

Chapter 7

Stormwater and Wastewater Programs



7.1 Federal and State Stormwater Programs

The goal of the DWQ stormwater discharge permitting regulations and programs is to prevent pollution from entering the waters of the state via stormwater runoff. These programs accomplish this goal by controlling the source(s) of pollutants. These programs include NPDES Phase I and II regulations, HQW/ORW stormwater requirements, and requirements associated with the Water Supply Watershed Program. Currently, there are no individual stormwater permits listed for the New River basin and Phase I regulations are not applicable; however, there are a few local governments and/or counties that are affected by other water quality protection programs. Those affected are listed in Table 11.

7.1.1 NPDES Phase I

Phase I of the EPA stormwater program started with Amendments to the Clean Water Act (CWA) in 1990. Phase I required NPDES permit coverage to address stormwater runoff from medium and large stormwater sewer systems serving populations of 100,000 or more people. There are no NPDES Phase I stormwater permits issued in the New River basin.

Phase I also had requirements for ten categories of industrial sources to be covered under stormwater permits. Industrial activities which require permitting are defined in categories ranging from sawmills and landfills to manufacturing plants and hazardous waste treatment, storage or disposal facilities. Construction sites disturbing greater than five acres are also required to obtain an NPDES stormwater permit under Phase I of the EPA stormwater program. Excluding construction stormwater general permits, there were no general stormwater permits or individual stormwater permits issued in this basin under Phase I.

7.1.2 NPDES Phase II

The Phase II stormwater program is an extension of the Phase I program that will include permit coverage for smaller municipalities and includes construction activities down to one acre. The local governments permitted under Phase II will be required to develop and implement a comprehensive stormwater management program that includes six minimum measures:

- (1) Public education and outreach on stormwater impacts.
- (2) Public involvement/participation.
- (3) Illicit discharge detection and elimination.
- (4) Construction site stormwater runoff control.
- (5) Post-construction stormwater management for new development and redevelopment.
- (6) Pollution prevention/good housekeeping for municipal operations.

Construction sites greater than one acre will also be required to obtain an NPDES stormwater permit under Phase II of the EPA stormwater program in addition to erosion and sedimentation control approvals.

Those municipalities and counties required to obtain a NPDES stormwater permit under the Phase II rules are identified using 1990 US Census Designated Urban Areas and the results of the 2000 US Census. Currently, there are no municipalities or counties identified as an urban area in the New River basin.

2005 Recommendations

Even though none of the municipalities were identified as federally designated urban areas, DWQ recommends that the local governments and county officials develop stormwater management programs that go beyond the six minimum measures listed for Phase II rules. Implementation of stormwater programs should help reduce future impacts to streams in the basin. To the extent possible, local governments should identify sites for preservation or restoration. DWQ and other DENR agencies will continue to provide information on funding sources and technical assistance to support local government and county stormwater programs.

7.1.3 State Stormwater Programs – Sensitive Waters

The State Stormwater Management Program was established in the late 1980s under the authority of the North Carolina Environmental Management Commission (EMC) and North Carolina General Statute 143-214.7. This program (Administrative Code 15A NCAC 2H .1000) affects development activities that require either (1) an Erosion and Sediment Control Plan (for disturbances of one or more acres) or (2) a CAMA major permit within one of the 20 coastal counties and/or development draining to Outstanding Resource Waters (ORW) or High Quality Waters (HQW). The State Stormwater Management Program requires developments to protect these sensitive waters by maintaining a low-density of impervious surfaces, maintaining vegetative buffers, and transporting runoff through vegetative conveyances. Low-density development thresholds vary from 12 to 30 percent built-upon area (impervious surface) depending on the classification of the receiving stream. If low-density design criteria cannot be met, then high-density development requires the installation of structural best management practices (BMPs) to collect and treat stormwater runoff from the project. High-density BMPs must control the runoff from the 1 or 1.5-inch storm event (depending on the receiving stream classification) and remove 85 percent of the total suspended solids.

Table 11 shows the counties in the New River basin where permits may be required under the state stormwater management program under ORW stormwater rules. All development requiring an Erosion and Sediment Control Plan (for disturbances of one or more acres) must obtain a stormwater permit.

2005 Recommendations

DWQ will continue implementing the state stormwater program with the other DENR agencies and local governments. Local governments should develop local land use plans that minimize impervious surfaces in sensitive areas. To the extent possible, communities should integrate state stormwater program requirements with other stormwater programs in order to be more efficient and gain the most water quality benefits for protection of public health and aquatic life.

Table 11 Communities in the New River Subject to Stormwater and/or Water Supply Watershed Stormwater Requirements

Local Government	NPDES		State Stormwater Program	Water Supply Watershed Stormwater Requirements
	Phase I	Phase II*		
Municipalities				
Boone				X
Blowing Rock				X
Jefferson				
West Jefferson				X
Lansing				
Sparta				
Counties				
Ashe			X	X
Alleghany			X	
Watauga			X	X

7.1.4 Water Supply Watershed Stormwater Rules

The purpose of the Water Supply Watershed Protection Program is to provide a proactive drinking water supply protection program for communities. Local governments administer the program based on state minimum requirements. There are restrictions on wastewater discharges, development, landfills and residual application sites to control the impacts of point and nonpoint sources of pollution. The program attempts to minimize the impacts of stormwater runoff by utilizing low density development or stormwater treatment in high density areas.

2005 Recommendations

The Towns of Blowing Rock, Boone and West Jefferson in the New River basin in water supply watersheds have EMC approved water supply watershed protection ordinances. DWQ recommends continued implementation of the local water supply watershed protection ordinances to ensure safe and economical treatment of drinking water. To the extent possible communities should also integrate water supply watershed protection ordinances with other stormwater programs in order to be more efficient and gain the most water quality benefits for both drinking water and aquatic life.

7.2 Federal and State Wastewater Programs

7.2.2 NPDES Wastewater Discharge Permit Summary

The primary pollutants associated with point source discharges are:

- Oxygen-consuming wastes
- Nutrients
- Sediments
- Color
- Toxic substances including chlorine, ammonia and metals.

Discharges that enter surface waters through a pipe, ditch or other well-defined point of discharge are broadly referred to as 'point sources'. Wastewater point source discharges include municipal (city and county) and industrial wastewater treatment plants and small domestic wastewater treatment systems serving schools, commercial offices, residential subdivisions and individual homes. Stormwater point source discharges include stormwater collection systems for municipalities and stormwater discharges associated

with certain industrial activities. Point source dischargers in North Carolina must apply for and obtain a National Pollutant Discharge Elimination System (NPDES) permit. Discharge permits are issued under the NPDES program, which is delegated to DWQ by the Environmental Protection Agency (EPA).

Currently, there are 17 permitted wastewater discharges in the New River basin. Table 12 provides summary information (by type and subbasin) about the discharges. The types of dischargers listed in the table are described in the inset box (right). Facilities are mapped in each subbasin chapter, and a complete listing of permitted facilities is included in Appendix VI.

The majority of NPDES permitted wastewater flow into the waters of the New River basin is from six municipal wastewater treatment plants (WWTP). Nonmunicipal dischargers contribute only 14 percent of the total wastewater flow into the New River basin. Recent data indicates that only one minor facility (West Jefferson WWTP) exceeded daily or weekly averages. Refer to Section 2.3 for more information related to this facility.

Types of Wastewater Discharges

Major Facilities: Wastewater treatment plants with flows ≥ 1 MGD (million gallons per day); and some industrial facilities (depending on flow and potential impacts to public health and water quality).

Minor Facilities: Facilities not defined as Major.

100% Domestic Waste: Facilities that only treat domestic-type waste (from toilets, sinks, washers).

Municipal Facilities: Public facilities that serve a municipality. Can treat waste from homes and industries.

Nonmunicipal Facilities: Non-public facilities that provide treatment for domestic, industrial or commercial wastewater. This category includes wastewater from industrial processes such as textiles, mining, seafood processing, glass-making and power generation, and other facilities such as schools, subdivisions, nursing homes, groundwater remediation projects, water treatment plants and non-process industrial wastewater.

Table 12 Summary of NPDES Dischargers and Permitted Flows for the New River Basin (September 2004)

Facility Categories	New River Subbasin			
	05-07-01	05-07-02	05-07-03	TOTAL
Total Facilities	10	4	3	17
Total Permitted Flow (MGD)	6.01	1.58	0.65	8.24
Major Discharges	1	0	0	1
Total Permitted Flow (MGD)	4.82	0.0	0.0	4.82
Minor Discharges	9	4	3	16
Total Permitted Flow (MGD)	1.19	1.58	0.65	3.42
100% Domestic Waste	4	1	2	7
Total Permitted Flow (MGD)	0.08	0.01	0.05	0.14
Municipal Facilities	3	2	1	6
Total Permitted Flow (MGD)	5.92	0.55	0.60	7.07
Nonmunicipal Facilities	7	2	2	11
Total Permitted Flow (MGD)	0.09	1.03	0.05	1.17

7.2.2 Septic Systems and Straight Piping

In the New River basin, wastewater from many households is not treated at wastewater treatment plants associated with NPDES discharge permits. Instead, it is treated on-site through the use of permitted septic systems. Wastewater from some of these homes illegally discharges directly to streams through what is known as a "straight pipe". In other cases, wastewater from failing septic systems makes its way to streams or contaminates groundwater. Straight piping and failing septic systems are illegal discharges of wastewater into waters of the State.

With on-site septic systems, the septic tank unit treats some wastes, and the drainfield associated with the septic tank provides further treatment and filtration of the pollutants and pathogens found in wastewater. A septic system that is operating properly does not discharge untreated wastewater to streams and lakes or to the ground's surface where it can run into nearby surface waters. Septic systems are a safe and effective long-term method for treating wastewater if they are sited, sized and maintained properly. If the tank or drainfield are improperly located or constructed, or the systems are not maintained, nearby wells and surface waters may become contaminated, causing potential risks to human health. Septic tanks must be properly installed and maintained to ensure they function properly over the life of the system. Information about the proper installation and maintenance of septic tanks can be obtained by calling the environmental health sections of the local county health departments. See Appendix VIII for contact information.

The discharge of untreated or partially treated sewage can be extremely harmful to humans and the aquatic environment. Pollutants from illegally discharged household wastewater contain chemical nutrients, disease pathogens and endocrine disrupting chemicals. Although DWQ ambient monitoring of the waters in the New River basin show a relatively small percentage of fecal coliform bacteria samples exceeding state standards for primary recreation, smaller streams may contain a higher concentration of bacteria and other pollutants. The economies of the counties in this basin are highly dependent upon river recreation, especially from tourists and seasonal residents.

In order to protect human health and maintain water quality, straight pipes must be eliminated and failing septic systems should be repaired. The NC Wastewater Discharge Elimination (WaDE) Program is actively helping to identify and remove straight pipes (and failing septic systems) in the western portion of North Carolina. This program uses door-to-door surveys to locate straight pipes and failing septic systems, and offers deferred loans or grants to homeowners who have to eliminate the straight pipes by installing a septic system.

In the New River basin, the Appalachian District Health Department took the lead in the *Ashe/Alleghany Straight Pipe Elimination Project*. WaDE provided technical assistance and funding was provided by the NC Clean Water Management Trust Fund (CWMTF), the NC Department of Commerce – Division of Community Assistance (DCA), and the Appalachian Regional Commission (ARC). Each funding source provided \$400,000 for a total of \$1.2 million. The purpose of the project was to repair or replace straight pipes or failing septic systems identified during the survey. Any sites that were found to have straight pipes or failing septic systems were repaired or replaced. The results of the surveys are presented in Table 13.

Table 13 Results of the Ashe/Alleghany Straight Pipe Elimination Project

Lead Agency	Ashe and Alleghany County Health Departments
Project Dates	April 2000 through March 2003
Terms of Funding	2 years
Homes Visited	Est. 6,200
Inspections Completed	Est. 2,800
Violations Found	625
Corrections with Assistance	295
Total Corrections*	323
% Households Surveyed	Est. 45%

* Information updated October 2003.

2005 Recommendations

The WaDE Program in collaboration with the Local Health Departments should request additional funding from the CWMTF (Chapter 12) and Section 319 Program (Chapter 12) to continue the straight pipe elimination program for the New River basin. Additional monitoring of fecal coliform throughout tributary watersheds where straight pipes and failing septic systems

are a potential problem should be conducted in order to narrow the focus of the surveys. For more information on the WaDE Program, contact DENR On-Site Wastewater Section (OSWW) – NC Division of Environmental Health (DEH), toll free at 1-866-223-5718 or visit their website at <http://www.deh.enr.state.nc.us/oww/Wade/wade.htm>.

Additional precautions should be taken by local septic system permitting authorities to ensure that new systems are sited and constructed properly and that an adequate repair area is also available. Educational information should also be provided to new septic system owners regarding the maintenance of these systems over time. DWQ has developed a booklet that discusses actions individuals can take to reduce stormwater runoff and improve stormwater quality entitled *Improving Water Quality In Your Own Backyard*. The publication includes a discussion about septic system maintenance and offers other sources of information. To obtain a free copy, call (919) 733-5083. The following website also offers good information in three easy to follow steps: http://www.wsg.washington.edu/outreach/mas/water_quality/septicsense/septicmain.html.