hydrant on the premises. Flushing of fire hydrants is typically an allowable non-stormwater discharge. Roof drainage and air conditioner condensate are also common allowable non-stormwater discharges.

Existing Stormwater Monitoring Data

Fire Station #3 does not report having historical monitoring data. When stormwater monitoring data is available it will be presented in this section.

Site Summary (Sources of Pollution with a Medium to High Risk of Contaminating Stormwater)

The list of pollutants associated with materials and activities that have been identified in Worksheet #2 as having a medium to high likelihood of contaminating stormwater at Fire Station #3 are described below. A summary of these activities and proposed future practices for reducing the potential for stormwater contamination are found in Worksheet #3.

The following areas are potential sources of contamination:

- The fueling area presents several potential sources of contamination to the stormwater. Leaking pump and hose components exposed to the elements, overfill and spills during refueling of fleet vehicles, and overfill and spills during filling of underground storage tanks by container trucks can release petroleum hydrocarbons onto the impervious and pervious surfaces. During stormwater events, these pollutants can sheet flow into the grassy swale, and transported off-site without entering a drain system and being funneled through an oil water separator.

- Outside vehicle washing on the impervious surface at the rear (southeastern side) of the fire station has the potential to leave residue on the ground that could rinse off and transport oil, fuel, automotive fluids, and sediment into the nearby catch basin and BMP pond.

4

Standard Operating Procedures Best Management Practices

This section describes practices that are in place or that will be implemented to control pollutants that have the potential to contaminate stormwater. These include Good Housekeeping Measures, Preventative Maintenance Practices, as well as Response Practices.

Good Housekeeping/Preventive Maintenance

Good housekeeping practices are the most effective first step towards preventing pollution in stormwater. The following is a list of good housekeeping practices followed at this facility:

- Spills are immediately contained and cleaned up with an absorbent.
- All fluid products and wastes are kept indoors.
- Maintenance of fleet vehicles is not performed on-site, but rather at the off-site Fleet & Maintenance facility on Tewning Road.
- Spillage that occurs in the fueling area during re-fueling of fleet vehicles and container truck filling of USTs, as well as equipment leaks is promptly cleaned up using spill kit.
- Dumpster is kept covered except when in use, drain plugs are installed.
- Unauthorized waste will not be stored in the dumpster.
- Should any metal materials be stored outdoors, they will be lifted from the ground (i.e. resting on pallets) and appropriately covered, if practical
- Wash vehicles with phosphate free soap at rear of building near grassed area.
- Spill kits are inventoried after every use and used materials replaced promptly at the fueling area.
- The fueling pumps, nozzles, hose, and fittings are inspected weekly for any signs of leaks or deterioration. Any identified leaks or equipment failures are reported to James City County for scheduling immediate maintenance.
- The dumpster is fenced to prevent unauthorized dumping.
- All staff is aware of spill prevention and response procedures. They are trained annually on spill identification, response, and notification procedures.

- Spill prevention and response equipment (spill kit) is located at the pump island and can be used at garage bays where spills and vehicle leaks could occur.
- All materials on site are labeled describing contents therein.
- Vehicle fleet is kept in good repair to prevent leaks.
- The fueling island has an emergency shut-off switch and an alarm.

Best Management Practices (BMPs)

The following is a list of planned Best Management Practices. When implemented, the BMPs will prevent or reduce the discharge of potential pollutants in stormwater runoff for each area of concern listed in the Site Summary of Activities.

Sediment and Erosion Control

The general topography of the site is slightly sloping northwest towards John Tyler Highway. The site is predominantly impervious with exception to the area occupied by the BMP pond and wooded area between the pond and John Tyler Highway. A small strip of grass also exists along the southwest side of the facility. Erosion is not expected with most of the site being impervious. However, areas where erosion is possible and sparse vegetation was observed include the upper banks of the fore bay and BMP pond where sheet flow makes the banks of the vulnerable to erosion. Vegetation was also scarce in areas along the grassy swale to the southwest of the facility. Some sediment accumulation was observed around the catch basin near the fore bay, and though its source was not confirmed, it is possible the sediment has been transported from the vehicle wash area. Inlet and outlet protection utilizing riprap was present to assist in trapping sediment before entering the BMP. Seeding in areas with sparse vegetation may help prevent erosion and decrease sedimentation.

Management of Stormwater Runoff

Runoff management practices used at the facility include:

- Runoff from the site primarily sheet flows into the swales and ditches along the northeastern side of the building and one catch basin is present to receive some of the runoff along the north side of the building.
- Stormwater also directly drains into the BMP fore bay and detention pond.
- Stormwater reaching the fore bay is then transported via a culvert under the eastern driveway and discharged into the on-site BMP detention pond. Drainage from the detention pond is directed under the western driveway and outfalls along the property boundary.

- Impervious areas have no curbs in order to encourage sheet flow runoff to vegetative areas.

Spill Prevention and Response

A Spill Response Plan has been prepared and installed at the fuel island. This document contains information regarding spill/release response activities and contact numbers for proper notification.

Employee Training

The James City County – Fire Station #3 facility will maintain trained in-house personnel to understand and implement all aspects of the SOP. These individuals will be trained once a year. Training records will be maintained for at least 5 years. Pollution prevention team members will meet twice a year to discuss the effectiveness of and improvements to the Plan. Worksheet #6, in SOP Attachment 2 may be used to document employee training at the James City County- Fire Station #3 facility.

5

Monitoring/Inspections/ Record Keeping

Quarterly Visual Monitoring

Every quarter, stormwater discharges will be visually examined at the last exiting outfall from the facility. The visual examination will be made during daylight hours and within 30 minutes after stormwater begins to runoff. The designated Member of Fire Station #3will complete site surveys and outfall inspections. A blank worksheet, Worksheet #4, in SOP Attachment 2 will be used for the visual monitoring.

Annual Site Inspections (Comprehensive Site Compliance Evaluation)

The entire facility will be inspected at least once a year for evidence of pollution, to evaluate BMPs that have been implemented, and to inspect areas having the potential to pollute or contaminate stormwater. The site inspection report will include date of inspection, name of personnel conducting the inspection, observations, assessment of BMPs, corrective actions taken, and a signed certification.

Worksheet #5 identifies annual BMPs and describes activities or improvements for the Fire Station #3 facility. This information will be included in an annual Compliance Evaluation Report. The annual Report shall be kept with the SOP. Both the Evaluation Report and any reports of follow-up action will be certified.

Record Keeping and Reporting

Records described in this SOPs will be retained on site for 5 years from the date of the cover letter that notifies this facility of coverage under the stormwater permit. These records will be made available to state or federal inspectors upon request. Additionally, employee-training records shall also be maintained.

Plan Revisions

If this facility expands its operations, or changes any significant material handling or storage practices, which could impact stormwater, this SOP will be amended. The amended Plan will describe the new activities that contribute to increased pollution and planned control measures. This Plan will also be amended if a state or federal inspector determines that it is not effective in controlling stormwater pollutants discharged to waterways.

Vanasse Hangen Brustlin, Inc.

Worksheet #5

Annual BMP Identification				
BMPs	Description of Activities or Improvements	Completion Date	Person Responsible of Action	Notes/Recommended Changes
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____

Title:_____

Date:_____

Signature:_____

6

Certifications

Non-Stormwater Discharges

Stormwater outfalls to surface waters at this facility have not been evaluated thus far; therefore, they have not been certified to free of non-stormwater discharge at this time.

Standard Operation Procedure Certification

This Stormwater Pollution Prevention Plan has been prepared in accordance with good engineering practices. Qualified personnel properly gathered and evaluated information submitted for this Plan. The information in this Plan, to the best of my knowledge, is accurate and complete.

Paul Cuomo

Name

Stormwater Coordinator

Title

09/08/2015

Date

SOP Attachments

- SOP Attachment 1 Emergency Response Phone Numbers
- SOP Attachment 2 Blank Worksheets

SOP Attachment 1
Emergency Response Phone Numbers

SPILL RESPONSE
EMERGENCY NOTIFICATION PHONE NUMBERS

1. SUPERVISOR/MANAGER
   NAME: _____ CELL PHONE: _____
   PHONE: _____

   ALTERNATE:
   NAME: _____ CELL PHONE: _____
   PHONE: _____

2. JAMES CITY COUNTY FIRE DEPARTMENT
   EMERGENCY: 911
   BUSINESS:

   JAMES CITY COUNTY POLICE DEPARTMENT
   EMERGENCY: 911
   GENERAL NUMBER:

3. CLEANUP CONTRACTOR: PETROCHEM
   ADDRESS: PO BOX 1458, NORFOLK, VA 23501
   PHONE: (800) 723-6951 or (757) 627-8791

4. VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT (DEM)
   EMERGENCY: 1-800-468-8892

5. POLLUTION RESPONSE PROGRAM (PREP) TIDEWATER REGIONAL OFFICE
   PHONE: 757-518-2000 (8:30am – 4:30pm Monday-Friday)

6. NATIONAL EMERGENCY RESPONSE CENTER
   PHONE: 1-800-424-8802

7. JAMES CITY COUNTY EMERGENCY SERVICES DIVISION/EMERGENCY OPERATIONS CENTER

   County Administrator/Emergency Management Director: Bryan Hill
   Fire Chief/Coordinator of Emergency Management: Ryan Ashe (Interim Fire Chief)
   Director of Emergency Services/Deputy Coordinator of Emergency Management: Kathleen Hale
   Phone: 757-564-2140

   EMERGENCY OPERATIONS CENTER
   3127 Forge Road
   Toano, Virginia 23168

SOP Attachment 2
Blank Worksheets

Worksheet #1

Pollution Prevention Team	
SOP Coordinator:	**Title:** **Office Phone:**
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Implements the preventive maintenance program; oversees good housekeeping activities, serves as spill coordinator, coordinates employee training programs, keeps all records, and conducts and assists with inspections.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Member:	**Title** **Office Phone:**
Responsibilities:	**Cell Phone:**
Alternate Member:	**Title:** **Office Phone:**
Responsibilities:	

Vanasse Hangen Brustlin, Inc.

Worksheet #2
Standard Operating Procedure Plan Material /Activity Inventory

This is a list of materials stored and/or activities that may potentially be exposed to stormwater at the municipal facility.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Comments

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #3
List of Significant Spill and Leaks

List all spills and leaks (as indicated on Worksheet #2) of toxic or hazardous pollutants within the past 3 years that were significant. Significant spills and leaks include but are not limited to, release of oil or hazardous substances in excess of reportable quantities. Reportable quantities are defined as 25 gallons or greater in volume.

Date (m/day/yr)	Location (as indicated on site map)	Description				Response Procedure		Prevention Measure Taken
		Type of Material	Quantity	Source (if known)	Reason for spill or leak	Amount of Material Recovered	Material no longer exposed to stormwater	

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #4
Quarterly Visual Monitoring Inspection Log for Stormwater Discharges

Stormwater outfalls at the facility must be visually inspected every quarter.

Date/ Time	Outfall # or Description	Weather Conditions	Observations (Contaminants Observed/ Erosion/Sediment)	Probable Source of Any Observed Contamination	Action Taken to Prevent in Future	Person(s) Conducting the Test - Signature
1st Quarter		Time since last rain: Quantity of last rain: Flow observed:				
2nd Quarter						
3rd Quarter						
4th Quarter						

Completed by:_____
Title:_____
Date:_____
Signature:_____

Attachments

Vanasse Hangen Brustlin, Inc.

Worksheet #5
Annual Stormwater Management Plan – Inspection Checklist

Annual BMP Identification				
BMPs	**Description of Activities or Improvements**	**Completion Date**	**Person Responsible of Action**	**Notes/Recommended Changes**
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #6

Employee Training			
Describe the employee-training program for your facility. The program should, at a minimum, address spill prevention and response, good housekeeping, and material management practices. Provide a schedule for the training program and list the employees who attend training sessions.			
Training Topics	**Brief Description of Training Program/Materials**	**Schedule of Training (list dates)**	**Attendees**
Spill Prevention and Response			
Good Housekeeping			
Material Management Practices			
Other Topics			

Completed by:_____
Title:_____
Date:_____
Signature:_____

Worksheet #7

Stormwater Standard Operation Procedure Compliance Evaluation Report Certification
Qualified personnel who properly gathered and evaluated the information included herein have prepared this Compliance Evaluation Report. The information in this report, to the best of my knowledge is accurate and complete.
Municipality Name __James City County_____ Signature _____ Date __09/08/2015_____

Standard Operating Procedure

James City County- Fire Station #4

5312 Olde Towne Rd
Williamsburg, Virginia 23188

Prepared for **James City County**
Stormwater Division
107 Tewning Rd
Williamsburg, Virginia 21388

Prepared by **VHB/Vanasse Hangen Brustlin, Inc.**
351 McLaws Circle, Suite 3
Williamsburg, VA 23185-6316
(757) 220-0500

June 2017

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Vanasse Hangen Brustlin, Inc.

1

Standard Operation Procedures (SOPs) Overview

Facility Name and Address

Fire Station #4
5312 Olde Towne Rd, Williamsburg, VA 23188
Contact: Station Captain
Phone: (757) 220-0626

Standard Operation Procedures Background & Overview

This plan is designed to reduce pollution at the source, before it can contaminate stormwater and cause environmental impacts.

The SOP includes the following goals:

- Identify potential sources of pollutants that may impact stormwater discharges from the Site;
- Describe the practices that will be implemented to prevent or control the release of pollutants in stormwater discharges;
- Create a schedule to ensure that practices included in the SOPs are followed and measures are implemented according to the SOPs; and
- Evaluation of SOPs and its effectiveness at reducing pollutant discharge.

This SOP includes the following elements:

- Identifies the SOP coordinator with a description of the coordinator's duties;
- Identifies members of the SOP Team and lists their responsibilities;
- Describes the facility, with information on location and type of activities occurring at the site, a site map, and a description of the stormwater drainage system;

- Identifies potential stormwater contaminants;
- Describes stormwater management controls and various best management practices (BMPs) needed to reduce pollutants in stormwater discharges;
- Describes the facility's monitoring plan;
- Describes employee training for stormwater pollution prevention; and,
- Describes the implementation schedule and provisions for amendment of the plan.

This plan has been developed as a 3-ring binder that allows for updates and revisions as appropriate. Revision dates will be shown on the right hand corner of edited pages. Blank copies of the worksheets included in this report can be found at the back of this report..

2

SOP Coordinator and Team

The following roster lists the pollution prevention team and responsibilities for each member. This team is responsible for implementing all aspects of the SOP. Attached is a typed roster that can be posted in highly visible locations to alert staff to the appropriate contact for stormwater and/or spill related issues. A blank roster (Worksheet #1) is also included in SOP Attachment 2 so changes may be made as necessary and reposted.

SOP Coordinator

Title Stormwater Coordinator
Office Phone: (757) 259-1445
Cell Phone: (757) 645-7064

Responsibilities:
Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted; and oversees sampling program.

Member - Spill Response Coordinator

Title Designated Battlalion Chief
Office Phone: (757) 220-0626

Responsibilities:
Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.

Member

Name Station Captain
Office Phone: (757) 566-1905

Responsibilities:
Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.

PLEASE POST

Worksheet #1

Pollution Prevention Team		
SWPPP Coordinator:	**Office Phone:**	(757) 259-1445
	Cell Phone:	(757) 645-7064
Title: Stormwater Coordinator		
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.		
Member:	**Office Phone:**	(757) 565-7603
Title: Assistant Fire Chief		
Responsibilities: Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.		
Member: Station Captain	**Office Phone:**	(757) 566-1905
Title: N/A		
Responsibilities: Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.		

3

Site Assessment

The following Site information is based on the conditions observed at the facility during an inspection on June 2017.

Facility Location and Description

Location

The James City County – Fire Station #4 facility is located at 5312 Olde Towne Rd in Williamsburg, Virginia. The Site Location Map (Figure 1) shows the location of the facility at coordinates 37.381424, -76.807358. The fire station is located in a rural area of James City County along the southwest corner of the Forge Road (Route 610) and Richmond Road (Route 60) intersection.The Emergency Operations Center is located adjacent and west of Fire Station #1, and the two facilities share a driveway off of Forge Road. A Farmer's Market exists across Forge Road from the Fire Station, and sparse residential houses and farms with ancillary structures are located in the surrounding area. Commercial and retail businesses are located along Richmond Road in close proximity to the site.

Facility Description

According to the James City County GIS, Fire Station #1 (also called Bruton Fire Station)and the Emergency Operations Center (EOC) occupy the same parcel and the parcel consists of approximately 6.9 acres. The EOC is comprised of two buildings connected by a breezeway. A paved parking lot is located to the east of the buildings and a gravel lot to the west of the building is also used for parking. The western portion of the EOC facility is fenced,including an emergency generator, an associated fuel tank, and a concrete drainage flume. The Fire Department shares the same driveway and parking lot with the EOC, but has parking spaces adjacent to the fire department building and south of the building. The Fire Station consists of a central garage for the fleet of fire and emergency vehicles with a wing which house administrative offices, a kitchen, rooms for the firefighters, training rooms and common areas. Minor maintenance is performed in the vehicle bay structure, and vehicle washing occurs just outside of the warehouse bay

door. Dumpsters are present to the west of the EOC and the Fire Station and are shared use. The site layout and buildings are shown on Figure 2.

The driveway, parking lot between the Fire Station and EOC, the rear of the fire station is impervious pavement, but behind the EOC remains gravel and exposed soil. The front of the Fire Station and EOC are grassy with the exception of the concrete ditches and the fire truck exit driveway at the front of Forge Road. The eastern side of the fire station is also grassy.

Facility Activities

The facility has two main operations, the Emergency Operations Center and the Fire Station. The Emergency Operations Center is primarily administrative with the ability to dispatch appropriate resources as needed in times of emergency. The Fire Station is a volunteer, yet active responder to fire and other emergencies in the surrounding area. Though no activities are performed outside of the EOC, the EOC side of the facility does have an emergency generator with a diesel fuel tank serving as the emergency fuel source, and parking occurs in pervious areas of the facility exposed to storm water runoff.

Most activities within the fire station are not pertinent to storm water with exception to the potential for leaks from the fire trucks and emergency vehicles stored within the garage portion of the fire station. Minor maintenance is performed within the fire station. Fire truck and vehicle washing occurs on the front apron of the first station. The dumpsters located by the fuel pumps are used by the Fire Station and EOC to dispose of municipal waste and are covered at all times.

A fueling area is present behind the fire station and serves the fire station fleet of vehicles. It consists of two pump dispensers elevated on a concrete platform, each connected to an underground storage tank. A divided fuel tank contains diesel fuel and gasoline. A canopy is present above the fueling area.

Stormwater Drainage System

The stormwater drainage system at Fire Station #1 consists of seven (7) storm drain catch basins, which drain most impervious areas of the site, and all feed into the on-site BMP pond. The BMP pond has a concrete riser along the eastern edge of the BMP, which directs stormwater to an outfall at the property line.

The southern side of the property is drained via sheet flow to a bio-retention basin #1 which also capture runoff from the rear parking lot. The remaining catch basins collect the runoff from the front parking areas and direct runoff towards the bio-retention basin #2 which has an overflow discharge towards the onsite BMP.

Drainage in the area of the fueling station sheet flows east/southeast with some drainage intercepted by a small drain at the corner of the concrete fueling pad, but most drainage from the fueling area is suspected to sheet flow towards the road or enters the catch basin nearest the entrance. Figure 2 shows stormwater drainage features, including location of BMP, outfalls, and catch basins.

The circular interior drains in the garage portion of the fire station and storage room drain into an oil water separator present at the rear of the new fire station before entering the MS4.

FIRE STATION #2
Pocahontas Trail, Williamsburg, Virginia

FIGURE 1
Project Location Map

Vanasse Hangen Brustlin, Inc.

Rev. Date:_____

Vanasse Hangen Brustlin, Inc.

Figure 2 Aerial Site Map

Potential Stormwater Contaminants & Significant Material Inventory

A list of materials that are handled, treated, stored or disposed of at the site that may potentially be exposed to stormwater or snow melt are shown on the attached Worksheet 2. The purpose and location of use or storage, volumes (used/ produced or stored) and likelihood of contact with runoff is also presented in Worksheet 2.

Worksheet #2
Stormwater Pollution Prevention Plan Material/Activity Inventory

This attachment is a list of materials stored and/or activities that may potentially be exposed to stormwater at the James City County – Fire Station #2. These areas are identified on the Site Layout and Areas of Storage and Activities Map, Figure 2.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Current Practices with comments
Vehicles/Equipment	Washing	Various amounts	Salt, grease, oils, detergent, automotive fluids	High; sheet flow to grass area	Vehicles are washed on the front apron with phosphate free soap and drains to the grass area, along with daily inspections of vehicles for leaks.
Dumpster	Household waste/garbage generated on-site	Various, 2 dumpsters (4-yard capacity)	Leachate, organics	Medium, when dumpster not covered	Should remain covered and plug bottom drainage hole.
Fueling area	Fueling of fleet vehicles, fire and county vehicles	1 – 15,000 gallon divided fuel tank (10,000 gall unladed, 5,000 gallon diesel), installed 2016	Petroleum hydrocarbons; Diesel fuel and gasoline	High; Flow into oil interceptor	Follow all vehicle fueling procedures, and spill response procedures if necessary
Garage drains	Storage of emergency vehicle fleet	Various amounts	Salt, grease, oils, automotive fluids	Low; interior grading allows for any leaks from trucks to runoff (under cover) into interior drains	Interior drains lead to sanitary sewer

Past Spills and Leaks

The regulations require a listing of past spills or leaks of toxic or hazardous substances that have occurred within the last three years. No past releases or spills are known to have occurred in the past three years at Fire Station #1. Any future releases or spills will be documented on Worksheet #3 contained in Attachment #2.

Areas Associated with Industrial Activity

The areas associated with industrial activity as shown on Figures 2 and Worksheet #2 are described as follows:

Dumpsters

There are two (2) dumpsters located in the parking lot to the rear (south-west) of the fire station facility. A concrete pad is located beneath the 4-yard capacity dumpsters. The dumpster is used by the fire department to temporarily dispose of household waste accumulated daily from the fire station, and it does not serve as a residential drop-off. The dumpster is filled with daily household type trash, and no hazardous materials are disposed of in this receptacle. An impervious concrete pad is beneath the dumpster. A cover on the dumpster is kept closed to prevent rainwater from entering or wind transport of debris.

Fueling Area

The fueling area at Fire Station #1 is surrounded by concrete. The pump island consists of two pump dispensers on a slightly elevated concrete platform. The pump dispensers are connected to one double-walled fiberglass underground storage tank containing diesel fuel and gasoline. A small drain is located at the easternmost corner of the concrete, above the underground storage tanks in the fueling area. A canopy protects the fueling area.

Emergency Vehicle Garage

Fire Station #1 has floor drains within the garage area where the emergency vehicles are garaged. The contents of the drains are sent into the sanitary sewer.

Emergency Vehicle Washing Area

Vehicles are washed within the apron area at the front of the fire station, just outside of the garage, though no formal "washing area" has been designated and equipped with an oil water separator and sediment trap. Runoff from this location washes towards Forge Road between the fire station and Richmond Rd and ends on the grassy area. Washing does not enter an MS4.

Non-Stormwater Discharges

Non-stormwater discharges are present at the facility. Circular drains within the garage and storage room of the new fire department building drain into an oil water separator before entering the MS4. Discharges into these drains could potentially carry petroleum hydrocarbons and other automotive fluids as well as typical household cleaners. Condensation from an icemaker is also shown to runoff into an interior drain. The contents of the drain are said to merge into the sanitary sewer. All other drainage at the facility appears to be collected into on-site catch basins located within the driveway of the facility, at the end of the grassy swale, and in the grassy yard to the west of the new fire station. Drainage is then directed into the BMP pond. Areas drained by the swale and catch basins that direct drainage to the BMP pond include the parking lot, the dumpster area, the vehicle wash area, and likely some drainage from the fueling area. Although an oil water separator was observed at the rear of the new fire station, it manages drainage from interior drains and no oil water separator was observed in the vicinity of the fueling area in front of the former fire station. A small drain is located adjacent to the fueling area and the destination of the drainage is to the BMP.

Potential Allowable Non-Stormwater Discharges

No known allowable non-stormwater sources of discharge have been identified at the Fire Station #1. However, Fire Station #1 has fire hydrants on the premises. Flushing of fire hydrants is typically an allowable non-stormwater discharge. Drainage from rood leaders is also a typical allowable source of discharge.

Existing Stormwater Monitoring Data

Fire Station #1 does not report having historical monitoring data. When stormwater monitoring data is available it will be presented in this section.

Site Summary (Sources of Pollution with a Medium to High Risk of Contaminating Stormwater)

The list of pollutants associated with materials and activities that have been identified in Worksheet #2 as having a medium to high likelihood of contaminating stormwater at Fire Station #1 are described below.

The following areas are potential sources of contamination:

- The fueling area presents several potential sources of contamination to the stormwater. Leaking pump and hose components exposed to the elements, overfill and spills during refueling of fleet vehicles, and overfill and spills during filling of underground storage tanks by container trucks can release petroleum hydrocarbons onto the impervious surface. During stormwater events, these pollutants can wash into nearby bioretention areas or grassy areas.
- The dumpsters containing generic trash may release leachate and other organics if not covered and the drainage hole is not plugged. Contents of dumpsters can be sources of stormwater pollution and other contaminants.
- Outside vehicle washing on the impervious surface at the front of the fire station has the potential to leave residue on the ground that could rinse off and transport oil, fuel, automotive fluids, and soil.

4

Standard Operating Procedures Best Management Practices

This section describes practices that are in place or that will be implemented to control pollutants that have the potential to contaminate stormwater. These include Good Housekeeping Measures, Preventative Maintenance Practices, as well as Response Practices.

Good Housekeeping/Preventive Maintenance

Good housekeeping practices are the most effective first step towards preventing pollution in stormwater. The following is a list of good housekeeping practices followed at this facility:

- Spills are immediately contained and cleaned up with an absorbent.
- All fluid products and wastes are kept indoors.
- Maintenance of fleet vehicles is not performed on-site, but rather at the off-site Fleet & Maintenance facility on Tewning Road.
- Spillage that occurs in the fueling area during re-fueling of fleet vehicles and container truck filling of USTs, as well as equipment leaks is promptly cleaned up using spill kit.
- Dumpster is kept covered except when in use, drain plugs are installed.
- Unauthorized waste will not be stored in the dumpster.
- Should any metal materials be stored outdoors, they will be lifted from the ground (i.e. resting on pallets) and appropriately covered, if practical
- Wash vehicles with phosphate free soap at front of building near grassed area.
- Spill kits are inventoried after every use and used materials replaced promptly at the fueling area.
- The fueling pumps, nozzles, hose, and fittings are inspected weekly for any signs of leaks or deterioration. Any identified leaks or equipment failures are reported to James City County for scheduling immediate maintenance.
- The dumpster is fenced to prevent unauthorized dumping.
- All staff is aware of spill prevention and response procedures. They are trained annually on spill identification, response, and notification procedures.

- Spill prevention and response equipment (spill kit) is located at the pump island and can be used at garage bays where spills and vehicle leaks could occur.
- All materials on site are labeled describing contents therein.
- Vehicle fleet is kept in good repair to prevent leaks.
- The fueling island has an emergency shut-off switch and an alarm.

Best Management Practices (BMPs)

The following is a list of planned Best Management Practices. When implemented, the BMPs will prevent or reduce the discharge of potential pollutants in stormwater runoff for each area of concern listed in the Site Summary of Activities.

Sediment and Erosion Control

The topography of the site is fairly flat, though certain areas of the site are slightly sloping. The eastern and southern sides of the new fire station slope to the southwest, whereas the center of the site where the driveway is located has been graded to slope northeast. The western side of the former fire station slopes westward towards the on-site BMP pond. North of the former fire station the topography gently slopes to the north-northeast. Areas not paved on site are generally vegetated. Any areas that are lacking vegetation are vulnerable to erosion and the potential for transport of sediment directly into the BMP pond is likely. To minimize the potential for erosion in these areas added topsoil and reseeding might be a preventative measure to erosion.

Management of Stormwater Runoff

The following are runoff management practices used at the facility.

- Runoff from the site flow to a system of catch basins and bio-retention basins. Stormwater from these catch basins and bio-retention areas are then discharged to the on-site BMP pond before discharging along the eastern property boundary
- Impervious areas have no curbs to the rear of the property in order to encourage sheet flow runoff to vegetative areas

Spill Prevention and Response

A Spill Response Plan has been prepared and installed at the fuel island. This document contains information regarding spill/release response activities and contact numbers for proper notification.

Employee Training

The James City County – Fire Station #1 facility will maintain trained in-house personnel to understand and implement all aspects of the SOPs. These individuals will be trained once a year. Training records will be maintained for at least 5 years. Pollution prevention team members will meet twice a year to discuss the effectiveness of and improvements to the Plan. The training records should be maintained for at least 5 years. Worksheet #6, in SOP Attachment 2 may be used to document employee training at the James City County-Fire Station #1 facility.

5

Monitoring/Inspections/ Record Keeping

Quarterly Visual Monitoring

Every quarter, stormwater discharges will be visually examined at the last exiting outfall from the facility. The visual examination will be made during daylight hours and within 30 minutes after stormwater begins to runoff. The designated Member of Fire Station #1 will complete site surveys and outfall inspections. A blank worksheet, Worksheet #4, in SOP Attachment 2 will be used for the visual monitoring.

Annual Site Inspections (Comprehensive Site Compliance Evaluation)

The entire facility will be inspected at least once a year for evidence of pollution, to evaluate BMPs that have been implemented, and to inspect areas having the potential to pollute or contaminate stormwater. The site inspection report will include date of inspection, name of personnel conducting the inspection, observations, assessment of BMPs, corrective actions taken, and a signed certification.

Worksheet #5 identifies annual BMPs and describes activities or improvements for the Fire Station #1 facility. This information will be included in an annual Compliance Evaluation Report. The annual Report shall be kept with the SOP. Both the Evaluation Report and any reports of follow-up action will be certified.

Record Keeping and Reporting

Records described in this SOPs will be retained on site for 5 years from the date of the cover letter that notifies this facility of coverage under the stormwater permit. These records will be made available to state or federal inspectors upon request. Additionally, employee-training records shall also be maintained.

Plan Revisions

If this facility expands its operations, or changes any significant material handling or storage practices, which could impact stormwater, this SOP will be amended. The amended Plan will describe the new activities that contribute to increased pollution and planned control measures. This Plan will also be amended if a state or federal inspector determines that it is not effective in controlling stormwater pollutants discharged to waterways.

Vanasse Hangen Brustlin, Inc.

Worksheet #5

Annual BMP Identification				
BMPs	Description of Activities or Improvements	Completion Date	Person Responsible of Action	Notes/Recommended Changes
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____

Title:_____

Date:_____

Signature:_____

6

Certifications

Non-Stormwater Discharges

Stormwater outfalls to surface waters at this facility have not been evaluated thus far; therefore, they have not been certified to free of non-stormwater discharge at this time.

Standard Operation Procedure Certification

This Stormwater Pollution Prevention Plan has been prepared in accordance with good engineering practices. Qualified personnel properly gathered and evaluated information submitted for this Plan. The information in this Plan, to the best of my knowledge, is accurate and complete.

Paul Cuomo

Name

Stormwater Coordinator

Title

07/01/2017

Date

SOP Attachments

- SOP Attachment 1 Emergency Response Phone Numbers
- SOP Attachment 2 Blank Worksheets

SOP Attachment 1
Emergency Response Phone Numbers

SPILL RESPONSE
EMERGENCY NOTIFICATION PHONE NUMBERS

1. SUPERVISOR/MANAGER
   NAME: _____ CELL PHONE: _____
   PHONE: _____

   ALTERNATE:
   NAME: _____ CELL PHONE: _____
   PHONE: _____

2. JAMES CITY COUNTY FIRE DEPARTMENT
   EMERGENCY: 911
   BUSINESS:

   JAMES CITY COUNTY POLICE DEPARTMENT
   EMERGENCY: 911
   GENERAL NUMBER:

3. CLEANUP CONTRACTOR: PETROCHEM
   ADDRESS: PO BOX 1458, NORFOLK, VA 23501
   PHONE: (800) 723-6951 or (757) 627-8791

4. VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT (DEM)
   EMERGENCY: 1-800-468-8892

5. POLLUTION RESPONSE PROGRAM (PREP) TIDEWATER REGIONAL OFFICE
   PHONE: 757-518-2000 (8:30am – 4:30pm Monday-Friday)

6. NATIONAL EMERGENCY RESPONSE CENTER
   PHONE: 1-800-424-8802

7. JAMES CITY COUNTY EMERGENCY SERVICES DIVISION/EMERGENCY OPERATIONS CENTER

   County Administrator/Emergency Management Director: Bryan Hill
   Fire Chief/Coordinator of Emergency Management: Ryan Ashe (Interim Fire Chief)
   Director of Emergency Services/Deputy Coordinator of Emergency Management: Kathleen Hale
   Phone: 757-564-2140

   EMERGENCY OPERATIONS CENTER
   3127 Forge Road
   Toano, Virginia 23168

SOP Attachment 2
Blank Worksheets

Worksheet #1

Pollution Prevention Team	
SOP Coordinator:	**Title:** **Office Phone:**
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Implements the preventive maintenance program; oversees good housekeeping activities, serves as spill coordinator, coordinates employee training programs, keeps all records, and conducts and assists with inspections.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Member:	**Title** **Office Phone:**
Responsibilities:	**Cell Phone:**
Alternate Member:	**Title:** **Office Phone:**
Responsibilities:	

Vanasse Hangen Brustlin, Inc.

Worksheet #2
Standard Operating Procedure Plan Material /Activity Inventory

This is a list of materials stored and/or activities that may potentially be exposed to stormwater at the municipal facility.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Comments

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #3
List of Significant Spill and Leaks

List all spills and leaks (as indicated on Worksheet #2) of toxic or hazardous pollutants within the past 3 years that were significant. Significant spills and leaks include but are not limited to, release of oil or hazardous substances in excess of reportable quantities. Reportable quantities are defined as 25 gallons or greater in volume.

Date (m/day/yr)	Location (as indicated on site map)	Description				Response Procedure		Prevention Measure Taken
		Type of Material	Quantity	Source (if known)	Reason for spill or leak	Amount of Material Recovered	Material no longer exposed to stormwater	

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #4
Quarterly Visual Monitoring Inspection Log for Stormwater Discharges

Stormwater outfalls at the facility must be visually inspected every quarter.

Date/ Time	Outfall # or Description	Weather Conditions	Observations (Contaminants Observed/ Erosion/Sediment)	Probable Source of Any Observed Contamination	Action Taken to Prevent in Future	Person(s) Conducting the Test - Signature
1st Quarter		Time since last rain: Quantity of last rain: Flow observed:				
2nd Quarter						
3rd Quarter						
4th Quarter						

Completed by:_____
Title:_____
Date:_____
Signature:_____

Attachments

Vanasse Hangen Brustlin, Inc.

Worksheet #5
Annual Stormwater Management Plan – Inspection Checklist

Annual BMP Identification				
BMPs	**Description of Activities or Improvements**	**Completion Date**	**Person Responsible of Action**	**Notes/Recommended Changes**
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #6

Employee Training			
Describe the employee-training program for your facility. The program should, at a minimum, address spill prevention and response, good housekeeping, and material management practices. Provide a schedule for the training program and list the employees who attend training sessions.			
Training Topics	**Brief Description of Training Program/Materials**	**Schedule of Training (list dates)**	**Attendees**
Spill Prevention and Response			
Good Housekeeping			
Material Management Practices			
Other Topics			

Completed by:_____
Title:_____
Date:_____
Signature:_____

Worksheet #7

Stormwater Standard Operation Procedure **Compliance Evaluation Report Certification**
Qualified personnel who properly gathered and evaluated the information included herein have prepared this Compliance Evaluation Report. The information in this report, to the best of my knowledge is accurate and complete.
Municipality Name __James City County_____  Signature _____ Date __07/01/2017_____

Standard Operationing Procedure

James City County- Fire Station #5

3201 Monticello Avenue
Williamsburg, Virginia 23188

Prepared for **James City County**
Stormwater Division
107 Tewning Rd
Williamsburg, Virginia 21388

Prepared by **VHB/Vanasse Hangen Brustlin, Inc.**
351 McLaws Circle, Suite 3
Williamsburg, VA 23185-6316
(757) 220-0500

June 2015

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Vanasse Hangen Brustlin, Inc.

1

Standard Operation Procedures (SOPs) Overview

Facility Name and Address

Fire Station #5
3201Monticello Avenue, Williamsburg, Virginia 23188
Contact: Station Captain
Phone: (757) 565-7603

Standard Operation Procedures Background & Overview

This plan is designed to reduce pollution at the source, before it can contaminate stormwater and cause environmental impacts.

The SOP includes the following goals:

- Identify potential sources of pollutants that may impact stormwater discharges from the Site;
- Describe the practices that will be implemented to prevent or control the release of pollutants in stormwater discharges;
- Create a schedule to ensure that practices included in the SOPs are followed and measures are implemented according to the SOPs; and
- Evaluation of SOPs and its effectiveness at reducing pollutant discharge.

This SOP includes the following elements:

- Identifies the SOP coordinator with a description of the coordinator's duties;
- Identifies members of the SOP Team and lists their responsibilities;
- Describes the facility, with information on location and type of activities occurring at the site, a site map, and a description of the stormwater drainage system;

- Identifies potential stormwater contaminants;
- Describes stormwater management controls and various best management practices (BMPs) needed to reduce pollutants in stormwater discharges;
- Describes the facility's monitoring plan;
- Describes employee training for stormwater pollution prevention; and,
- Describes the implementation schedule and provisions for amendment of the plan.

This plan has been developed as a 3-ring binder that allows for updates and revisions as appropriate. Revision dates will be shown on the right hand corner of edited pages. Blank copies of the worksheets included in this report can be found at the back of this report..

2

SOP Coordinator and Team

The following roster lists the pollution prevention team and responsibilities for each member. This team is responsible for implementing all aspects of the SOP. Attached is a typed roster that can be posted in highly visible locations to alert staff to the appropriate contact for stormwater and/or spill related issues. A blank roster (Worksheet #1) is also included in SOP Attachment 2 so changes may be made as necessary and reposted.

SOP Coordinator

Title Stormwater Coordinator
Office Phone: (757) 259-1445
Cell Phone: (757) 645-7064

Responsibilities:
Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted; and oversees sampling program.

Member - Spill Response Coordinator

Title Assistant Fire Chief
Office Phone: (757) 565-7603

Responsibilities:
Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.

Member

Name Station Captain
Office Phone: (757) 565-5967

Responsibilities:
Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.

PLEASE POST

Worksheet #1

Pollution Prevention Team		
SWPPP Coordinator:	**Office Phone:**	(757) 259-1445
	Cell Phone:	(757) 645-7064
Title: Stormwater Coordinator		
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.		
Member:	**Office Phone:**	(757) 565-7603
Title: Assistant Fire Chief		
Responsibilities: Implements the preventive maintenance program, oversees good housekeeping activities, and serves as spill response coordinator.		
Member: Station Captain	**Office Phone:**	(757) 565-5967
Title: N/A		
Responsibilities: Coordinates/assists with inspections and training program, and serves as assistant spill response coordinator.		

3

Site Assessment

The following Site information is based on the conditions observed at the facility during an inspection on June 25, 2015.

Facility Location and Description

Location

The James City County – Fire Station #5 is located at 3201 Monticello Avenue in Williamsburg, Virginia. The Site Location Map (Figure 1) shows the location of the facility at 32.260441, -76.810066. The facility is generally located southwest of the intersection of Monticello Avenue and Centerville Road (Route 614), across Monticello Avenue from the Williamsburg National Golf Course. The facility is accessible from an access road off of Monticello Road that also serves an adjacent business. Fire Station #5 has a driveway into a parking lot and this driveway also provides access to the rear of the fire station, a detached shed, and two fuel pumps. A short driveway also extends from the front of the fire station bay doors out to the access road for quick departures of the fire and rescue vehicles. Woods surround the fire station on three sides, and a light industrial/commercial business is located across the access road from Fire Station #5 to the east/northeast.

Facility Description

Fire Station #5 is located on approximately 2.08 acres. The majority of the Property consists of the Fire Station and paved surfacing for the driveway and parking lot, with the remaining area consisting of grass and BMP structures (designed swales and pond). The facility operates as an active fire and rescue station serving the local population with emergency response service. The fire station serves primarily to garage the fire and rescue vehicles, though no maintenance is performed on the vehicles at this location. Fueling pumps on the premises dispense gasoline and diesel fuels from underground storage tanks beneath a concrete pad. The fleet of vehicles at this facility are fueled on an as need basis. The vehicle fleet is washed outside of the garage, at the rear of the facility where runoff enters the BMP pond directly through sheet flow or into the innermost swale. A shed at the rear of the property stores the lawnmower and serves as general dry storage for the fire station. The interior of Fire Station #5 also consists of local administrative offices, equipment rooms, bedrooms, bathrooms, kitchen, and other common areas used by fire and rescue personnel who are on-call.

Small circular floor drains are present within the garage area of the fire station where trucks are garaged, but trench drains are not present along the doorway to intercept any potential pollutants, which may leak from the fleet. A small circular floor drain was also observed within a small side room off the main garage area where equipment is able to drip-dry and cleaning chemicals are kept in small quantities. These drains are said to empty into an oil sand interceptor, a grease separator, and connected to a grinder pump before drainage enters the sanitary sewer. Safety Kleen is contracted to clean the oil water separator.

The upgradient portion of the swales on the premises, begin along the northwest corner of the pavement. The outermost swale begins north of the dumpster, and the innermost swale, closest to the pavement, begins to the west of the dumpster. The swales parallel each other and the edge of the pavement before the innermost swale drainage enters the western side of the BMP pond, located to the south of the facility. The outermost swale, which is not expected to carry any source of pollutants is diverted around the BMP and drains to the outfall for BMP pond, south of the BMP. The site layout with buildings and areas of material storage or activities are shown on Figure 2.

Facility Activities

The facility consists predominantly of a garage area that houses the Station #5 fleet of fire trucks and rescue vehicles. Activities pertinent to stormwater are minimal at the facility. No maintenance of Station #5 fleet vehicles is performed on-site. However, outside of the main facility are two fuel pumps on a concrete pad, connected to gasoline and diesel underground storage tanks. The fleet of vehicles garaged at Fire Station #5 is fueled on-site. The vehicle fleet is washed outside of the garage, at the rear of the facility where runoff enters the BMP pond directly through sheet flow or into the innermost swale. Though the garage portion of the facility is covered, drains are present in the garage and may collect leaking fluids from the fleet. Should contaminants not be cleaned up immediately or reach these drains, the potential exists that these contaminants may escape the garage bays and enter stormwater from runoff just outside the garage, ultimately reaching the BMP pond. Likewise, any leaks from personnel vehicles in the parking lot will wash into the adjacent stormwater drains. The facility also serves to accommodate emergency response personnel who are on-call during the days and nights by having a kitchen, bedrooms, bathrooms, and other common areas, but these areas are enclosed in the on-site structure. Trash from the facility is collected and temporarily stored in an on-site dumpster located on a concrete pad along the northwestern portion of the property. The contents are typically emptied and taken to the landfill on a regular basis.

Stormwater Drainage System

The stormwater drainage system at Fire Station #5 consists of storm drain drop inlets (6) which all feed into the on-site BMP pond. The BMP pond has an emergency spillway consisting of riprap, which directs stormwater into a lower lying ponded area south-southeast of the BMP pond. An outlet control structure also connects the BMP pond with the lower lying ponded area just inside the property boundary. Runoff from the low-lying area discharges into the adjacent wooded area off-site along the southeast property boundary. Two designed swales divided by a ridge also assist in managing stormwater on site. Both swales run parallel to each other and the western impervious boundary, beginning along the northeast corner of the parking lot and run between the wood line and the impervious surface. The innermost swale, closest to the parking lot and fuel pump, directs surface flow into the BMP pond, whereas the swale closest to the wood line which does not drain any impervious surface or area of potential pollution drains via the swale directly into the lower lying area southeast of the stormwater pond, and from there exits the property.

Source: 2013 National Geographic Society, i-cubed, USGS 7.5 minute Norge, Virginia Quadrangle

NORTH

0 2,000 Feet

FIRE STATION #5

Monticello Ave, Williamsburg, Virginia

Vanasse Hangen Brustlin, Inc.

FIGURE 1

Project Location Map

FIRE STATION #5
Monticello Ave, Williamsburg, Virginia

FIGURE 1
Project Location Map

Potential Stormwater Contaminants & Significant Material Inventory

A list of materials that are handled, treated, stored or disposed of at the site that may potentially be exposed to stormwater or snow melt are shown on the attached Worksheet 2. The purpose and location of use or storage, volumes (used/ produced or stored) and likelihood of contact with runoff is also presented in Worksheet 2.

Worksheet #2
Stormwater Pollution Prevention Plan Material/Activity Inventory

This attachment is a list of materials stored and/or activities that may potentially be exposed to stormwater at the James City County – Fire Station #5. These areas are identified on the Site Layout and Areas of Storage and Activities Map, Figure 2.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Current Practices with comments
Vehicles/Equipment	Washing	Various amounts	Salt, grease, oils, detergent, automotive fluids	High; sheet flow to swale and storm drain at rear of property, enters BMP pond.	Regular inspection of vehicles for leaks and washing to occur near grassed area with phosphate free soap.
Dumpster	Household waste/garbage generated on-site	Various, 1 dumpster (4-yard capacity)	Leachate, organics	Medium, when dumpster not covered	Should remain covered and plug bottom drainage hole.
Fueling area	Fueling of fleet vehicles, fire and county vehicles	1 – 2,000 gallon singlewall fiberglass UST (diesel) 1 – 2,000 gallon singlewall fiberglass UST (gasoline); both installed June 1994	Petroleum hydrocarbons; Diesel fuel and gasoline	High; Flow into storm drain and sheet flow towards Pocahontas Trail carrying any petroleum leaked onto the impervious surface	Follow all vehicle fueling procedures, and spill response procedures if necessary
Garage drains	Storage of emergency vehicle fleet	Various amounts	Salt, grease, oils, automotive fluids	Low; interior grading allows for any leaks from trucks to runoff (under cover) into interior drains	Interior drains lead to an sand filter connected to the MS4.

Past Spills and Leaks

The regulations require a listing of past spills or leaks of toxic or hazardous substances that have occurred within the last three years. No past releases or spills are known to have occurred in the past three years at Fire Station #5. Any future releases or spills will be documented on Worksheet #3 contained in Attachment 2.

Areas Associated with Industrial Activity

The areas associated with industrial activity as shown on Figures 2 and Worksheet #2 are described as follows:

Dumpsters

A fueling area is located on a concrete pad along the western impervious area of Fire Station #5. The fueling area consists of two fuel pumps connected to two underground storage tanks, one containing gasoline and the other containing diesel fuel. One small drain was observed between the fuel island and the swale, and collects some of the runoff from the fueling area. The fueling area will have a canopy with the next year. Spills or leaks would likely be transported by sheet flow and be carried into the adjacent swale and innermost swale that would transport the stormwater into the on-site BMP pond.

Fueling Area

The fueling area at Fire Station #2 is partially surrounded by concrete, although asphalt abuts the northern side of the pump island. The pump island consists of two pump dispensers on a slightly elevated concrete platform. The pump dispensers are connected to two single-walled fiberglass underground storage tanks containing diesel fuel and gasoline. A small drain is located at the easternmost corner of the concrete, above the underground storage tanks in the fueling area; however, the destination of runoff entering this drain is to the BMP at this time under normal conditions, it appears that a spill or release will flow to the 12-inch drain. A cover or canopy does not protect the fueling area.

Emergency Vehicle Garage

Fire Station #5 has floor drains within the garage area where the emergency vehicles are garaged. Maintenance of the vehicles does not occur at the fire station; however,

any leaks from the vehicles which is not intercepted and cleaned-up prior to existing the building has the potential to be transported by runoff into the nearby storm drains. Fluids collected in the small interior drains within the fire station enter the sewer system.

Emergency Vehicle Washing Area

Washing of vehicles was observed to occur outside the bay doors on the southwest side of the building. A phosphate free soap is used in the grassed areas during vehicle washing the amount of runoff is insignificant since most percolates into the ground.

Non-Stormwater Discharges

The facility has drains within the garage portion of the facility and a small circular drain exists within a storage room just off of the main garage area. It appears equipment is hung to dry in this room and small quantities of household cleaners are present in this room. Drainage from these areas were said to drain into an oil/sand interceptor and grease separator before reaching a grinder pump and ultimately entering the sewer. Condensation from an icemaker is also shown to runoff into this drain. The contents of the drain are said to ultimately merge into the sanitary sewer. Stormwater drains are located within the driveway of the facility and in vegetated areas. Runoff from the fuel pump area, parking lot, dumpster, and vehicle wash area drain into stormwater drop inlets and are routed to the BMP pond on site. Sheet flow from impervious areas, which does not flow into the storm drains, enters the innermost swale. The innermost swale funnels any excess runoff from the parking lot, dumpster, and fueling area to the BMP pond while the outermost swale transports general stormwater discharge from the adjacent wooded lot and carries it to the low lying drainage area south of the BMP pond outfall, along the property line. The drainage from the site ultimately flows into Shellbank Creek, southwest of the site, which empties into the James River. Outfalls have not yet been tested or evaluated to determine the presence of other non-stormwater discharges, though no dry weather flow was noted in the summer of 2013. A blank Visual Monitoring Inspection Form-Worksheet #4 found in SOP Attachment 2 may be used to perform Quarterly Visual Monitoring at the discharge locations.

Potential Allowable Non-Stormwater Discharges

No known allowable non-stormwater sources of discharge have been identified at the Fire Station #5. The Fire Station has a fire hydrant on the premises. Flushing of fire hydrants is typically an allowable non-stormwater discharge. Roof drainage is also typically considered an allowable non-stormwater discharge.

Existing Stormwater Monitoring Data

Fire Station #5 does not report having historical monitoring data. When stormwater monitoring data is available it will be presented in this section.

Site Summary (Sources of Pollution with a Medium to High Risk of Contaminating Stormwater)

The list of pollutants associated with materials and activities that have been identified in Worksheet #2 as having a medium to high likelihood of contaminating stormwater at Fire Station #5 are described below. A summary of these activities and proposed future practices for reducing the potential for stormwater contamination are found in Worksheet #3.

The following areas are potential sources of contamination:

- The fueling area presents several potential sources of contamination to the stormwater. Leaking pump and hose components exposed to the elements, overfill and spills during refueling of fleet vehicles, and overfill and spills during filling of underground storage tanks by container trucks can release petroleum hydrocarbons onto the impervious surface. During stormwater events, these pollutants can wash into drains and the nearby drainage swale, which can ultimately transport pollutants to the BMP pond.
- The dumpster containing household trash may release leachate and other organics if not covered and drain hole is not plugged. Contents of dumpsters can be sources of stormwater pollution and other contaminants.
- Outside vehicle washing on the impervious surface at the rear of the fire station has the potential to leave residue on the ground that could rinse off and transport oil, fuel, automotive fluids, and soil into the on-site BMP pond via drop inlet drains and transport via the innermost earthen swale.

4

Standard Operating Procedures Best Management Practices

This section describes practices that are in place or that will be implemented to control pollutants that have the potential to contaminate stormwater. These include Good Housekeeping Measures, Preventative Maintenance Practices, as well as Response Practices.

Good Housekeeping/Preventive Maintenance

Good housekeeping practices are the most effective first step towards preventing pollution in stormwater. The following is a list of good housekeeping practices followed at this facility:

- Spills are immediately contained and cleaned up with an absorbent.
- All fluid products and wastes are kept indoors.
- Maintenance of fleet vehicles is not performed on-site, but rather at the off-site Fleet & Maintenance facility on Tewning Road.
- Spillage that occurs in the fueling area during re-fueling of fleet vehicles and container truck filling of USTs, as well as equipment leaks is promptly cleaned up using spill kit.
- Dumpster is kept covered except when in use, drain plugs are installed.
- Unauthorized waste will not be stored in the dumpster.
- Should any metal materials be stored outdoors, they will be lifted from the ground (i.e. resting on pallets) and appropriately covered, if practical
- Wash vehicles with phosphate free soap at rear of building near grassed area.
- Spill kits are inventoried after every use and used materials replaced promptly at the fueling area.
- The fueling pumps, nozzles, hose, and fittings are inspected weekly for any signs of leaks or deterioration. Any identified leaks or equipment failures are reported to James City County for scheduling immediate maintenance.
- The dumpster is fenced to prevent unauthorized dumping.
- All staff is aware of spill prevention and response procedures. They are trained annually on spill identification, response, and notification procedures.

- Spill prevention and response equipment (spill kit) is located at the pump island and can be used at garage bays where spills and vehicle leaks could occur.
- All materials on site are labeled describing contents therein.
- Vehicle fleet is kept in good repair to prevent leaks.
- The fueling island has an emergency shut-off switch and an alarm.

Best Management Practices (BMPs)

The following is a list of planned Best Management Practices. When implemented, the BMPs will prevent or reduce the discharge of potential pollutants in stormwater runoff for each area of concern listed in the Site Summary of Activities.

Sediment and Erosion Control

The topography of the site is slightly sloping with the rear portion of the site sloping towards the western side of the site, and the front half of the site sloping to the east towards the road. At the road, the topography slopes to the south. Areas where erosion could be an issue are vegetated. Erosion of mulch is possible via sheet flow near the fueling area. Installation of curbing in this area for the purpose of controlling petroleum hydrocarbons from entering the mulch and grassy swale will also prevent sheet flow washing of mulch into the swale. The grassy swales will help to trap sediment before entering into the BMP pond, and rip rap at the inflow point of the pond will also serve to control erosion and sedimentation. When washing vehicles, small soil particles can be washed off vehicles. During sheet flow, these particles may end up in the grassy swale along the western portion of the site.

Management of Stormwater Runoff

The following are runoff management practices used at the facility.

- Runoff from the site drains to a system of catch basins along the driveway and within the front yard of the main building. Stormwater is then discharged to the on-site BMP pond and outfalls into a low-lying small pond before exiting the site via a small natural drainage creek.
- Impervious areas have no curbs in order to encourage sheet flow runoff to vegetative areas.

Spill Prevention and Response

A Spill Response Plan has been prepared and installed at the fuel island. This document contains information regarding spill/release response activities and contact numbers for proper notification.

Employee Training

The James City County – Fire Station #5 facility will maintain trained in-house personnel to understand and implement all aspects of the SOPs. These individuals will be trained once a year. Training records will be maintained for at least 5 years. Pollution prevention team members will meet twice a year to discuss the effectiveness of and improvements to the Plan. The training records should be maintained for at least 5 years. Worksheet #6, in SOP Attachment 2 may be used to document employee training at the James City County- Fire Station #5 facility.

5

Monitoring/Inspections/ Record Keeping

Quarterly Visual Monitoring

Every quarter, stormwater discharges will be visually examined at the last exiting outfall from the facility. The visual examination will be made during daylight hours and within 30 minutes after stormwater begins to runoff. The designated Member of Fire Station #5 will complete site surveys and outfall inspections. A blank worksheet, Worksheet #4, in SOP Attachment 2 will be used for the visual monitoring.

Annual Site Inspections (Comprehensive Site Compliance Evaluation)

The entire facility will be inspected at least once a year for evidence of pollution, to evaluate BMPs that have been implemented, and to inspect areas having the potential to pollute or contaminate stormwater. The site inspection report will include date of inspection, name of personnel conducting the inspection, observations, assessment of BMPs, corrective actions taken, and a signed certification.

Worksheet #5 identifies annual BMPs and describes activities or improvements for the Fire Station #5 facility. This information will be included in an annual Compliance Evaluation Report. The annual Report shall be kept with the SOP. Both the Evaluation Report and any reports of follow-up action will be certified.

Record Keeping and Reporting

Records described in this SOPs will be retained on site for 5 years from the date of the cover letter that notifies this facility of coverage under the stormwater permit. These records will be made available to state or federal inspectors upon request. Additionally, employee-training records shall also be maintained.

Plan Revisions

If this facility expands its operations, or changes any significant material handling or storage practices, which could impact stormwater, this SOP will be amended. The amended Plan will describe the new activities that contribute to increased pollution and planned control measures. This Plan will also be amended if a state or federal inspector determines that it is not effective in controlling stormwater pollutants discharged to waterways.

Vanasse Hangen Brustlin, Inc.

Worksheet #5

Annual BMP Identification				
BMPs	Description of Activities or Improvements	Completion Date	Person Responsible of Action	Notes/Recommended Changes
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____

Title:_____

Date:_____

Signature:_____

6

Certifications

Non-Stormwater Discharges

Stormwater outfalls to surface waters at this facility have not been evaluated thus far; therefore, they have not been certified to free of non-stormwater discharge at this time.

Standard Operation Procedure Certification

This Stormwater Pollution Prevention Plan has been prepared in accordance with good engineering practices. Qualified personnel properly gathered and evaluated information submitted for this Plan. The information in this Plan, to the best of my knowledge, is accurate and complete.

Paul Cuomo

Name

Stormwater Coordinator

Title

09/08/2015

Date

SOP Attachments

- SOP Attachment 1 Emergency Response Phone Numbers
- SOP Attachment 2 Blank Worksheets

SOP Attachment 1
Emergency Response Phone Numbers

SPILL RESPONSE
EMERGENCY NOTIFICATION PHONE NUMBERS

1. SUPERVISOR/MANAGER
   NAME: _____ CELL PHONE: _____
   PHONE: _____

   ALTERNATE:
   NAME: _____ CELL PHONE: _____
   PHONE: _____

2. JAMES CITY COUNTY FIRE DEPARTMENT
   EMERGENCY: 911
   BUSINESS:

   JAMES CITY COUNTY POLICE DEPARTMENT
   EMERGENCY: 911
   GENERAL NUMBER:

3. CLEANUP CONTRACTOR: PETROCHEM
   ADDRESS: PO BOX 1458, NORFOLK, VA 23501
   PHONE: (800) 723-6951 or (757) 627-8791

4. VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT (DEM)
   EMERGENCY: 1-800-468-8892

5. POLLUTION RESPONSE PROGRAM (PREP) TIDEWATER REGIONAL OFFICE
   PHONE: 757-518-2000 (8:30am – 4:30pm Monday-Friday)

6. NATIONAL EMERGENCY RESPONSE CENTER
   PHONE: 1-800-424-8802

7. JAMES CITY COUNTY EMERGENCY SERVICES DIVISION/EMERGENCY OPERATIONS CENTER

   County Administrator/Emergency Management Director: Bryan Hill
   Fire Chief/Coordinator of Emergency Management: Ryan Ashe (Interim Fire Chief)
   Director of Emergency Services/Deputy Coordinator of Emergency Management: Kathleen Hale
   Phone: 757-564-2140

   EMERGENCY OPERATIONS CENTER
   3127 Forge Road
   Toano, Virginia 23168

SOP Attachment 2
Blank Worksheets

Worksheet #1

Pollution Prevention Team	
SOP Coordinator:	**Title:** **Office Phone:**
Responsibilities: Coordinates all stages of SOP development, inspections and implementation, coordinates employee training programs, keeps all records, ensures that reports are submitted, and oversees sampling program.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Implements the preventive maintenance program; oversees good housekeeping activities, serves as spill coordinator, coordinates employee training programs, keeps all records, and conducts and assists with inspections.	
Member:	**Title:** **Office Phone:**
Responsibilities:	**Cell Phone:**
Member:	**Title** **Office Phone:**
Responsibilities:	**Cell Phone:**
Alternate Member:	**Title:** **Office Phone:**
Responsibilities:	

Vanasse Hangen Brustlin, Inc.

Worksheet #2
Standard Operating Procedure Plan Material /Activity Inventory

This is a list of materials stored and/or activities that may potentially be exposed to stormwater at the municipal facility.

Material	Activity/Use	Quantity stored (tank size if applicable: above or below ground)	Pollutant	Likelihood of contact with stormwater? (Low, medium or high)	Comments

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #3
List of Significant Spill and Leaks

List all spills and leaks (as indicated on Worksheet #2) of toxic or hazardous pollutants within the past 3 years that were significant. Significant spills and leaks include but are not limited to, release of oil or hazardous substances in excess of reportable quantities. Reportable quantities are defined as 25 gallons or greater in volume.

Date (m/day/yr)	Location (as indicated on site map)	Description				Response Procedure		Prevention Measure Taken
		Type of Material	Quantity	Source (if known)	Reason for spill or leak	Amount of Material Recovered	Material no longer exposed to stormwater	

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #4
Quarterly Visual Monitoring Inspection Log for Stormwater Discharges

Stormwater outfalls at the facility must be visually inspected every quarter.

Date/ Time	Outfall # or Description	Weather Conditions	Observations (Contaminants Observed/ Erosion/Sediment)	Probable Source of Any Observed Contamination	Action Taken to Prevent in Future	Person(s) Conducting the Test - Signature
1st Quarter		Time since last rain: Quantity of last rain: Flow observed:				
2nd Quarter						
3rd Quarter						
4th Quarter						

Completed by:_____
Title:_____
Date:_____
Signature:_____

Attachments

Vanasse Hangen Brustlin, Inc.

Worksheet #5
Annual Stormwater Management Plan – Inspection Checklist

Annual BMP Identification				
BMPs	**Description of Activities or Improvements**	**Completion Date**	**Person Responsible of Action**	**Notes/Recommended Changes**
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			
	1.			
	2.			
	3.			

Completed by:_____
Title:_____
Date:_____
Signature:_____

Vanasse Hangen Brustlin, Inc.

Worksheet #6

Employee Training			
Describe the employee-training program for your facility. The program should, at a minimum, address spill prevention and response, good housekeeping, and material management practices. Provide a schedule for the training program and list the employees who attend training sessions.			
Training Topics	**Brief Description of Training Program/Materials**	**Schedule of Training (list dates)**	**Attendees**
Spill Prevention and Response			
Good Housekeeping			
Material Management Practices			
Other Topics			

Completed by:_____
Title:_____
Date:_____
Signature:_____

Worksheet #7

Stormwater Standard Operation Procedure Compliance Evaluation Report Certification
Qualified personnel who properly gathered and evaluated the information included herein have prepared this Compliance Evaluation Report. The information in this report, to the best of my knowledge is accurate and complete.
Municipality Name __James City County_____ Signature _____ Date __09/08/2015_____

FY 17 - PY 4 NMP Update Schedule for VAR040037

Mang_Turf	ACRES	Contiguous	In 2010_UA	UA Acres from GIS	PlanDate	EXPDate	Progress	Plan Priority by FY
TOANO MIDDLE SCHOOL	2.3812	YES	YES	2.3812	3/10/2015	3/9/2018	complete	2015
TOANO MIDDLE SCHOOL	1.2396	YES	YES	1.2396	3/10/2015	3/9/2018	complete	2015
TOANO MIDDLE SCHOOL	1.9916	YES	YES	1.9916	3/10/2015	3/9/2018	complete	2015
WARHILL HIGH SCHOOL	2.0016	YES	YES	2.0016	2/2/2015	2/2/2018	complete	2015
WARHILL HIGH SCHOOL	1.9750	YES	YES	1.9750	2/2/2015	2/2/2018	complete	2015
WARHILL HIGH SCHOOL	2.4937	YES	YES	2.4937	2/2/2015	2/2/2018	complete	2015
FY15 TOTAL				***12.0827***				
JCC RECRATION CENTER	1.3881	YES	YES	1.3881	3/14/2012	3/14/2015	complete	2016
JCC RECREATION CENTER	1.4516	YES		1.4516	3/14/2012	3/14/2015	complete	2016
JCC RECREATION CENTER	1.6473	YES	YES	1.6473	3/14/2012	3/14/2015	complete	2016
JCC RECREATION CENTER	1.5988	YES	YES	1.5988	3/14/2012	3/14/2015	complete	2016
WARHILL TRACT SPORTS FIELD	1.6260	YES	YES	1.6260	2011	2014	complete	2016
WARHILL TRACT SPORTS FIELD	3.0081	YES	YES	3.0081	2011	2014	complete	2016
WARHILL TRACT SPORTS FIELD	2.2531	YES	YES	2.2531	2011	2014	complete	2016
FY16 TOTAL				***30.8000***				
DJ MONTAGUE ELEMENTARY SCHOOL	1.4666	YES	YES	1.4666	6/27/2017	6/27/2020	complete	2017
JAMESTOWN HIGH SCHOOL	2.3120	YES	YES	2.3120	6/27/2017	6/27/2020	complete	2017
JAMESTOWN HIGH SCHOOL	1.0475	YES	YES	1.0475	6/27/2017	6/27/2020	complete	2017
JAMESTOWN HIGH SCHOOL	2.0985	YES	YES	2.0985	6/27/2017	6/27/2020	complete	2017
JAMESTOWN HIGH SCHOOL	2.2883	YES	YES	2.2883	6/27/2017	6/27/2020	complete	2017
LAFAYETTE HIGH SCHOOL	2.0259	YES	YES	2.0259	6/27/2017	6/27/2020	complete	2017
LAFAYETTE HIGH SCHOOL	2.3032	YES	YES	2.3032	6/27/2017	6/27/2020	complete	2017
FY17 TOTAL				***13.5420***				
BLAYTON ES/HORNSBY MS COMPLEX	2.2871	YES			8/1/2010	8/1/2013		2018
BLAYTON ES/HORNSBY MS COMPLEX	1.6191	YES			8/1/2010	8/1/2013		2018
BLAYTON ES/HORNSBY MS COMPLEX	2.2749	YES			8/1/2010	8/1/2013		2018
BLAYTON ES/HORNSBY MS COMPLEX	2.3052	YES			8/1/2010	8/1/2013		2018
BLAYTON ES/HORNSBY MS COMPLEX	2.4319	YES			8/1/2010	8/1/2013		2018
BLAYTON ES/HORNSBY MS COMPLEX	1.9054	YES			8/1/2010	8/1/2013		2018
JAMES RIVER ES	1.6400	YES						2018
JAMES RIVER ES	2.1810	YES						2018
MATOAKA ES	1.4539	YES					soil test	2018
MATOAKA ES	1.6727	YES					soil test	2018
MATOAKA ES	1.5684	YES					soil test	2018
STONEHOUSE ES	1.9218	YES						2018
STONEHOUSE ES	1.8877	YES						2018
STONEHOUSE ES	1.6652	YES						2018
STONEHOUSE ES	3.0193	YES						2018
JCSA	0.1150	NO	YES	0.1150	2/20/2015	2/19/2018	complete	
TOTAL MANAGED TURF	**68.5463**			**56.4247**				

Completed Test Results for: Municipal Storm Water Pollution: What We Can Do Printed by Jeffrey Hicklin

Score	Username	First Name	Last Name	Start Time	Assigned Through
100%	4537	Stefan	Aguilar	6/30/2017 12:11:54 PM	Direct Assignment
100%	4930	Shirley	Anderson	6/23/2017 1:29:09 PM	Direct Assignment
100%	6611	Nancy	Anderson	6/22/2017 9:52:03 PM	Direct Assignment
100%	4107	Lonnie	Bain	6/22/2017 10:52:55 AM	Direct Assignment
100%	2879	Jeremy	Barnett	6/22/2017 8:11:45 AM	Direct Assignment
100%	2715	Lesa	Barnett	6/23/2017 11:11:50 AM	Direct Assignment
100%	0120	Gennie	Bellas	6/22/2017 9:32:27 AM	Direct Assignment
100%	0294	David	Belote	6/22/2017 12:35:48 AM	Direct Assignment
100%	5692	Billie	Booth	6/22/2017 6:40:49 AM	Direct Assignment
100%	6115	Zachary	Bowman	6/26/2017 9:30:36 AM	Direct Assignment
100%	5671	Joseph	Boyer	6/22/2017 11:57:52 PM	Direct Assignment
100%	0869	Chase	Brightman	6/26/2017 8:26:36 AM	Direct Assignment
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100%	4416	Jodi	Clutts	6/28/2017 5:20:40 PM	Direct Assignment
100%	5633	Scott	Collett	6/25/2017 8:52:59 AM	Direct Assignment
100%	8690	Kelly	Connors	6/22/2017 9:52:40 AM	Direct Assignment
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100%	2459	Joshua	Drury	6/27/2017 10:42:50 AM	Direct Assignment
100%	4721	Beth	Eberhardt	6/22/2017 1:19:22 PM	Direct Assignment
100%	9758	Logan	English	6/26/2017 5:11:58 AM	Direct Assignment
100%	1485	Joshua	Ernst	6/29/2017 4:25:27 PM	Direct Assignment
100%	5061	Jonathan	Evans	6/26/2017 11:08:45 AM	Direct Assignment
100%	7662	Michael	Ferriero	6/22/2017 1:39:01 PM	Direct Assignment
100%	1553	Patrick	Fitzsimmons	6/27/2017 11:02:22 PM	Direct Assignment
100%	8577	Thomas	Frantz	6/26/2017 8:19:05 AM	Direct Assignment
100%	4408	Lucius	Frye	6/26/2017 1:13:17 PM	Direct Assignment
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0%	5419	William	Gibbs	7/24/2017 8:58:24 AM	Direct Assignment
100%	5579	Christopher	Gibson	7/5/2017 2:05:48 PM	Direct Assignment
100%	9203	Debra	Golub	6/22/2017 8:14:56 AM	Direct Assignment
100%	4302	Sean	Gormus	6/23/2017 1:19:58 AM	Direct Assignment
100%	5739	Shenee	Graham	6/23/2017 8:49:31 AM	Direct Assignment
100%	8705	Jennifer	Hall	7/26/2017 11:51:31 AM	Direct Assignment
100%	3489	Tyler	Hancock	6/22/2017 10:33:34 PM	Direct Assignment
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100%	1398	Julia	Hurley	6/26/2017 5:11:13 AM	Direct Assignment
100%	2851	Daniel	Jackson	6/25/2017 6:08:37 AM	Direct Assignment

Score	Username	First Name	Last Name	Start Time	Assigned Through
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100%	1861	Anthony	James	7/15/2017 7:06:45 AM	Direct Assignment
100%	5016	Thomas	Johnson	6/23/2017 7:22:10 AM	Direct Assignment
100%	0895	Beau	Johnson	6/29/2017 1:02:49 AM	Direct Assignment
100%	4826	Kristal	Lair	6/23/2017 8:23:34 AM	Direct Assignment
100%	8191	Alicia	Lamm	7/5/2017 10:14:56 AM	Direct Assignment
100%	9061	Roger	Langwell	6/23/2017 12:09:20 AM	Direct Assignment
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100%	4692	Elizabeth	Larum	6/24/2017 5:58:39 PM	Direct Assignment
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100%	1866	James	Miller	6/25/2017 9:35:32 PM	Direct Assignment
100%	8223	Zachary	Miller	6/23/2017 3:52:06 PM	Direct Assignment
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100%	2583	Patrick	Murray	6/26/2017 4:30:03 PM	Direct Assignment
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100%	4962	Prasit	Niranont	6/27/2017 4:54:12 PM	Direct Assignment
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100%	3680	Robert	Paul	6/29/2017 4:18:32 PM	Direct Assignment
100%	9366	Richard	Pennycuff	6/22/2017 9:00:30 AM	Direct Assignment
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Score	Username	First Name	Last Name	Start Time	Assigned Through
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100%	6847	Leslie	Sten	6/28/2017 9:28:51 AM	Direct Assignment
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100%	7684	Courtney	Uhlig	6/23/2017 12:02:24 PM	Direct Assignment
100%	3430	Diane	Walters	6/29/2017 11:50:07 AM	Direct Assignment
100%	1263	Gregory	White	7/2/2017 3:21:06 PM	Direct Assignment
100%	0801	Jerry	White	6/30/2017 12:31:33 PM	Direct Assignment
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100%	1780	Stephanie	Williams-Ortery	6/26/2017 8:36:40 AM	Direct Assignment
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100%	5407	Aurelia	Woods	7/2/2017 1:20:45 AM	Direct Assignment

This report has been generated using PowerDMS™

Appendix D

TMDL Action Plan Development

Chesapeake Bay TMDL Action Plan
FY17 Summary

James City County continues to be dedicated to maintaining and improving its clean water heritage. The strict development standards and ordinances the County has implemented over the years can attest to the proactive decision-making that has led to a stormwater infrastructure that effectively minimizes pollutants in our local waterways.

Beyond the development regulations, the County continues to create, fund, and install new water quality projects. The Rain Garden Rebate Program, Capital Improvement Projects to include stream restorations and outfall repairs, and County BMP development are an on-going focus.

Mill Creek (JL33), Powhatan Creek (JL31), and Skiffes Creek (JL35) (Warwick River) FY17 Bacterial TMDL Action Plan Summary Updates

4.2.1 Pet Waste Control Program:

Waste loading associated with pets is largely confined to residential areas, but it may also be assumed that waste can enter waterways along adjoining streets and in areas frequented by dog owners, such as parks, trails, schools and recreation areas where dogs are permitted and frequently exercised. Since 2008 JCC has focused on outreach to pet owners through a local Scoop-the Poop campaign by offering pet waste stations to neighborhoods which agree to undertake the installation and maintenance. In FY17, a pet waste station was added to the Powhatan Creek watershed bringing the total stations that were provided by the County in that watershed to 36.

4.2.2 Coliscan Monitoring Program

The County continues to provide support to staff and volunteer monitors in the Coliscan Monitoring Program. Monitoring is underway at seven sites on Powhatan Creek and five in Mill Creek and data is collected on a monthly basis.

4.2.3 BMP Bacteria Retrofit Program

The County has identified the MS4 facilities it operates in the impaired watersheds that may be eligible for a retrofit. Currently, BMPs only exist in the Powhatan and Mill Creek Watersheds and there are none in Skiffes Creek in the County's MS4 area. In FY17, 34 have been identified as having the potential to be upgraded and they are in the evaluation stages to determine the feasibility of those projects.

Appendix E

Regional Cooperation in Stormwater Management
Fiscal Year 2016 – 2017, A Status Report
Hampton Roads Planning District Commission

REGIONAL COOPERATION IN STORMWATER MANAGEMENT

FISCAL YEAR 2016-2017

A STATUS REPORT

This report was included in the HRPDC Work Program for FY 2016-2017, approved by the Commission at its Executive Committee Meeting on June 16, 2016

Prepared by the staff of the
Hampton Roads Planning District Commission
in cooperation with the
Regional Stormwater Workgroup

September 2017

REPORT DOCUMENTATION

TITLE:
Regional Cooperation in Stormwater Management Fiscal Year 2016-2017: A Status Report

REPORT DATE
September 2017

GRANT/SPONSORING AGENCY
LOCAL FUNDS

AUTHORS:
Katherine C. Filippino
Whitney S. Katchmark
Jillian C. Sunderland

ORGANIZATION NAME, ADDRESS AND TELEPHONE
Hampton Roads Planning District Commission
723 Woodlake Drive
Chesapeake, Virginia 23320
(757) 420-8300
http://www.hrpdcva.gov

ABSTRACT

This document describes cooperative activities related to stormwater management undertaken by Hampton Roads local governments during Fiscal Year 2016-2017. Activities described include the regional information exchange process, public information and education, legislative and regulatory issues, cooperative regional studies and related programs. This document is used by the region's eleven localities with stormwater permits to assist them in meeting their permit requirements.

ACKNOWLEDGMENTS

The Hampton Roads Planning District Commission, in cooperation with the regional Stormwater Workgroup, prepared this report.

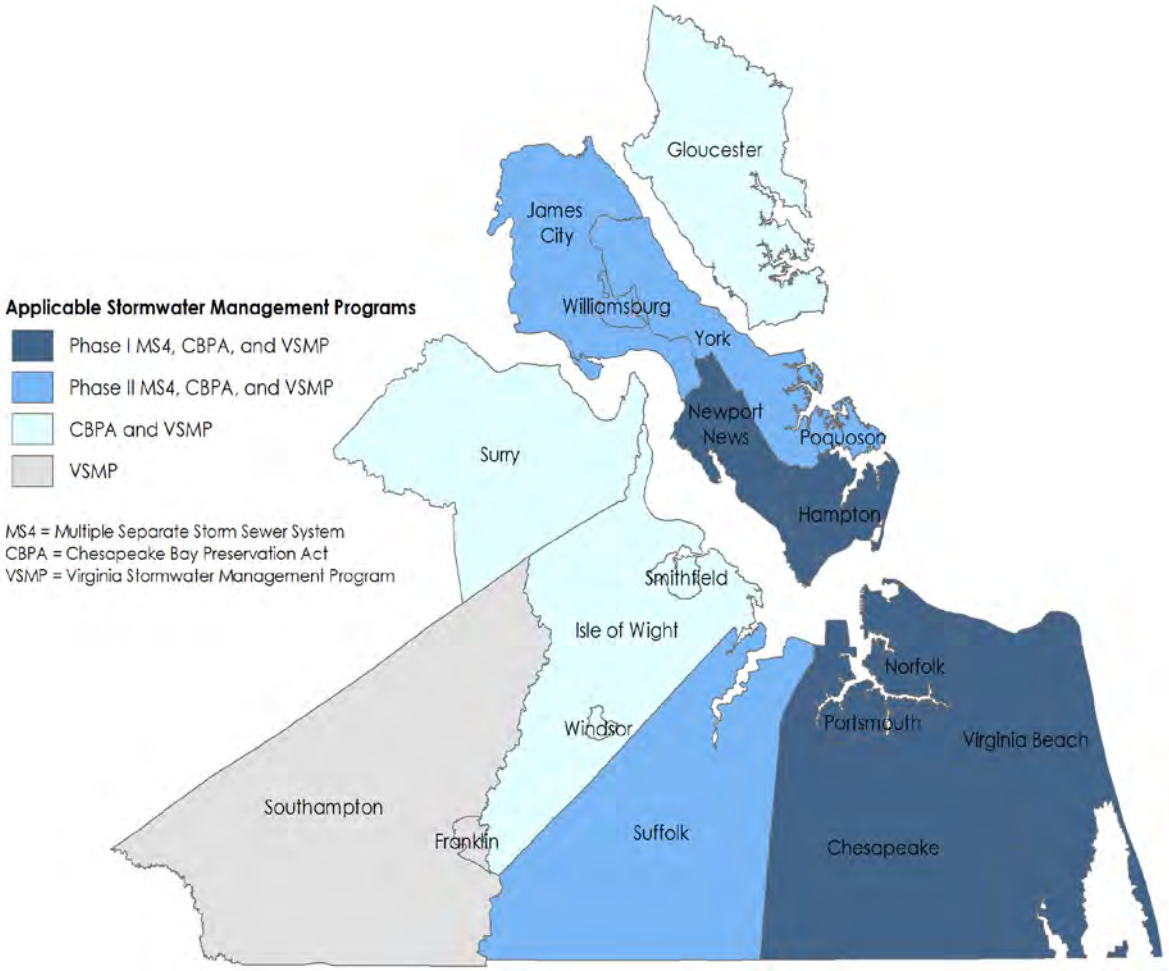
Preparation of this report was included in the HRPDC Unified Planning Work Program for FY 2016-2017, approved by the Commission at its Executive Committee Meeting of June 16, 2016.

The seventeen member local governments through the HRPDC Regional Stormwater Management Program provided funding.

INTRODUCTION

Working through the Hampton Roads Planning District Commission (HRPDC), the region's seventeen member cities and counties and town (Figure 1) cooperated on a variety of stormwater management activities during Fiscal Year 2016-2017. This cooperative effort has been underway as a formal adjunct to the Virginia Pollutant Discharge Elimination System Permits (VPDES) for Municipal Separate Storm Sewer Systems (MS4) held by the Cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth and Virginia Beach since Fiscal Year 1995-1996. The Cities of Suffolk, Poquoson, Williamsburg, and James City County, Isle of Wight County, and York County joined in 2002 to coordinate Phase II MS4 permit applications. Cooperative activities documented in this report represent a continuation of an ongoing effort, which has involved concerted activity since 1992.

As of April 19, 2016, the Phase II MS4 permit for Isle of Wight County was terminated by the Department of Environmental Quality (DEQ). It was determined that the County does not own or operate a MS4 within the Census Urbanized Area.



REGIONAL STORMWATER MANAGEMENT PROGRAM GOALS

The HRPDC and local stormwater staffs undertook a comprehensive effort in FY 1998-1999, called the Regional Loading Study. The project included developing a set of regional stormwater management goals to guide the regional program. The goals were presented to and adopted by the HRPDC at its Executive Committee Meeting in September 1999. They were reaffirmed in the January 2003 approval of the "Memorandum of Agreement (MOA) Establishing the Hampton Roads Regional Stormwater Management Program" and the renewal of the MOA in 2008 and 2013. The adopted Regional Stormwater Management Program Goals, which guide the regional program, are:

- Manage stormwater quantity and quality to the maximum extent practicable (MEP).
  - Implement best management practices (BMPs) and retrofit flood control projects to provide water quality benefits.
  - Support site planning and plan review activities.
  - Manage pesticide, herbicide and fertilizer applications.
- Implement public information activities to increase citizen awareness and support for the program.
- Meet the following needs of citizens:
  - Address flooding and drainage problems.
  - Maintain the stormwater infrastructure.
  - Protect waterways.
  - Provide the appropriate funding for the program.
- Implement cost-effective and flexible program components.
- Satisfy VPDES stormwater permit requirements.
  - Enhance erosion and sedimentation control.
  - Manage illicit discharges, spill response, and remediation.

THE REGIONAL PROGRAM

The Regional Stormwater Management Program initially focused on activities that supported the permit compliance efforts of the six communities with Phase I VPDES Stormwater System Permits, technical assistance to the region's non-permitted communities and regional education and training to support all of the communities. The program has expanded to include the needs of the five communities with Phase II VPDES MS4 permits and the development of locally administered Stormwater Programs which were required starting July 1, 2014.

Phase I Localities

The current Phase I MS4 permits became effective on July 1, 2016. FY 2016-2017 represents the first year of the five-year permit cycle. This year, the permittees were focused on revising their MS4 Program Plans to incorporate the requirements of their new permits. The Program Plans were required to be submitted to DEQ for review and approval on July 1, 2017.

Phase II Localities

The Phase II General Permit was reissued on July 1, 2013. FY 2016-2017 represents the fourth year in the permit cycle. The permittees continue to implement their first Chesapeake Bay Action Plans, which were submitted in FY 2014-2015. Their first local TMDL Action Plans were due to DEQ on July 1, 2016.

Both the Phase I and Phase II Localities continue to implement their local Stormwater Programs, train staff on stormwater issues, and meet education and outreach requirements. HRPDC staff developed training materials and hosted various webcasts to assist with these efforts. More detailed descriptions are available in the *Training* section of this report. askHRgreen.org conducted regional media campaigns for pet waste reduction, proper lawn maintenance, and reduction of fats, oils, and grease.

INFORMATION EXCHANGE

The cornerstone of the Regional Stormwater Program continues to be the exchange of information. This is accomplished through regular monthly meetings to address topics of regional importance, as well as crosscutting issues that affect local stormwater, planning, public works and public utilities staff. In addition, various agencies and organizations utilize this regional forum to engage and inform local governments, as well as to gather feedback.

Monthly Meetings

The seventeen communities participate in the HRPDC Regional Stormwater Program and their staffs meet twice a month. The Stormwater Workgroup meetings provide an opportunity for local stormwater managers to exchange information about successful program activities, utility structures and policies, and technical challenges. The HRPDC Regional Environmental Committee meetings include local stormwater and planning staff plus cooperating agencies such as the Department of Conservation and Recreation (DCR), the DEQ, the Virginia Department of Transportation, the Hampton Roads Sanitation District (HRSD), and the US Navy.

State and Federal Agency Program Briefings

Representatives of state and federal agencies frequently brief the Committee on developing issues, regulatory guidance and technical programs. During the year, the Committee was briefed by representatives of the Virginia Coastal Zone Management Program on the native plants guide, the DEQ Tidewater Regional Office on local TMDLs, the Commonwealth Center for Recurrent Flooding Resiliency on the technical assistance services they offer, the Virginia Department of Health Division of Shellfish Sanitation on their bacteria source tracking projects,

the Virginia Master Naturalists on their training program, and the DEQ Central Office on Chesapeake Bay TMDL Phase III Watershed Implementation Plan outreach.

Regional Water Quality Technical Workgroup

In FY 2015, the HRPDC established the Regional Technical Environmental Workgroup in order to provide a forum for local government staff from various departments and consultants to discuss technical details of the implementation of the Chesapeake Bay TMDL as well as local TMDLs. In FY 2016, the name of the Workgroup was changed to the Regional Water Quality Technical Workgroup to more accurately reflect the topics of discussion.

The objectives of the Workgroup are to discuss technical aspects of restoration projects and research, discuss research and development of alternative BMPs, help set regional priorities for approval of BMPs for the Bay TMDL, and develop research priorities for filling data gaps. Meetings are open to the public and are held quarterly. The Workgroup serves an advisory role to the Regional Environmental Committee. In FY 2017, three meetings were held. In December 2016, Mr. Fred Cunningham (DEQ-Central Office) spoke to the group regarding the state's interpretation of the Federal MS4 Remand Rule and the state study to evaluate BMP implementation in areas with a seasonally high groundwater table. In March 2017, Dr. Jeff Cornwell (University of Maryland Center for Environmental Science) presented his research on the availability of nutrients in eroding wetland sediments and gave an update on the status of the oyster aquaculture CBP Expert Panel. And finally, in June 2017, Mr. James Davis-Martin (DEQ-Central Office) spoke about the Phase 6 model inputs and BMP strategies for Virginia going forward.

PUBLIC EDUCATION

askHRgreen.org

The HR STORM committee, consisting of local stormwater education/public information staff, was established in 1997 to support development and operation of the stormwater education program. Beginning in FY 2011, the HRPDC environmental education programs were combined into a single public awareness program and central resource for environmental education in Hampton Roads known as askHRgreen.org. In June 2011, the askHRgreen.org website launched. The website contains information on earth-friendly landscaping ideas and pointers for keeping local waterways clean, recycling tips, and simple steps to make local living easy on the environment. It also includes a blog written by a team of local experts who work in the region's municipal utility and environmental divisions.

The stormwater education subcommittee of askHRgreen.org continues to meet on a monthly basis to discuss education priorities for stormwater. In FY 2017, the subcommittee focused on ensuring that the regional education campaign fulfills the outreach requirements of the current Phase II General Permit and many of the outreach objectives of the individual Phase I permits. The subcommittee also continued the program to distribute pet waste stations to interested community members throughout Hampton Roads. The activities conducted through the askHRgreen.org campaign for the year are summarized in the askHRgreen.org Annual Report.

TRAINING

Since 2004, HRPDC staff has worked with the MS4 permittees to develop and conduct training programs for local government staff. The table below provides a summary of the FY 2017 programs.

Training Topic	**Date**
Center for Watershed Protection – Incentivizing BMP Installation in Communities with Stormwater Utilities (webcast)	Sept 2016
Center for Watershed Protection – Retrofitting Revisited Forward Into the Past (webcast)	Oct 2016
Center for Watershed Protection – Stormwater Contaminants of Emerging Concern (webcast)	Mar 2017
Center for Watershed Protection – Nutrient Trading (webcast)	May 2017
Center for Watershed Protection – Making Urban Trees Count (webcast)	June 2017
IDDE in the Coastal Plain – Field Guide	Apr 2017
Identifying Illicit Discharges in the Coastal Plain – Video 1	Apr 2017
Tracking and Eliminating Illicit Discharges in the Coastal Plain – Video 2	Apr 2017
Excal Visual - Stormwater Pollution Prevention – Bulk Video Purchase	May 2017

Webcasts

The Stormwater Regional Workgroup purchased a series of webcasts from the Center for Watershed Protection to view throughout FY 2017. HRPDC hosted the webcasts so that one subscription could be shared.

Illicit Discharge Detection and Elimination (IDDE) in the Coastal Plain

Using grant funds provided by the National Fish and Wildlife Foundation, HRPDC staff, along with consultant partners, completed the IDDE in the Coastal Plain training project in May 2017. The final project deliverables are unique resources that are specifically designed to enhance capacity of the MS4 communities in the Coastal Plain. The project team produced two IDDE training videos and a customizable Field Guide.

The first video, *Identifying Illicit Discharges in the Coastal Plain*, is geared towards municipal staff from departments, such as Parks and Recreation, Utilities, Fire, and Police, who may

witness and report discharges. The video addresses what a suspected illicit discharge might look like and runs for 15 minutes.

The second video, *Tracking and Eliminating Illicit Discharges in the Coastal Plain*, is targeted to environmental staff who will conduct investigations to determine the source of a suspected illicit discharge and take steps to eliminate it. The video covers storm drain mapping, how to account for tidal influences, and field testing parameters. The video is 12 minutes long.

The field guide, *Illicit Discharge Detection and Elimination Field Guide for the Coastal Plain: How to Identify and Quickly Report Pollution Problems*, includes descriptions and photographs of the most common pollution problems, characteristics of illicit discharges, and written procedures.

Stormwater Pollution Prevention Videos

Excal Visual Inc. produces an extensive line of environmental training videos covering topics such as spill response, hazardous waste management, and stormwater management. Several localities were interested in purchasing pollution prevention training kits. HRPDC staff coordinated with Excal Visual Inc. over several months to evaluate purchasing options. The localities were able to purchase training kits at a discounted rate based on volume. By placing a regional order of fourteen videos, the localities were able to obtain them at half the original cost.

LEGISLATIVE & REGULATORY MONITORING

This element of the program involves monitoring state and federal legislative and regulatory activities that may impact local stormwater management programs. HRPDC staff in cooperation with the Committee develops consensus positions for consideration by the Commission and local governments. The level of effort devoted to this element has increased significantly over the years. During 2016-2017, the regional emphasis was on the fees related to the consolidated Virginia Erosion and Stormwater Management Program, developing guidelines for the use of proprietary BMPs for stormwater regulation compliance, the Phase II MS4 General Permit reissuance, the new individual MS4 permit for the Virginia Department of Transportation, the state nutrient trading regulations, the state's study on the use of stormwater practices in areas with a seasonally high water table, and development of Virginia's Phase III Watershed Implementation Plan for the Chesapeake Bay TMDL. For each issue, HRPDC staff provided updates to the Regional Stormwater Workgroup or the Regional Environmental Committee, collected input, and submitted comments on behalf of the Region. If a stakeholder group was assembled for a particular issue, then the Region nominated a representative to serve on behalf of the localities.

Fees Related to the Consolidated Virginia Erosion and Stormwater Management Program

In FY 2017, HRPDC served on the Stakeholders Advisory Group to evaluate the fees associated with the Erosion and Sediment Control and Stormwater Management combined program. There is a state fee structure that specifies the fees to be paid for coverage under the General

Permit for Discharges of Stormwater from Construction Activities that varies according to the disturbed acreage. It states the minimum amount to be collected by the locality, and the portion required by DEQ. The Stakeholders Advisory Group was charged with determining whether the fee structure is adequate to fund the program. Regional input was focused on preserving a locality's flexibility to increase permit fees as needed to support the local program. The Stakeholder Advisory Group reached consensus that DEQ cannot fund the state portion of the program with the current fee structure. It is anticipated that a new Advisory Group will be formed to evaluate options for increasing DEQ's funding for the program.

Proprietary BMPs for Stormwater Compliance

The new post-construction water quality requirements require approval from DEQ for use of proprietary BMPs in Virginia. The Stormwater BMP Clearinghouse Committee was established in order to provide guidance to the DEQ on BMP listing criteria, Clearinghouse website content, and database design. Regional input centered on defining the proposed role of the Clearinghouse in approving non-proprietary BMP pollutant removal efficiencies.

At the end of FY 2014, the DEQ issued interim guidance that describes a process for approving these proprietary BMPs and assigning pollutant removal credits: "Interim Use of Stormwater Manufactured Treatment Devices (MTDs) to Meet the New Virginia Stormwater Management Program (VSMP) Technical Criteria, Part IIB Water Quality Design Requirements." In FY 2015, the Clearinghouse Committee focused on the approval process for MTDs and discussed how and when the guidance should be updated or replaced with regulations. HRPDC staff has been involved with a cooperative effort to request that DEQ add sizing criteria to the Guidance. In FY 2016, DEQ began the process of revising the guidance and updating the BMP Clearinghouse to include sizing for MTDs. That process remains ongoing. In FY 2017, HRPDC staff has been involved with parallel efforts by the Chesapeake Bay Program (CBP) and the Water Environment Federation to develop testing protocols for MTDs.

Phase II MS4 General Permit Reissuance

The Phase II MS4 general permit expires on June 30, 2018. HRPDC staff served on the Technical Advisory Committee established to assist DEQ with revising the permit language. The Technical Advisory Committee met nine times from October 2016 through May 2017 and reviewed all sections of the permit twice.

The federal MS4 Remand Rule ("Rule") was finalized in November 2017, and the general permit has to be updated to comply. DEQ is following the Traditional Approach outlined in the Rule which requires the general permit to contain clear, specific, and measurable requirements. For example, for minimum control measure 1, public education and outreach, permittees are to implement a certain number of strategies that they select from the list of DEQ- or CBP-approved BMPs provided in the permit.

Regional input was focused on preserving a permittee's flexibility to implement BMPs that work best for them. DEQ intends to share a final draft of the permit with the Technical Advisory Committee and the EPA in September 2017 for review. A formal public comment

period will be held this fall. DEQ has planned to submit the final permit to the State Water Control Board for approval in November 2017.

Virginia Department of Transportation Individual MS4 Permit

Instead of continuing coverage under the Phase II MS4 general permit, DEQ issued VDOT an individual MS4 permit with an effective date of July 1, 2017. HRPDC staff followed the development of the VDOT permit closely to monitor any potential precedent that could be set for future locality MS4 permits. The draft VDOT MS4 permit went out for public notice on May 4, 2017. Some of the permit conditions were different than what had been discussed during the Technical Advisory Committee meetings for the Phase II general MS4 permit. HRPDC submitted comments to request a consistent approach across all of the VDPES permits, specifically: remove the requirement for DEQ to approve the MS4 Program Plan; remove "dechlorinated" from the water line flushing exemption; remove the requirement to track routine BMP maintenance activities; and finally, ensure that the compliance standard for local TMDLs is to implement BMPs from the list provided. The final VDOT MS4 permit became effective on July 1, 2017, and the permit language is more closely aligned with the positions DEQ had taken during the meetings for the Phase II MS4 general permit.

Virginia Nutrient Trading Regulations

In 2012, the Virginia General Assembly passed legislation requiring the State Water Control Board to adopt regulations for the certification of nonpoint source nutrient credits. Nonpoint credits include credits generated from agricultural and urban stormwater BMPs, management of animal feeding operations, land use conversion, stream or wetlands restoration, shellfish aquaculture, and other established or innovative methods of nutrient control or removal. Virginia's current trading program involves exchanges between point sources. This regulation is another step towards a successful trading program because it will make additional nonpoint source nutrient credits available for point source or nonpoint source trades. This expanded trading program is part of the overall goal of meeting the reductions assigned by the Chesapeake Bay TMDL.

The regulation will establish the process for the certification of nonpoint source nitrogen and phosphorus nutrient credits and assure the generation of the credits. The regulation includes application procedures, baseline requirements, credit calculation procedures, release and registration of credits, compliance and reporting requirements for nutrient credit-generating entities, enforcement requirements, application fees, and financial assurance requirements.

From FY 2013 to FY 2017, HRPDC staff has served on the Regulatory Advisory Panel established to assist the DEQ in developing the certification regulations. The DEQ proposed the Regulations for public comment in the Virginia Registrar on December 29, 2014. The HRPDC submitted comments to the DEQ in March 2015 that: supported the definition of management area; requested that a public hearing be held for nutrient certification requests; asked for clarification of credits purchased within MS4s by private parties; and suggested revisions to ensure that the regulations are protective of local water quality.

In FY 2016, the DEQ reconvened the Regulatory Advisory Panel to discuss "Innovative Practices,

Perpetual Nutrient Credits/Permanence, Stream Restoration/Mitigation Banking, and Term Nutrient Credits" based on the number of comments received during the public comment period.

In FY 2017, the Regulatory Advisory Panel met in April. DEQ presented a list of issues that have failed to reach consensus. It is anticipated that a revised regulation will go out for public comment later this year. Regional concerns with nutrient credit trading are focused on local water quality protection and the types of purchased credits MS4 permittees can claim in their Chesapeake Bay Action Plans. HRPDC staff continues to serve on the Regulatory Advisory Panel.

Application of the Postdevelopment Stormwater Management Technical Criteria in Areas with a Seasonal High Groundwater Table – House Joint Resolution 587 (2015)

In 2015, House Joint Resolution (HJR) 587 requested that DEQ perform a two-year study of the application of the postdevelopment stormwater management technical criteria in areas with a seasonal high groundwater table (SHGT). DEQ submitted the Phase 1 report to the General Assembly in January 2016. The Phase 1 report provided background information and summarized the challenges of implementing infiltration BMPs in the coastal plain.

In December 2016, DEQ released a draft of the Phase 2 report, which included a continued search and study of the literature and stormwater design manuals used in other states. The report includes examples of BMPs used in other states in areas with a SHGT that are not currently approved for use in Virginia. The HRPDC submitted comments that: requested CBP-approved BMPs be added to the BMP Clearinghouse; DEQ develop guidance on how to use BMPs effectively in areas with a SHGT; and requested a clear process for seeking DEQ approval of innovative BMPs.

The final Phase 2 report was presented to the General Assembly in January 2017. The recommendations will be revisited during the development of the regulations for the new consolidated Virginia Erosion and Stormwater Management Program.

Virginia's Phase III Watershed Implementation Plan for the Chesapeake Bay TMDL

The EPA established the Chesapeake Bay TMDL on December 29, 2010 that included a Phase I Watershed Implementation Plan (WIP) developed by Virginia that outlined the statewide strategies that would be implemented by each source sector to achieve TMDL compliance. In March 2012, Virginia submitted its final Phase II WIP to EPA that outlined the management actions that will be implemented by local governments. The HRPDC participated in both efforts on behalf of the local governments and submitted regional input for the Phase II WIP entitled, *Hampton Roads Regional Planning Framework, Scenario, and Strategies.*

Virginia is required to develop a Phase III Watershed Implementation Plan by 2018 that will describe how Virginia will achieve the required nutrient and sediment reductions from 2017 through 2025. In FY 2015, Virginia began the development of this plan with the establishment of the Chesapeake Bay Stakeholder Advisory Group. HRPDC staff continues to participate in the

Stakeholder Advisory Group and attended the meetings in December 2016 and July 2017. Meetings included the data inputs for the Phase 6 model, Virginia fertilizer law, the James River chlorophyll criteria study, and the midpoint assessment schedule.

As part of Virginia's efforts to develop the Phase III WIP, DEQ staff is leading outreach meetings across the state. HRPDC hosted the outreach meeting for Hampton Roads on June 1, 2017. DEQ staff reviewed the progress Virginia has made so far in reaching the goals of the TMDL, discussed the schedule for the development of the Phase III WIP, and explained the role of localities.

REGIONAL STUDIES

Water Quality Monitoring Study

In FY 2014, the HRPDC and the Phase I localities partnered with the USGS and the HRSD to create the Hampton Roads Regional Water Quality Monitoring Program (HRRWQMP). The purpose of the study is to characterize the sediment and nutrient loadings from the major urban land-uses in the Hampton Roads region. The data collected during the first three to five years will serve as a baseline for nutrient and sediment loads from the MS4s prior to implementation of BMPs to comply with the Chesapeake Bay TMDL. In addition these measured sediment and nutrient loads will be compared to the loading rates in the Chesapeake Bay Watershed Model and used to improve the accuracy of the model in the Coastal Plain. In FY 2015, the locations of the 12 stations (2 per Phase I locality) were selected. Seven stations were installed. In FY 2016, three additional stations were installed. In FY 2017, the remaining two stations were brought online. The twelve stations are collecting storm event samples, which are analyzed for nutrients and sediments. The stations continuously monitor flow, turbidity, and conductivity. Additional information on the project objectives, site locations, and data collected can be viewed here: http://va.water.usgs.gov/HRstormwater/index.html.

The HRRWQMP was incorporated into the new Phase I MS4 permits. HRPDC staff is developing an Annual Report that includes the locations of monitoring stations, a summary of available data, and an interpretation of the data to include in the Phase I MS4 Annual Reports. The report is based on the annual update presented to the Regional Stormwater Workgroup by Mr. Aaron Porter (USGS).

Stormwater Program Matrix

A comprehensive stormwater program matrix, including Phase I and Phase II communities, was developed in FY 2000 to address both utility and programmatic issues. HRPDC staff coordinates with local government stormwater program staff to update the information in the matrix annually.

Local TMDL and Implementation Plan Development

The state has developed a substantial number of TMDL Studies and TMDL Implementation Plans. This work follows the classification of the waters by the state as meeting or failing to

meet water quality standards. Water bodies that fail to meet water quality standards are classified as "impaired," triggering the requirement to prepare the TMDL study. HRPDC staff has coordinated regional involvement in the "impaired waters" listing and TMDL development process. This has entailed providing opportunities through the Regional Environmental Committee for education of local government staff on the TMDL process, response to the development of TMDLs themselves, and participation in the development of implementation plans.

To assist the region's localities in addressing this requirement and ensuring that Implementation Plans are feasible, HRPDC staff is working with the DEQ through a cooperative regional partnership to coordinate the TMDL study process with the localities and to develop the required Implementation Plans. In FY 2014, the HRPDC partnered with the DEQ, Hampton Roads localities, and the HRSD to develop a study plan to collect stormwater samples from the Elizabeth River watershed and analyze them for polychlorinated biphenyl (PCB) concentration in order to support the development of the Lower James and Elizabeth River PCB TMDL. Stations in Chesapeake, Norfolk, Portsmouth, and Virginia Beach were selected because they met the criteria for representative land uses and watersheds where PCBs could be monitored. In FY 2015, water samples were collected at these stations by the HRSD and sent to the DEQ selected laboratory for PCB analysis. The MS4 localities in Hampton Roads funded the data collection and the DEQ paid for the analysis. The PCB TMDL for the Lower James and Elizabeth River was expected to be developed in FY 2017; however, the DEQ experienced a number of staffing changes and other delays. It is expected sometime during FY 2018.

HRSD Bacteria Source Tracking

HRSD began a pathogen program to conduct bacteria source tracking in June 2015. The program was designed as a way to partner with local governments to focus source identification efforts. HRSD is providing sampling and analyses services while the local governments are providing staff time for the investigations. HRPDC hosted Dr. Raul Gonzalez (HRSD) as he introduced the program and sought locality partners. Several localities have taken advantage of the program so far.

TECHNICAL ASSISTANCE

The HRPDC continues to serve as a clearinghouse for technical assistance to the localities, as well as a point of contact in arranging short-term assistance from one locality to another. The HRPDC Committee structure also provides a forum for state and federal regulatory agency staff to meet with the region's localities to discuss evolving stormwater management regulations and other emerging regulatory issues. In addition, HRPDC staff provides technical information and advice to all of the participating localities on a wide variety of issues upon request. In FY 2017, technical assistance to localities was focused on disseminating information related to implementation of and compliance with the Chesapeake Bay TMDL, providing training resources for locality stormwater staff, and evaluating the real world challenges of interpreting and implementing the local stormwater programs.

MEMORANDUM OF AGREEMENT

The Regional Stormwater Management Program was established in 1996 as a formal program of the Hampton Roads Planning District Commission with support and participation from the seventeen member local governments. An MOA was created that outlines the basic regulatory and programmatic premises for the cooperative program, incorporating the Regional Program Goals, described earlier in this report. The MOA establishes a division of program responsibilities among the HRPDC and the participating localities, addresses questions of legal liability for program implementation, and includes other general provisions. The MOA is reauthorized by the signatories every five years and was renewed in 2013.

PERMIT ADMINISTRATION AND REPORTING SYSTEM (PARS)

In an effort to streamline reporting and capture data more effectively for local governments, the permitted localities pooled resources to develop the Permit Administration and Reporting System, or PARS. The region contracted with URS Corporation to develop a web-based data tracking and reporting system. The system allows local governments to catalog development sites and their associated BMPs. The system also enables localities to capture inspection information, catalog stormwater outfalls, document illicit discharge investigations and record public education information. Users can query a variety of reports to satisfy the reporting requirements of their stormwater permits. In FY 2016, the Regional Stormwater Workgroup agreed to retire PARS on June 30, 2016 for all users except Chesapeake, James City County, Norfolk, Suffolk, and Williamsburg as it no longer meets today's reporting and tracking needs. These five localities agreed to continue to support PARS through December 2016. Norfolk and Chesapeake continue to support the database into FY 2018 while alternative systems are under development in those localities.

RELATED PROGRAMS AND PROJECTS

In various combinations, the eleven MS4 communities, as well as their non-permitted counterpart communities, participate in a wide variety of related programs. These programs are noted here because of their relationship with stormwater management.

Chesapeake Bay Program Participation

The Chesapeake Bay Program (CBP) is a regional partnership that has led and directed the restoration of the Chesapeake Bay since 1983. CBP partners include federal and state agencies, local governments, non-profit organizations and academic institutions. Partners work together through the CBP's goal teams, workgroups and committees to collaborate, share information, and set goals. Since the development of the Chesapeake Bay TMDL in December 2010, the Hampton Roads Region has devoted considerable attention to the ongoing CBP. HRPDC and locality staff have participated in the deliberations of many CBP committees and work groups dealing with urban stormwater, land development, watershed planning, land use development, modeling and local government's role in the Bay Program. HRPDC staff has continued to follow the activities of the CBP primarily through participation in the Urban Stormwater Workgroup,

the Land Use Workgroup, and the Water Quality Goal Implementation Team. HRPDC staff serves on the Climate Resiliency Workgroup, which was established to evaluate the impacts of climate change on the CBP's goals and activities. HRPDC staff participated in the Local Area Targets Task Force, which was charged to make recommendations whether the Phase III WIPs should include local area targets and if so, options for how these targets could be expressed in different jurisdictions. HRPDC staff also serves on Virginia's WIP III Stakeholder Advisory Group (SAG). HRPDC staff continues to participate in the development of the ongoing James River Chlorophyll-a study.

Chesapeake Bay Preservation Act Program

Fifteen of the seventeen member localities continue to implement programs in response to the Virginia Chesapeake Bay Preservation Act (CBPA). Stormwater management is one component of those programs. Although the CBPA is not formally part of the multi-state CBP, described above, it serves as one element of local government implementation actions to comply with their MS4 Permits and to meet the goals of the CBP.

HRSD - Sustainable Water Initiative for Tomorrow (SWIFT)

HRSD is developing the SWIFT project, their multi-year initiative that will take treated wastewater, purify it to drinking water standards, and then inject it into the Potomac Aquifer. In addition to replenishing the water in the aquifer, the SWIFT project will significantly reduce the volume of treated wastewater reaching the James, York, and Elizabeth Rivers. The project will generate enough nutrient and sediment credits to meet almost all of the regional urban stormwater waste load allocations in the Chesapeake Bay TMDL. Mr. Ted Henifin (General Manager for HRSD) has given several presentations on the project at the Regional Environmental Committee and Regional Stormwater Workgroup meetings and has described the advantages of using the credits generated by the project to meet MS4 pollution reduction requirements.

HRSD, HRPDC staff, and the MS4 permittees collaborated to develop a regional template for the memorandums of agreement to establish the framework for trading stormwater pollutant reduction credits. It is anticipated that individual MOAs with each of the eleven MS4 permittees will be signed by October 1, 2017.

CONCLUSION

Through the Hampton Roads Planning District Commission, the seventeen localities of Hampton Roads have established a comprehensive Regional Stormwater Management Program. This program provides technical assistance, coordination, comprehensive technical studies and policy analyses and stormwater education. The Regional Stormwater Management Program enables the region's localities to participate actively and effectively in state and federal regulatory matters. It has enhanced the ability of the eleven localities with VPDES Permits for their Municipal Separate Storm Sewer Systems to comply with permit requirements.

The Regional Stormwater Management Program provides a mechanism through which the strengths of the seventeen local stormwater programs can be mutually supportive. It allows for cost-effective compliance with permit requirements, resolution of citizen concerns with stormwater drainage and water quality matters, promotes regional consistency, and achievement of improved environmental quality throughout the Hampton Roads Region.