

Chapter 13

Wastewater and Stormwater Programs

13.1 NPDES Wastewater Discharge Permit Summary

The primary pollutants associated with point source discharges are:

- * oxygen-consuming wastes,
- * nutrients,
- * color, and
- * 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 that serve populations greater than 100,000 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.

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.

Currently, there are 137 permitted wastewater discharges in the French Broad River basin. Table 21 provides summary information (by type and subbasin) about the discharges. Various types of dischargers listed in the table are described in the inset box. Facilities are mapped in each subbasin chapter. For a complete listing of permitted facilities in the basin, refer to Appendix VI.

The majority of NPDES permitted wastewater flow into the waters of the French Broad River basin are from major municipal wastewater treatment plants (WWTP). Nonmunicipal discharges also contribute substantial wastewater flow into the French Broad River basin. Facilities, large or small, where recent data show problems with a discharge are discussed in each subbasin chapter.

Table 21 Summary of NPDES Dischargers and Permitted Flows for the French Broad River Basin (September 2003)

Facility Categories	French Broad River Subbasin							Total
	01	02	03	04	05	06	07	
Total Facilities	15	67	8	11	16	19	1	137
Total Permitted Flow (MGD)	32.976	55.423	0.245	0.984	37.132	14.493	0.80	142.05
Major Discharges	3	3	0	0	3	4	0	13
Total Permitted Flow (MGD)	32.4	49.6	0.0	0.0	36.9	10.99	0.0	129.89
Minor Discharges	12	64	8	11	13	15	1	124
Total Permitted Flow (MGD)	0.576	5.823	0.245	0.984	0.232	3.503	0.80	12.16
100% Domestic Waste	8	54	7	5	11	6	0	91
Total Permitted Flow (MGD)	0.441	1.339	0.065	0.066	0.232	0.056	0.0	2.20
Municipal Facilities	2	2	0	4	2	3	1	14
Total Permitted Flow (MGD)	2.59	44.8	0.0	0.915	7.0	2.395	0.80	58.50
Nonmunicipal Facilities	13	65	8	7	14	16	0	123
Total Permitted Flow (MGD)	30.386	10.623	0.245	0.069	30.132	12.098	0.0	83.55

13.2 DWQ Stormwater Programs

There are many different stormwater programs administered by DWQ. One or more of these programs affects many communities in the French Broad River basin. 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 try to accomplish this goal by controlling the source(s) of pollutants. These programs include NPDES Phase I and II, HQW/ORW stormwater requirements, and requirements associated with the Water Supply Watershed Program. Local governments that are or may be affected by these programs are presented in Table 22.

13.2.1 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. There are no NPDES Phase I stormwater permits issued to communities in the 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 are 139 general stormwater permits and 6 individual stormwater permits. Refer to the subbasin chapters for more information on stormwater programs and permits and a complete listing of individual permits in Appendix VI.

13.2.2 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 cover 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.

Twelve municipalities and one county (Table 22) in the basin are automatically required (based on 1990 US Census Designated Urban Areas and results of the 2000 US Census) to obtain a NPDES stormwater permit under the Phase II rules. These local governments were required to submit applications for NPDES stormwater permits by March 2003. DWQ is currently developing criteria that will be used to determine whether other municipalities should be required to obtain a NPDES permit and how the program will be implemented. DWQ is also working to finalize state rules to implement the Phase II stormwater rules as required by the EPA.

2004 Recommendations

DWQ recommends that the local governments that will be permitted under Phase II proceed with permit applications and develop programs that can go beyond the six minimum measures. Implementation of Phase II, as well as the other stormwater programs, should help to reduce future impacts to streams in the basin. Local governments, to the extent possible, should identify sites for preservation or restoration. DWQ and other NCDENR agencies will continue to provide information on funding sources and technical assistance to support local government stormwater programs.

13.2.3 State Stormwater Program

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, codified in 15A NCAC 2H .1000, affects development activities that require either an Erosion and Sediment Control Plan (for disturbances

of one or more acres) or 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 setbacks, and transporting runoff through vegetative conveyances. Low density development thresholds vary from 12-30 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 22 shows the seven counties in the French Broad River basin where permits may be required under the state stormwater management program. 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 NCDENR agencies and local governments. Local governments should develop local land use plans that minimize impervious surfaces in sensitive areas. Communities should integrate state stormwater program requirements, to the extent possible, 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.

13.3 Water Supply Watershed Stormwater Rules

Current Status

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.

All communities in the French Broad River basin in water supply watersheds have EMC approved water supply watershed protection ordinances (Table 22).

2005 Recommendations

DWQ recommends continued implementation of local water supply protection ordinances to ensure safe and economical treatment of drinking water. Communities should also integrate water supply protection ordinances with other stormwater programs, to the extent possible, in order to be more efficient and gain the most water quality benefits for both drinking water and aquatic life.

Table 22 Communities in the French Broad River Subject to Stormwater Requirements

Local Government	NPDES		State Stormwater Program	Water Supply Watershed Stormwater Requirements
	Phase I	Phase II		
Municipalities				
Newland				X
Sugar Mountain				X
Asheville		X		X
Biltmore Forest		X		
Black Mountain		X		
Montreat		X	X	
Weaverville		X		
Woodfin		X		
Canton		X		X
Clyde		X		
Hazelwood				
Maggie Valley				X
Waynesville		X		X
Flat Rock				
Fletcher		X		
Hendersonville		X		
Laurel Park		X		X
Hot Springs			X	
Mars Hill				X
Marshall				
Bakersville				
Brevard			X	
Spruce Pine				
Burnsville				
Rosman				
Mills River				X
Counties				
Avery				X
Buncombe			X	X
Haywood		X	X	X
Henderson			X	X
Madison			X	X
Mitchell			X	X
Transylvania			X	X
Yancey			X	X

13.4 Septic Systems and Straight Piping

In the French Broad River basin, wastewater from many households is not treated at wastewater treatment plants associated with NPDES discharge permits, but is treated on the property 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 (Appendix VIII contains 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 French Broad 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 for tourists and seasonal residents. Concerns were expressed at public workshops for the French Broad River basin about the possibility of failing septic systems and straight pipes, as well as the number of septic systems that are currently being permitted each year.

In order to protect human health and maintain water quality, straight pipes must be eliminated and failing septic systems must be repaired. The 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. The program also offers deferred loans and grants to repair malfunctioning septic systems. Buncombe County, Henderson County, Madison County, Transylvania County and the Toe River Health Departments have obtained grant money to conduct similar surveys. The results of the recent surveys are presented in Table 23.

Table 23 Results of Recent WaDE Surveys in the French Broad River Basin

Lead Agency	WaDE/ Buncombe County Health Department	Madison County Health Department	Toe River Health District	WaDE/ CWMTF/EPA Initiative
Project Dates	01/00-03/02	03/98-05/03	04/99-12/03	06/02-04/04
Terms of Funding	1 year	2 years	3 years	3 years
Homes Visited	2,027	~10,000	~1,100	3,351
Inspections Completed	1,844	5,360	707	2,098
Violations Found	265	996	213	268
Corrections with Assistance	12	143	127	15
Total Corrections	151	446	194	96

2005 Recommendations

Efforts to create a permanent statewide septic maintenance and repair program similar to the straight pipe and failing septic system initiative currently active in western NC should be pursued. The WaDE Program in collaboration with the Local Health Departments should request additional funding from the CWMTF (Section 16.3.2) and Section 319 Program (Section 16.2.1) to continue the straight pipe elimination program for the French Broad 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 the DENR On-Site Wastewater Section, NC Division of Environmental Health, toll free at 1-866-223-5718 or visit their website at <http://www.deh.enr.state.nc.us/oww/Wade/wade.htm>.

Additionally, 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, ext. 558.

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.