

**TDEC Small MS4 Annual Report
July 1, 2009 – June 30, 2010
Report due September 30, 2010**

Permittee Tracking No. TNS 075582

Permittee Name: Knox County MS4, Knox County, Tennessee

This report must be signed by a ranking elected official or by a duly authorized representative of that person. See signatory requirements in part 6.7 of the small MS4 general permit.

“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.”

Signed

Dated

Tim Burchett, Knox County Mayor
Printed Name and Title

Send the annual report to the two addresses shown on the next page.

	Division of Water Pollution Control 1625 Hollywood Drive Jackson, TN 38305-2222 (731) 512-1300	Decatur, Dyer, Gibson, Hardeman, Hardin, Haywood, Henderson, Henry, Lake, Lauderdale, McNairy, Madison, Obion, Weakly
Johnson City	TDEC Division of Water Pollution Control 2305 Silverdale Rd Johnson City, TN 37601 (423) 854-5400	Carter, Greene, Hancock, Hawkins, Johnson, Sullivan, Unicoi, Washington Counties
Knoxville	TDEC Division of Water Pollution Control 3711 Middlebrook Pike Knoxville, TN 37921 (423) 594-6035	Anderson, Blount, Campbell, Claiborne, Cocke, Cumberland, Grainger, Hamblen, Jefferson, Knox, Loudon, Monroe, Morgan, Roane, Scott, Sevier, Union
Memphis	TDEC Division of Water Pollution Control 2510 Mt. Moriah Rd, Suite E-645 Memphis, TN 38115-1511 (901) 368-7939	Fayette, Shelby, Tipton
Nashville	TDEC Division of Water Pollution Control 711 RS Gass Boulevard Nashville, TN 37206 (615) 681-7000	Cheatham, Davidson, Dickson, Houston, Humphreys, Montgomery, Robertson, Rutherford, Stewart, Sumner, Williamson, Wilson

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Status of Compliance with Permit Conditions (5.4.1) Six Minimum Measures, BMPs and Milestones

A. Status of Compliance with BMP Milestones

The following table is designed for you to report the status of your progress in implementing storm water management BMPs. The table includes a list of BMPs by the code number. These BMP codes refer to the BMPs, and the respective codes, that you submitted to us in your NOI. [Or, in annual reports for years 2-5, these codes refer to amended BMPs as you reported to us in the previous year's annual report]. Add rows if you have more than four BMPs; e.g., 1A, 1B, 1C, 1D, 1E, 1F.

Likewise, the milestone refers to the Year 1 milestone that you included in your NOI. [Or, in subsequent annual reports, the milestone refers to the milestone that you reported to us in the previous year's annual report.]

You must check Yes or No for each of the BMPs that you submitted in your NOI.

- Check **Yes** if the BMP is essentially unchanged and you accomplished the milestone. Indicate a date of completion.
- Check **No** if you did not accomplish the milestone. If you check No, and you are not changing or replacing the BMP or the milestones, indicate the date you expect to complete the milestone.
- Check in one of the **Amended** columns if you wish us to recognize an amended BMP or an amended milestone. If you are amending the BMP, most likely you will also need to amend the milestone, and in that case, check both Amended BMP and Amended Milestone. If the BMP is unchanged, but you are changing milestones in subsequent years, check in the Amended Milestones column.
- If you indicate an amended BMP or milestone, then you should check in last column as well, indicating that you describe the amendment below and provide the necessary analysis in Part 0.

BMP Code	Milestone	Yes	No	Date completed or If "No," Date to be completed	Amended/Replaced		An "Amended" response is described below and in Part 0.
					BMP	Milestones	Yes/No
1A	Year 1-7	X		June 2004 (on-going)			
1B	Year 1-7	X		June 2004 (on-going)			
1C	Year 1-7	X		June 2004 (on-going)			
1D	Year 1-7	X		June 2004 (on-going)			
1E	Year 1-7	X		June 2004 (on-going)			
1F	Year 1-7	X		June 2004 (on-going)			
2A	Year 1-7	X		June 2004 (on-going)			
2B	Year 1-7	X		June 2004 (on-going)			

2C	Year 1-7	X	June 2004 (on-going)		
2D	Year 1-7	X	June 2004 (on-going)		
2E	Year 1-7	X	June 2004 (on-going)		
3A	Year 1	X	June 2004 (on-going)		
	Year 2	X	June 2005		
	Year 3	X	June 2006		
	Year 4	X	June 2007		
	Year 5	X	June 2008		
	Year 6	X	June 2009		
	Year 7	X	June 2010		
3B	Year 1	X	June 2004 (on-going)		
	Year 2	X	June 2005		
	Year 3	X	June 2006		
	Year 4	X	June 2007		
	Year 5	X	June 2008		
	Year 6	X	June 2009		
	Year 7	X	June 2010		
3C	Year 1	X	June 2004 (on-going)		
	Year 2	X	June 2005		
	Year 3	X	June 2006		
	Year 4	X	June 2007	X	Yes
	Year 5	X	June 2008		
	Year 6	X	June 2009		
	Year 7	X	June 2010		
3D	Year 2	X	June 2005		
	Year 4	X	June 2006		
3E	Year 1	X	June 2004		
	Year 2	X	June 2005		
	Year 3	X	June 2006		
	Year 4	X	June 2007	X	Yes

	Year 5	X	June 2008
	Year 6	X	June 2009
	Year 7	X	June 2010
3F	Year 4	X	June 2007
	Year 5	X	June 2008
	Year 6	X	June 2009
	Year 7	X	June 2010
4A	Year 1-7	X	June 2004 (on-going)
4B	Year 1-7	X	June 2004 (on-going)
4C	Year 2	X	June 2005
4D	Year 2	X	May 2006
4E	Year 2	X	June 2005
	Year 4	X	June 2007
4F	Year 1	X	June 2004 (on-going)
	Year 2	X	June 2005 (on-going)
	Year 3	X	June 2006 (on-going)
	Year 4	X	June 2007 (on-going)
	Year 5	X	June 2008 (on-going)
	Year 6	X	June 2009 (on-going)
	Year 7	X	June 2010 (on-going)
4G	Year 2	X	May 2005
	Year 3	X	June 2006
4H	Year 1-7	X	June 2004 (on-going)
5A	Year 1	X	September 2002
	Year 2	X	November 2003
	Year 3	X	November 2004
	Year 4	X	January 2005
	Year 5	X	January 2006
	Year 6	X	January 2006
	Year 7	X	January 2006

5B	Year 1-7	X	June 2004 (on-going)		
5C	Year 5	X	June 2008		
6A	Year 1	X	February 2004		
	Year 4	X	June 2007		
	Year 5	X	June 2008		
6B	Year 1	X	July 2003		
6C	Year 1	X	July 2003		
6D	Year 1	X	December 2004 (on-going)		
	Year 2-4	X	July 2006 (on-going)		
	Year 5	X	June 2008		

B. Status of compliance for amended and replaced BMPs

For every amended/replaced BMP and/or milestone above, provide the compliance status with respect to the new milestone for this year. The new milestones must be detailed in Part VIII.

BMP Code	Milestone	Milestone Description	Yes	No	Date completed or If "No," Date to be completed
3C	Year 4	Develop and implement education training and tools for all operators of "hot spot" businesses.	X		June 2007
3E	Year 4	Continue mapping existing and new outfalls in the Knox County jurisdictional area, with at least 50% coverage complete.	X		June 30, 2007

Explanation for "No" Responses in either table above

BMP Code	Explanation for "No" Response

Assessment of the appropriateness of identified BMPs (5.4.1)

For every BMP or amended BMP, assess the appropriateness of the BMP in the following table. For the first year annual report, assume “Good” unless you have evidence to support an inappropriate, minimal or superior assessment.

BMP Code	Short title	We consider the listed BMP appropriate to the following degree:				
		Inappropriate	Minimal	Good	Superior	
1A	Grading Permit Brochure			X		
1B	Adopt-a-Watershed Program			X		
1C	Water Quality Forum World Wide Web Site			X		
1D	Tennessee Growth Readiness			X		
1E	Grab Bag Programs/Events			X		
1F	Erosion/Sediment Control Training			X		
2A	Water Quality Forum			X		
2B	Adopt-a-Stream			X		
2C	Environmental Stewardship Program			X		
2D	River/Stream Clean-up & Awareness Days			X		
2E	Watershed Initiatives				X	
3A	Illicit Discharge Complaint Tracking Database			X		
3B	Non-Stormwater Screening Area Prioritization Map			X		
3C	Illicit Discharge Education for Citizens			X		
3D	Stormwater Ordinance Amendments			X		
3E	Outfall Mapping			X		
3F	Illicit Discharge Detection			X		
4A	Pre-Construction Meetings for Site Development & Capital Improvement Projects			X		
4B	Construction Site Inspections			X		

4C	Buffer Zone Protection			X	
4D	Erosion & Sediment Control Note Required on Design Plans			X	
4E	Stormwater Ordinance Amendments			X	
4F	Erosion & Sediment Control Design Education			X	
4G	Grading Permit Requirements – Tracking Responsible Parties			X	
4H	Complaint Receipt			X	
5A	Knox County Site Planning Roundtable			X	
5B	Environmental Stewardship Program			X	
5C	Stormwater Management Ordinance			X	
6A	Pollution Prevention Training			X	
6B	Salt Storage Facility			X	
6C	Truck Wash Rack			X	
6D	Pollution Prevention Policy			X	

Progress with respect to MEP and Measurable Goals (5.4.1)

Element 5.4.1 requires you to report progress towards achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable (MEP)¹, and the measurable goals for each of the minimum control measures.

A. MEP

Of the [32]² BMPs that comprise our storm water management program in the six minimum measures, we have accomplished Year 7 milestones for [32 of 32]³. This does / does not represent substantial progress in achieving the statutory goal of reducing the discharge of pollutants to the MEP.

The number above represents all BMPs and the milestones associated w/them, even if there was not a milestone to meet in year 5.

B. Measurable goals

Of the [32] BMPs shown above, we have accomplished Year 7 milestones for [32 of 32]. This represents progress toward achieving the measurable goals identified in our original NOI and in this annual report. For the measurable parameters/goals we have been able to track for this past year, the measurements are recorded in Part IX .

Signed

Dated

Tim Burchett, Knox County Mayor
Printed Name and Title

Go to next page.

Results of Information Collected and Analyzed (5.4.2)

Element 5.4.2 of the permit requires you to report results of information collected and analyzed, if any, during the reporting period, including monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP

A brief summary of information, including analytical and/or non-analytical monitoring results, is listed below. Detailed information is collected and available at the offices of the MS4.

Parameter	Relevant BMP, or Purpose of Information	Conclusions
Stream Assessments for the Lower Clinch Watershed: Beaver Creek Erosion Survey and Buffer Survey	TMDL for siltation and habitat alteration. Information necessary to identify sources and evaluate stream conditions for future retrofitting and restoration projects.	Erosion Survey: Rated on a 1-5 scale, 1 is severe and 5 is minor. Buffer Survey: Rated on a 1-5 scale, 1 is severe and 5 is minor. (Please See maps in Appendix A) Stream Assessment Data is on file at Knox Co. SW office.
Stream Assessments for the Ft. Loudoun Lake Watershed: Stock Creek Erosion Survey and Buffer Survey	TMDL for siltation and habitat alteration. Information necessary to identify sources and evaluate stream conditions for future retrofitting and restoration projects.	Erosion Survey: Rated on a 1-5 scale, 1 is severe and 5 is minor. Buffer Survey: Rated on a 1-5 scale, 1 is severe and 5 is minor. (Please See Appendix B) Stream Assessment Data is on file at Knox Co. SW office.
Lower Clinch Bacteriological 2008 Beaver Creek watershed—Knox Co. in conjunction w/TDEC. Five Samples in 30 days (July 23-August 20, 2008). Tested for Bacteria & Nutrients.	Testing for Bacteria and Nutrients—joint effort between Knox Co. & TDEC. Also, helps with identifying sources for the Pathogens TMDL.	Hines Branch did have consistently high results for EColi, but further testing, investigating, & evaluating needs to be done over time before accurate conclusions can be drawn.
Lower Clinch—Bullrun Creek watershed---Knox Co. w/Hallsdale-Powell & TVA. Testing for: TSS, Volatile SS, Fecal Coliform, EColi, Orthophosphates, Alkalinity, Ammonia, TKN, DO, Conductivity, pH, Total Phosphorus, BOD 5	TMDL for pathogens. Information is necessary to identify sources and evaluate possible solutions to address problems.	Have been monitoring for one year. Not enough data has been collected to draw conclusions at this time. Lower Clinch TMDL Monitoring Plan & Data in Appendix D.
Ft. Loudoun—Stock Creek watershed. Knox Co., TVA, & Knox Chapman have done Benthics testing in 2009.	Information necessary to evaluate health of stream for siltation and habitat alteration, etc. Also, to identify possible sources.	Not enough data has been collected to draw conclusions at this time. Ft. Loudoun TMDL Monitoring Plan & Data in Appendix C.
Ft. Loudoun—Stock Creek watershed. Knox Co. w/Knox Chapman and TVA. Testing for: Fecal Coliform, EColi, TSS, & Turbidity in 2009-2010.	TMDL for pathogens. Information is necessary to identify sources and evaluate possible solutions to address problems.	Have been monitoring for two years. Did find a chlorine leak from Knox Chapman on Casteel Branch that may be the cause of the poor benthics test results in the stream. Chlorine leak has been addressed. Ft. Loudoun TMDL Monitoring Plan & Data in Appendix C.

Planned Activities and Proposed Changes to the Storm Water Management Program (5.4.3 and 5.4.4)

A. Storm water activities planned for next reporting cycle

Element 5.4.3 requires a summary of the storm water activities you plan to undertake during the next reporting cycle (including an implementation schedule).

The storm water activities planned for the next reporting cycle are the BMPs as reflected in our NOI and as amended (if any) in subsequent annual reports, including this annual report, and are as follows:

BMP Code	Title/Name of BMP	Milestone for next reporting cycle
		Permitting requirements in new permit may dictate changes to BMPs; Knox Co. will continue to implement all BMPs listed below unless changes are made in new NOI
1A	Grading Permit Brochure	Continue to distribute brochure
1B	Adopt-a-Watershed Program	Provide financial support equal to or exceeding \$15,000
1C	Water Quality Forum World Wide Web Site	Funding and support of Web site development. A project activity log documenting time, content, and financial contributions will be developed.
1D	Tennessee Growth Readiness	Provide support and promotion of the Tennessee Growth Readiness Program. As best as possible, maintain a log of TGR-based presentations made in the Knox County area.
1E	Grab Program/Events	Knox County will document support for the activities listed above (in the BMP) or any additional activities.
1F	Erosion/Sediment Control Training	Maintain documentation of staff training and monitor attendance of local offerings of the TDEC ESC class.
2A	Water Quality Forum	Continuation of involvement in Water Quality Forum activities. These activities will be documented by Knox County.
2B	Adopt-a-Stream	Continued support of Adopt-a-Stream by Knox County. The support will be documented in terms of time and financial contributions. Printed and digital media with information about Adopt-a-Stream program will be maintained by Knox County.
2C	Environmental Stewardship Program	Knox County will continue financial and staff support and make public presentations. Documentation will be made of activities.
2D	River/Stream Clean-up & Awareness Days	Continued support with documentation by Knox County.
2E	Watershed Initiatives	Knox County support of watershed initiatives in one or more Knox County watersheds. Activities and contributions will be documented.

3A	Illicit Discharge Complaint Tracking Database	Utilization of database and procedures.
3B	Non-stormwater Screening Area	Maintain map.
3C	Illicit Discharge Education	Develop and implement education training and tools for all operators of “hot spot” businesses.
3D	Stormwater Ordinance Amendments	There is no milestone for 2009-2010.
3E	Outfall Mapping	Continue mapping existing and new outfalls and obtain complete mapping coverage of the Knox County jurisdictional area.
3F	Illicit Discharge Detection	Continue implementation of detection program.
4A	Pre-Construction Meetings for Site Development and Capital Improvement Projects	Knox County will document pre-construction meetings.
4B	Construction Site Inspections	Continue inspection and maintain documentation in the form of site inspection logs.
4C	Buffer Zone Protection	There is no milestone requirement for 2009-2010.
4D	Erosion and Sediment Control Note Required on Design Plans	There is no milestone requirement for 2009-2010.
4E	Stormwater Ordinance Amendments	There is no milestone requirement for 2009-2010.
4F	Erosion and Sediment Control Design Education	All Knox County inspection and plans review staff will complete TDEC training (inspectors are only required to take Level I) and Knox County will advertise course and coordinate scheduling with TDEC.
4G	Grading Permit Requirements – Tracking Responsible Parties	There is no milestone requirement for 2009-2010.
4H	Complaint Receipt	Knox County will use a database to track and keep records of complaints received from the public. Also, develop and implement a protocol for receiving complaints, inspections, and enforcement.
5A	Knox County Site Planning Roundtable	Knox County will implement ordinance revisions, if appropriate.
5B	Environmental Stewardship Program	Knox County will continue financial and staff support and make public presentations. Documentation will be made of activities.
5C	Stormwater Management Ordinance	The Stormwater Management Ordinance will be updated, if appropriate and necessary.
6A	Pollution Prevention Training	There is no milestone requirement for 2009-2010.
6B	Salt Storage Facility	There is no milestone requirement for 2009-2010.
6C	Truck Wash Rack	There is no milestone requirement for 2009-2010.
6D	Pollution Prevention Policy	Knox County will implement and document a policy to be applied by all departments outlining pollution prevention practices and training protocols.

Additional, significant activities planned for the next reporting cycle are noted below.

Activity	Summary Description	Purpose
TMDL Monitoring – Ft. Loudoun	Monitoring plan as required by TMDL has been developed and is being implemented. (See Appendix C for plan & monitoring data)	Assessment of watershed conditions with regard to pollutants of concern.
TMDL Monitoring – Lower Clinch	Monitoring plan as required by TMDL has been developed and is being implemented. (See Appendix D for plan & monitoring data)	Assessment of watershed conditions with regard to pollutants of concern.

B. Proposed changes to storm water management program

Element 5.4.4 requires a report on proposed changes to your storm water management program, including changes to any BMPs or any identified measurable goals that apply to the program elements.

Amended and replacement BMPs (if any) are reflected in Part I.A. and Part VIII, and in the above table and will not be repeated here. Additional, proposed changes are noted below.

Change to Program	Summary Description	Rationale
3C – Illicit Discharge Education –Yrs. 4 & 5	Re-direction to orient training and tools for site operators of illicit discharge “hot spot” businesses. This re-orientation of the program is being developed with routine training for all operators of “hot spot” businesses to be made a requirement in the future by Knox County.	Owners and operators of “hot spot” land use sites are a more appropriate target audience because their activities have a direct effect on protection against the discharge of pollutants.
3E – Outfall Mapping – Yr. 4	Continue mapping existing and new outfalls in the Knox County jurisdictional area, with at least 50% coverage complete.	This milestone was changed to reflect the actual percentage of mapping completed in Yr. 4.

Water Quality Controls for Discharges to Impaired Waterbodies (3.1.2)

The table below lists impaired waterbodies affected by discharges from this MS4, the pollutants of concern, and the two BMPs we believe to be the most significant in controlling discharges of these pollutants.

Stream Name	Pollutants	Priority BMP 1	Priority BMP 2
<i>Beaver Creek and Tributaries (Grassy Creek, Meadow Creek, Knob Fork, Hines Branch, etc.)</i>	<i>Siltation, habitat alterations, pathogens, nutrients</i>	4B, Construction Site Inspections	2E, Watershed Initiatives (includes partnerships with Utilities, TVA, USDA and others to address habitat restoration, wastewater system repair or retrofit, and agricultural BMPs)
<i>Stock Creek and Tributaries (Twin Branch, Grandview Branch, McCall Branch, High Bluff Branch, Gun Hollow Branch, Casteel Branch)</i>	<i>Siltation, habitat alterations, pathogen</i>	4B, Construction Site Inspections	2E, Watershed Initiatives (includes partnerships with Utilities, TVA, USDA and others to address habitat restoration, wastewater system repair or retrofit, and agricultural BMPs)
<i>Bullrun Creek and Tributaries (Williams Branch, Foster Branch, North Fork Bullrun Creek)</i>	<i>Siltation, habitat alteration, pathogens</i>	4B, Construction Site Inspections	2E, Watershed Initiatives (includes partnerships with Utilities, TVA, USDA and others to address habitat restoration, wastewater system repair or retrofit, and agricultural BMPs)
<i>Roseberry Creek</i>	<i>Pathogens</i>	2E, Watershed Initiatives (includes partnerships with Utilities, TVA, USDA and others to address habitat restoration, wastewater system repair or retrofit, and agricultural BMPs)	3A, Illicit Discharge Complaint Tracking Database
<i>Swanpond Creek</i>	<i>Siltation, habitat alterations</i>	4B, Construction Site Inspections	2B, Adopt-a-Stream
<i>Little Flat Creek</i>	<i>Pathogens</i>	2E, Watershed Initiatives (includes partnerships with Utilities, TVA, USDA and others to address habitat restoration, wastewater system repair or retrofit, and agricultural BMPs)	3A, Illicit Discharge Complaint Tracking Database
<i>Flat Creek</i>	<i>Siltation, habitat alterations</i>	4B, Construction Site Inspections	2C, Environmental Stewardship Program
<i>Whites Creek</i>	<i>Habitat alterations, siltation</i>	4B, Construction Site Inspections	2E, Watershed Initiatives (includes partnerships

			with Utilities, TVA, USDA and others to address habitat restoration, wastewater system repair or retrofit, and agricultural BMPs)
<i>Sinking Creek</i>	<i>Siltation, habitat alterations, pathogens</i>	4B, Construction Site Inspections	2E, Watershed Initiatives (includes partnerships with Utilities, TVA, USDA and others to address habitat restoration, wastewater system repair or retrofit, and agricultural BMPs)
<i>Grable Branch</i>	<i>Oil & Grease, siltation, habitat alterations</i>	4B, Construction Site Inspections	3A, Illicit Discharge Complaint Tracking Database
<i>Roddy Branch</i>	<i>Siltation, habitat alterations, pathogens</i>	4B, Construction Site Inspections	2E, Watershed Initiatives (includes partnerships with Utilities, TVA, USDA and others to address habitat restoration, wastewater system repair or retrofit, and agricultural BMPs)
<i>Ft. Loudon Reservoir</i>	<i>PCBs</i>	No current sources for PCBs in MS4	

The table below lists impaired waterbodies for which the state has promulgated a TMDL. For the waterbodies indicated, we have complied with the requirements of the permit as noted by the check marks. [The table below includes two columns for two TMDLs. If additional space is needed, add additional table(s).]

	Waterbody Name/ Pollutant of Concern	Waterbody Name/ Pollutant of Concern
Permit Requirement	First, Second, Third, and Goose Creeks / Fecal Coliform	Baker, Williams, and Fourth Creeks/ Fecal Coliform
3.1.3.1 Is the pollutant likely to be found in storm water discharges from the MS4?	Yes	Yes
3.1.3.2 Does the TMDL include a pollutant wasteload allocation, implementation recommendations, or other performance requirements specifically for storm water discharges from your MS4?	Yes	Yes
3.1.3.3 Does the TMDL address a flow regime likely to occur during periods of storm water discharge?	Yes	Yes
3.1.3.4 If the above three questions are true, does implementation of existing storm water control measures meet the TMDL provisions?	Yes	Yes
3.1.3.4-Or are additional control measures necessary?	No, but others may be recommended and become apparent either through watershed initiatives or from monitoring data.	No, but others may be recommended and become apparent either through watershed initiatives or from monitoring data.
3.1.3.5 Current and planned control measures are documented.	Yes	Yes
3.1.3.6 Describe method to evaluate whether storm water controls are adequate to meet the requirements of the TMDL.	See Below	See Below
3.1.3.7 If additional or modified controls are necessary, describe the type and schedule for the control additions/revisions.	Please see pgs. 17-18. Increases in illicit discharge detection and elimination are being implemented and more are anticipated in the future.	Please see pgs. 17-18. Increases in illicit discharge detection and elimination are being implemented and more are anticipated in the future.

	Waterbody Name/ Pollutant of Concern	Waterbody Name/ Pollutant of Concern
Permit Requirement	Stock, Grand View Branch, High Bluff Branch, Gun Hollow Branch / Pathogens	Beaver and Bullrun Creeks/ Pathogens
3.1.3.1 Is the pollutant likely to be found in storm water discharges from the MS4?	Yes	Yes
3.1.3.2 Does the <u>TMDL</u> include a pollutant wasteload allocation, implementation recommendations, or other performance requirements specifically for storm water discharges from your MS4?	Yes	Yes
3.1.3.3 Does the TMDL address a flow regime likely to occur during periods of storm water discharge?	Yes	Yes
3.1.3.4 If the above three questions are true, does implementation of existing storm water control measures meet the TMDL provisions?	Yes	Yes
3.1.3.4-Or are additional control measures necessary?	No, but others may be recommended and become apparent either through watershed initiatives or from monitoring data.	No, but others may be recommended and become apparent either through watershed initiatives or from monitoring data.
3.1.3.5 Current and planned control measures are documented.	Yes	Yes
3.1.3.6 Describe method to evaluate whether storm water controls are adequate to meet the requirements of the TMDL.	See Below	See Below
3.1.3.7 If additional or modified controls are necessary, describe the type and schedule for the control additions/revisions.	Please see pgs. 17-18. Knox Co. in conjunction with Knox-Chapman and TVA are currently testing for pathogens in the Stock Creek Watershed and its tributaries. Also, increases in illicit discharge detection and elimination are anticipated in the future.	Please see pgs. 17-18. Knox Co. in conjunction with Hallsdale-Powell Utility District are currently testing for pathogens in the Beaver Creek Watershed. Also, increases in illicit discharge detection and elimination are anticipated in the future.

	Waterbody Name/ Pollutant of Concern	Waterbody Name/ Pollutant of Concern
Permit Requirement	Whites, First, Second, Third, Fourth, Sinking, Williams, Baker, Goose, Twin Branch, Casteel Branch, McCall Branch, Stock, Roddy Branch, Turkey, Little Turkey Creeks / Siltation & Habitat Alterations	Grable Branch, Williams Branch, Foster Branch, Bullrun, Hines Branch, Knob Fork, Grassy, Meadow, BeaverCreek/ Siltation & Habitat Alterations
3.1.3.1 Is the pollutant likely to be found in storm water discharges from the MS4?	Yes	Yes
3.1.3.2 Does the <u>TMDL</u> include a pollutant wasteload allocation, implementation recommendations, or other performance requirements specifically for storm water discharges from your MS4?	Yes	Yes
3.1.3.3 Does the TMDL address a flow regime likely to occur during periods of storm water discharge?	Yes	Yes
3.1.3.4 If the above three questions are true, does implementation of existing storm water control measures meet the TMDL provisions?	Yes	Yes
3.1.3.4-Or are additional control measures necessary?	Yes, a monitoring program has been approved by TDEC and is being implemented by Knox County at this time.	Yes, a monitoring program has been approved by TDEC and is being implemented by Knox County at this time.
3.1.3.5 Current and planned control measures are documented.	Yes	Yes
3.1.3.6 Describe method to evaluate whether storm water controls are adequate to meet the requirements of the TMDL.	Please see pgs 17-18. BMPs and a monitoring plan are required in the TMDL as a baseline activity and means of evaluating effectiveness. Also, a Stock Creek restoration plan has been developed and Knox Co. is currently waiting on funding for implementation. (Please see Appendix E for CD of plan)	Please see pgs. 17-18. BMPs and a monitoring plan are required in the TMDL as a baseline activity and means of evaluating effectiveness. And a Beaver Creek restoration plan has been developed to address ag, urban, and instream sediment sources. Implementation of this plan began in 2008. (Please see Appendix E for CD of plan)
3.1.3.7 If additional or modified controls are necessary, describe the type and schedule for the control additions/revisions.	N/A. No additional controls at this time, evaluating data. Please see the notes below regarding 3.1.3.6	N/A. No additional controls at this time, evaluating data. Please see the notes below regarding 3.1.3.6

3.1.3.6 Additional Data

TMDL for Pathogens in the Fort Loudoun Lake & Little River Watershed

1. Knox County began and currently maintains an active, leadership role with the Stock Creek Watershed Initiative. This activity has been cited in the TMDL as an example of the approach desired on the part of MS4s. More information on the Stock Creek Initiative is available upon request.
2. The longevity (ie, funding, partnership participation, etc.) of the watershed initiative is a consideration in long-term planning. A watershed management plan has been developed with continuing support from the main project partners (Knox County, TVA, UT, Knox-Chapman Utility District).
3. The potential for expansion of the watershed initiative's scope is considered. In areas beyond the geographical scope of the current initiatives, it is likely new partnerships will be needed.
4. Improvements, standardization and continued development of Knox County's illicit discharge detection and elimination program will provide key tools for watershed management. At present, existing resources through watershed initiatives, the Health Department, Stormwater staff, and outfall mapping efforts are likely adequate. This facet of the MS4 program should be re-evaluated periodically to determine if additional staff resources are needed. There are also updates to the list of any recent findings of illicit discharges.
5. The monitoring plan developed as part of the siltation and habitat alteration TMDL includes biological sampling to help evaluate BMP effectiveness by allowing monitoring before and following BMP installations. The plan may also help to identify key land use types by providing data associated with particular land uses and/or application of BMPs. The plan will also provide baseline sampling data help determine baseline conditions.

TMDL for Pathogens in the Lower Clinch River Watershed

1. Knox County was the catalyst for the formation of the Beaver Creek Watershed Initiative (BCWI) and has taken an active leadership role in the Bullrun Creek watershed project. The BCWI and its planning and education efforts have gained praise from EPA as an example of successful partnered efforts at watershed restoration.
2. The longevity (ie, funding, partnership participation, etc.) of the watershed initiative a consideration in long-term planning. Currently, sampling plans, education efforts, restoration projects are all planned for the next several years and are coordinated with the monitoring plan under development as part of the TMDL for the same watershed for siltation and habitat alteration. The Knox County Health Department and Hallsdale-Powell Utility District are committed partners in implementing BMPs, engaging in monitoring, and investigating potential illicit discharges.
3. The potential for expansion of the watershed initiative's scope is considered. Knox Co. holds a leadership role in the Lower Clinch Watershed Council and anticipates addressing pollutant issues in partnership with other Lower Clinch watershed activities outside of Knox County.
4. Improvements, standardization and continued development of Knox County's illicit discharge detection and elimination program will provide key tools for watershed management. At present, existing resources through watershed initiatives, the Health Department, Stormwater staff, and outfall mapping efforts are likely adequate. This facet of the MS4 program should be re-evaluated periodically to determine if additional staff resources are needed.
5. Seeking grant funding to identify a optimization of green infrastructure retrofits for two key areas in the Beaver Creek watershed.

TMDL for Fecal Coliform in the Fort Loudoun Lake Watershed (First, Second, Third, Goose, Baker, Fourth, and Williams Creek)

1. In these watersheds, areas outside the City of Knoxville MS4 (ie, within the Knox County MS4) are identified for potential for public contact with impaired waters.
2. If public contact areas are identified, sites will be identified for signs to be posted. (NOTE: currently, no areas of public contact within the Knox County MS4s are found. Maps of the watershed were generated for this analysis.)

3. Improvements, standardization and continued development of Knox County's illicit discharge detection and elimination program will provide key tools for watershed management. At present, existing resources are used to detect, investigate and eliminate illicit discharges through watershed initiatives, the Knox County Health Department, Stormwater staff, and Knox County's outfall mapping efforts. This facet of the MS4 program should be re-evaluated periodically to determine if additional staff resources are needed.

TMDL for Siltation and Habitat Alteration in the Fort Loudoun Watershed

1. A joint effort between Knox County, TVA, the University of Tennessee, and neighboring MS4s has been initiated to best coordinate efforts and share resources for education, monitoring, policy and BMP implementation.
2. Staffing resources and support materials (data management, standard operating procedures, etc.) are considered for increased site inspection procedures by County staff. Additional construction site inspectors were added in the 2006-2008 fiscal years, with a current total of 10 inspectors.
3. Tracking of permitting and enforcement/administrative actions will be evaluated yearly. Measures to improve quality control and consistency (checklists, peer overview, etc.) as recommended in the mid permit audit have been implemented. Knox Co. continues to work on improving legal mechanisms for site development bonding and enforcement to make enforcement procedures more efficient and reduce exposure of streams to sedimentation.
4. A monitoring plan has been approved by TDEC and is being implemented. The plan will help evaluate BMP effectiveness by allowing monitoring before and following BMP installations. The plan may also help to identify key land use types by providing data associated with particular land uses and/or application of BMPs. The plan will also provide baseline sampling data help determine baseline conditions.
5. Areas of streambank erosion may be identified and inventoried as a means to locate impacting areas and track watershed changes.

TMDL for Siltation and Habitat Alteration in the Lower Clinch River Watershed

1. Current education and monitoring resources available through the Beaver Creek and Bullrun Creek watershed initiatives are a resource to be considered. Knox County will continue to take a leadership role in both efforts to best align efforts between partnering agencies.
2. Staffing resources and support materials (data management, standard operating procedures, etc.) are considered for increased site inspection procedures by County staff. Additional construction site inspectors were added in the 2006-2008 fiscal years, with a current total of 10 inspectors.
3. Tracking of permitting and enforcement/administrative actions will be evaluated yearly. Measures to improve quality control and consistency (checklists, peer overview, etc.) as recommended in the TDEC 2006 MS4 audit have been implemented. Knox County is currently working on improving legal mechanisms for site development bonding and enforcement to make enforcement procedures more efficient and reduce exposure of streams to sedimentation.
4. A monitoring plan has been approved by TDEC and is being implemented. The plan will help evaluate BMP effectiveness by allowing monitoring before and following BMP installations. The plan may also help to identify key land use types by providing data associated with particular land uses and/or application of BMPs. The plan will also provide baseline sampling data help determine baseline conditions.
5. Areas of streambank erosion may be identified and inventoried as a means to locate impacting areas and track watershed changes.
6. The potential for expansion of the watershed initiative's scope is considered. Knox Co. holds a leadership role in the Lower Clinch Watershed Council and anticipates addressing pollutant issues in partnership with other Lower Clinch watershed activities outside of Knox County.
7. Knox County has a Watershed Restoration Plan for Beaver Creek (See Appendix E).
8. Knox County was awarded grant money from the EPA for an Eco-Credit Trading pilot program (grant is complete).
9. Seeking grant funding to identify an optimization of green infrastructure retrofits for two key areas in the Beaver Creek watershed.

Protection of Listed Threatened or Endangered Species (3.2)

We have followed the procedures given in section 3.2 of the Tennessee small MS4 general permit to ascertain whether or not storm water discharges from the MS4 are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the ESA, or result in the adverse modification or destruction of habitat that is designated as critical under the ESA (“critical habitat”). Below is a table indicating the procedures we have followed. We retain documentation of the evaluations and decisions reached through the evaluation.

NOTE: a copy of the procedure for site development plan screening for threatened and endangered species is included with this report.

Evaluation criteria	Yes/No	Notes
3.2.1.2.1 Criteria A: No endangered or threatened species or critical habitat in proximity to MS4 or the point where discharges reach the receiving water		
3.2.1.2.2 Criteria B: Formal or informal consultation with the Fish and Wildlife Service under Section 7 of the Endangered Species Act (ESA) has been concluded and that consultation addressed effects of storm water activities or resulted in a no jeopardy or not-likely-to-affect opinion.		
3.2.1.2.3 Criteria C: Activities are authorized under Section 10 of the ESA		
3.2.1.2.4 Criteria D: Evaluated the effects of storm water discharges; we do not have reason to believe the discharge and discharge-related activities will jeopardize species or cause adverse modification or destruction of critical habitat.	Yes	Through coordination with US Fish and Wildlife, Knox County has revised policies and procedures to ensure compliance with Endangered Species requirements of the MS4 permit.
3.2.1.2.5 Criteria E: Our storm water discharges and related activities are already addressed in another operator’s certification of eligibility. We agree to comply with conditions of that eligibility.		

Signed

Dated

Tim Burchett, Knox County Mayor

Printed Name and Title

Explanation of Amended or Replaced BMPs (from Part I)

The following table provides description(s) of BMPs and/or milestones we wish to amend this reporting year and subsequent years, as indicated. [Add tables as necessary.]

For every BMP that is being amended or replaced, provide the following information and analysis. The BMPs you describe here should match the ones you indicated as “Amended/Replaced” in Part 0. of this annual report.

BMP Code: <u>3C</u>	BMP: Illicit Discharge Education
New BMP short title:	Same
New BMP description:	Same
BMP is being amended/replaced as:	Ineffective <input type="checkbox"/> Infeasible <input type="checkbox"/> See narrative. X
Expected effectiveness of new BMP:	Good
Why is the replacement BMP expected to achieve goals:	The purpose of the BMP is the same. The amendment is to make the BMP/Milestone fit a more appropriate audience.
BMP Milestone Year 1	
BMP Milestone Year 2	
BMP Milestone Year 3	
BMP Milestone Year 4	Develop and implement education training and tools for all operators of “hot spot” businesses.
BMP Milestone Year 5	Develop and implement education training and tools for all operators of “hot spot” businesses.
Narrative:	The amendment is to make the BMP/Milestone fit a more appropriate audience for illicit discharge prevention and protection against the discharge of pollutants.

BMP Code: <u>3E</u>	BMP: Outfall Mapping
New BMP short title:	Same
New BMP description:	Same
BMP is being amended/replaced as:	Ineffective <input type="checkbox"/> Infeasible <input type="checkbox"/> See narrative. X
Expected effectiveness of new BMP:	Good
Why is the replacement BMP expected to achieve goals:	The BMP purpose remains the same. Having completed a year of field work allows for more accurate estimating.
BMP Milestone Year 1	
BMP Milestone Year 2	

BMP Milestone Year 3	
BMP Milestone Year 4	Continue mapping existing and new outfalls in the Knox County jurisdictional area, with at least 50% coverage complete.
BMP Milestone Year 5	
Narrative:	Having completed a year of field work allows for more accurate estimating.

BMP Code: _____	BMP:
New BMP short title:	
New BMP description:	
BMP is being amended/replaced as:	Ineffective <input type="checkbox"/> Infeasible <input type="checkbox"/> See narrative. <input type="checkbox"/>
Expected effectiveness of new BMP:	
Why is the replacement BMP expected to achieve goals:	
BMP Milestone Year 1	
BMP Milestone Year 2	
BMP Milestone Year 3	
BMP Milestone Year 4	
BMP Milestone Year 5	
Narrative:	

BMP Code: _____	BMP:
New BMP short title:	
New BMP description:	
BMP is being amended/replaced as:	Ineffective <input type="checkbox"/> Infeasible <input type="checkbox"/> See narrative. <input type="checkbox"/>
Expected effectiveness of new BMP:	
Why is the replacement BMP expected to achieve goals:	
BMP Milestone Year 1	
BMP Milestone Year 2	
BMP Milestone Year 3	
BMP Milestone Year 4	

BMP Milestone Year 5	
Narrative:	

Go to next page.

Tracking of measurable goals

For each of your BMPs, you should have established a measurable parameter, and goal in terms of that measurable parameter. Measurable parameters are ways to measure activities or effects of a BMP. The goal is the parameter value established as a target. If you are not yet measuring the parameter for a given BMP, indicate Not Applicable Yet (NAY) in the Result column.

BMP Code	BMP Title	Measurable parameter	Result	Goal
1A	Grading Permit Brochure	Number of Grading Permits Issued	Brochure provided with grading permits and at public information events.	Distribute brochure with grading permits
1B	Adopt-A-Watershed	Support of at least \$15,000 to the program	Support in the amount of \$95,000.	Continued support of the program.
1C	Water Quality Forum World Wide Web Site	Funding and support of the WWW site, progress logged	Continued support of Web site	Continued support of Web site
1D	Tennessee Growth Readiness	Support Tennessee Growth Readiness program presentations in Knox County area	Tennessee Growth Readiness presentation has been included in Knox County watershed education presentations by Watershed Coordinator	Support /promotion of the Tennessee Growth Readiness Program. As best as possible, maintain a log of TGR presentations.
1E	Grab Bag Programs/Events	Document support of various public education activities	Support of Activities Documented (Waterfest, Kids-n-Creek etc.)	Support of Activities Documented
1F	Erosion/Sediment Control Training	Completion of Erosion and Sediment Control Training by Knox County staff	Training of all key staff completed	Training of all key staff completed
2A	Water Quality Forum	Documented participation in Water Quality Forum activities by Knox County	Activities have been documented though WQF Web site, executive committee meetings, etc.	Documented participation in Water Quality Forum activities.
2B	Adopt-a-Stream	Continued financial and logistical support of Adopt-a-Stream	Support has been provided and documented.	Continued financial and logistical support

				of Adopt-a-Stream.
2C	Environmental Stewardship Program	Continued financial and logistical support of Environmental Stewardship Program	Support in excess of \$5,000 in project costs, and staff time for management has been provided and documented.	Continued financial and logistical support of Environmental Stewardship Program.
2D	River/Stream Clean-Up (and Awareness) Days	Continued support by participation, promotion, material or financial support	Knox County support has been provided and logged.	Continued support by participation, promotion, material or financial support.
2E	Watershed Initiatives	Leadership in watershed planning initiatives.	Watershed planning initiative activities have been logged through meeting minutes and record of financial support of related projects (For example, the Beaver Creek Green Infrastructure Plan).	Documentation of leadership in watershed planning initiatives.
3A	Illicit Discharge Complaint Tracking Database	Implementation and utilization of illicit discharge complaint tracking database.	Current work order requests database is being utilized to track and maintain illicit discharge complaints.	Documentation from work order database of illicit discharge complaints.
3B	Non-Stormwater Screening Area Prioritization Map	Identify priority land uses for potential non-stormwater screening sites	Land use maps have been created and (in some cases) enhanced to illustrate priority areas.	Maintain map.
3C	Illicit Discharge Education	Development of "hot spot" training and education program for illicit discharge prevention.	A program has been developed and is being used to train restaurant and automotive managers.	Documentation of training of restaurant and automotive owners/managers in Knox County.
3D	Stormwater Ordinance Amendments	Ordinance meets requirements.	Verified that Ordinance addresses and	Ensure full compliance.

			satisfies requirement. The Special Pollutant Abatement Permit (SPAP) addresses “hot spot” pollutants.	
3E	Outfall Mapping	Develop a digital (GIS) map showing location of stormwater outfalls to waters of the US.	All of Knox County stormwater outfalls (100%) have been mapped.	A digital (GIS) stream (“waters of the US”) outfall map for unincorporated Knox County has been completed.
3F	Illicit Discharge Detection	Utilization of current field resources to locate non-stormwater discharges through the MS4 (SOPs, outfall mapping, Health Dept.).	Results from outfall mapping evaluated and SOP revised w/a checklist.	Ensure all available County resources are being utilized.
4A	Pre-Construction Meetings for Site Development and Capital Improvement Projects	Number of pre-construction meetings held.	Documentation of pre-construction meetings collected.	Pre-construction meetings held for new construction permitting.
4B	Construction Site Inspections	Continue construction site inspection.	Documentation of construction site inspections and work order history showing construction-related inspections.	Documentation of construction site inspections maintained by Knox County.
4C	Buffer Zone Protection	Developing and requiring buffer zone protection.	Develop and require buffer zone protection through site design. This requirement was included in the Stormwater Ordinance revisions that were passed by County Commission on September 24, 2007.	Continue to require protection of the buffer zone through site design.
4D	Erosion and Sediment Control Note Required on Design Plans	Require note on design plans.	This is currently being required and was included in the Stormwater	Require a note to be included in design plans stating the owner is responsible for

			Ordinance revisions that were passed by County Commission on September 24, 2007.	installation and maintenance of construction site pollution prevention controls.
4E	Stormwater Ordinance Amendments	Amendments to Stormwater Management Ordinance	The Ordinance was amended to meet recommendations by the 2006 audit.	Amend Knox County Stormwater Management Ordinance to meet local needs and NPDES II requirements.
4F	Erosion and Sediment Control Design Education	County staff to complete ESC Level I training and promote courses to contractors and other potential clients	All inspection and management staff have completed TDEC Level I ESC training.	Maintained documentation showing staff is trained in Erosion and Sediment control using TDEC courses.
4G	Grading Permit Requirements – Tracking Responsible Parties	Implement client tracking for the Grading Permit process	Two permit tracking databases are currently used. Additionally, a database for complaints is also used. TDEC NOC is required for permit & Knox Co. receives SWPPPs.	Using recommendations from the Knox County Site Planning Roundtable & Law Dept., a process to streamline permitting while better tracking responsible parties.
4H	Complaint Receipt	Use of database to track erosion and sediment control complaints received from the public	Erosion and sediment control complaint tracking has been added to Knox County's 'work order' database.	Documented use of database to track erosion and sediment control complaints.
5A	Knox County Site Planning Roundtable	Report on the site planning roundtable's findings	Site planning roundtable meetings and findings. Meeting minutes, notes or attendee lists are on file.	Documentation of the Site Planning Roundtable process in Knox County.

5B	Environmental Stewardship Program	Financial support of ESP program.	Knox County has financial support of ESP projects in addition to staff time in support of the ESP program. The ESP program has been presented in public presentations as well.	Continued financial support and promotion of the ESP program
5C	Stormwater Management Ordinance	Update to Stormwater Management Ordinance	NAY	NAY
6A	Pollution Prevention Training	Training of Knox County staff	County service center, highway maintenance, engineering, parks & recreation, health dept., schools and sheriff's detention facility, have been trained in the basics of pollution prevention.	On-going training with documentation.
6B	Salt Storage Facility	Installation of a facility to protect the on-site storm sewer system from runoff from stored road salt	New salt storage shed constructed.	New salt storage shed constructed.
6C	Truck Wash Rack	Installation of a facility to protect the on-site storm sewer system from runoff from truck and vehicle washing	Truck wash constructed.	Truck wash constructed.
6D	Pollution Prevention Policy	Implementation of pollution prevention policy	A policy has been developed by individual departments within Knox County, and training has been implemented with guidance and support from the Stormwater Management Division.	Documentation of pollution prevention training for departments with guidance and support from the Stormwater Management Division.

Footnotes

¹ *Maximum extent practicable* (MEP) is the statutory standard that establishes the level of pollutant reductions that operators of regulated MS4s must achieve. The CWA requires that NPDES permits for discharges from MS4s “shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods.” CWA 402(p)(3)(B)(iii).

² Insert the number of BMPs listed in your NOI, as updated by subsequent annual reports. Example: if each minimum measure has five BMPs associated with it, you would insert [30] as the number of BMPs. [6 X 5]

³ Insert the number of Year 1 milestones accomplished. For example, if 27 Year 1 milestones are accomplished at the end of Year 1, then you would insert [27 of 30] in these brackets.

Appendix A
Beaver Creek Erosion & Buffer Assessments

Appendix B
Stock Creek Erosion & Buffer Assessments

Appendix C
Ft. Loudoun TMDL Monitoring Plan and Monitoring Data

Appendix D
Lower Clinch TMDL Monitoring Plan and Monitoring Data

Appendix E
Beaver and Stock Creek Restoration Plans CD