

Appendix N - Summary of Federal and State Stormwater Regulations

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N.1 Summary of Federal Regulations

In general, Federal regulations and legislation have been applied at the State level to regulate stormwater runoff quality, whereas for many years local stormwater ordinances and regulations focused on regulating drainage, streets, peak stormwater runoff flow and flooding concerns.

Federal regulations that directly affect stormwater runoff control include the Coastal Zone Management Act and the National Pollutant Discharge Elimination System (NPDES) stormwater regulations of the Clean Water Act, administered by the U.S. Environmental Protection Agency (EPA). The Coastal Zone Management Act was designed to encourage and assist coastal states to develop and implement management programs. The State of South Carolina developed its own Coastal Zone Management Act in 1977, to protect coastal resources and promote responsible development in Beaufort County and seven other coastal counties. This will be discussed further in the following section on State regulations. The EPA NPDES requirements are presented below.

The 1987 amendments to the Federal Clean Water Act define specific stormwater discharges as point source discharges subject to NPDES regulations. These amendments required EPA to promulgate regulations pertaining to stormwater discharges via a phased approach.

The initial phase, promulgated by EPA on November 16, 1990, became known as the Phase I Stormwater NPDES regulations. These final regulations created two broad classes of stormwater discharges under the NPDES program:

- 1) Municipal Separate Storm Sewer System (MS4) discharges; and
- 2) Stormwater Discharges Associated with Industrial Activity.

The MS4 Program was divided into three categories (large, medium, and small populations) based on U.S. Census Bureau population estimates, with Phase I regulations including only large and medium MS4 stormwater discharges.

The Stormwater Discharges Associated with Industrial Activity program was divided into 11 categories of industrial activity. These included industrial manufacturing facilities, landfills, transportation facilities, construction (land clearing on 5 or more acres), etc., without consideration given to the type of facility owner or operator such that a publicly owned or operated facility could be included in one of the 11 categories.

On December 8, 1999, EPA adopted the Phase II stormwater regulations, which included small MS4 discharges located in an “Urbanized Area” per U.S. Census Bureau definitions and delineations. In addition, the land disturbance activity regulation with the threshold of 5 or more acres (as per the construction activity regulation) was reduced to 1 or more acres, with a provision that construction sites that disturb less than 1 acre could also be regulated if water quality concerns or problems related to the activity warrant permit coverage under the NPDES Program.

The State of South Carolina has been an EPA NPDES Program delegated authority for a number of years. The State agency that administers the Federal NPDES Program in South Carolina is the Department of Health and Environmental Control (DHEC). As such, DHEC oversees all NPDES Program related permitting, monitoring, and enforcement issues in the State of South Carolina. However, EPA does have authority over DHEC on NPDES Program issues and may, at its discretion, conduct independent audits of a DHEC-issued NPDES permit.

N.2.1 MS4 Program

Phase I of the NPDES Stormwater Program required large MS4s (with populations of 250,000 people or greater) and medium MS4s (with populations of 100,000 people or greater but less than 250,000) to apply for permit coverage in two parts. All permits issued under this phase were individual permits and required the development and implementation of a stormwater management program. At a minimum, this program had to address the following key elements:

- 1) Structural control maintenance
- 2) Areas of significant development and redevelopment
- 3) Roadway runoff management
- 4) Flood control related to water quality issues
- 5) Municipally owned operations, including landfills, wastewater treatment facilities, etc.
- 6) Hazardous waste treatment, storage or disposal sites, etc.
- 7) Application of pesticides, herbicides, and fertilizers
- 8) Illicit discharge detection and elimination
- 9) Regulation of sites classified as associated with industrial activity
- 10) Construction site and post-construction site runoff control
- 11) Public education and outreach

As of July 2007, the State of South Carolina has one large MS4 (South Carolina Department of Transportation) and four medium MS4s – the City of Columbia, Greenville County, Lexington County, and Richland County.

As of July 2007, there is a list of 70 regulated small MS4s, which did not specifically include Beaufort County. In 2014 this list was increased, and additional communities were added, including Beaufort County. These small MS4s are required to begin running programs to address stormwater runoff from construction sites and post- construction activities. These activities are two of the six components of a stormwater management program as defined by the NPDES Phase II Final Rule, as listed below:

- 1) Public education and outreach.

- 2) Public participation/involvement.
- 3) Illicit discharge detection and elimination.
- 4) Construction site runoff control.
- 5) Post-construction runoff control.
- 6) Pollution prevention/good housekeeping.

Several of these items are addressed by this document and will fulfill part of the NPDES Phase II requirements.

N.2.2 Industrial Activity Program

The NPDES Phase I stormwater regulations created 11 categories of Stormwater Discharges Associated with Industrial Activity. Categories “i” through “ix” and category “xi” became part of the Industrial Program, while category “x” became part of the Construction Program. Thus, the NPDES stormwater program is made up of three distinct program components: the MS4 Program, the Industrial Program, and the Construction Program. Although the Phase I included a provision for a no-exposure permit exemption to category “xi” (light industry) only, the Phase II regulations extended this no-exposure exemption to categories “i” through “ix.”

The no-exposure exemption applied to facilities that had no stormwater runoff exposed to raw materials, byproducts, waste products, intermediate products, final products, etc. Activities within the Industrial Program and the Construction Program can have NPDES stormwater permits issued as either individual permits or general permits; however, due to the nature and number of facilities that must be issued NPDES stormwater permits, general permits are typically utilized. On rare occasions, when water quality concerns become a permit issue, DHEC may require an individual permit in lieu of granting general permit coverage. The general permit under the Industrial Program requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for each covered facility and requires monitoring and/or inspections. Although only certain facilities require both, inspections are required of all facilities.

Under the Construction Program, the construction activity category is divided into two phases, Phase I (for large construction sites) and Phase II (for small construction sites). On a case-by-case basis, a permit may also be required when a construction activity involves the disturbance of less than 1 acre of land. Stormwater discharges from construction activities that disturb less than 5 acres of land are called “small construction activities.” A Construction Activity permit can either be issued in the form of a general permit or an individual permit. Typically, the general permit is utilized unless specific water quality issues warrant the use of an individual permit. The general permit requires that a SWPPP be prepared and implemented for each construction site, but sampling of stormwater runoff from the site is not required.

Inspections must be conducted at all construction sites covered under the general permit. In addition, a provision in the MS4 program regulations requires that all regulated MS4s implement a program for controlling construction site runoff. This provision essentially requires that the construction site must receive a permit from the regulated MS4 in addition to having to be covered under an NPDES Stormwater Construction Activity permit.

It is important to note that with the March 10, 2003 initiation of the NPDES Phase II Stormwater Program implementation, considerable overlap exists between the Federal NPDES Stormwater Program and the State of South Carolina's Sediment, Erosion, and Stormwater Management Program as discussed below.

N.2 Summary of State Regulations

In addition to being an EPA NPDES Program delegated authority, the State of South Carolina also has its own relevant regulations. The South Carolina's Sediment, Erosion, and Stormwater Management Program was initiated in 1983, and required construction activities on State-owned and State-managed lands to control sediment and erosion. In 1991, via the South Carolina Stormwater Management and Sediment Reduction Act, the program was expanded to include all construction activities that disturbed more than 2 acres of land. Regulation 72-300, entitled "Standards for Stormwater Management and Sediment Reduction," describes the requirements for preparing a stormwater management and sediment and erosion control plan from land disturbance activities. Exemptions, Waivers, and Variances from the Law are explained in Section 72-302. The Bureau of Water of the Office of Environmental Quality Control (EQC) of DHEC is responsible for administering the Sediment, Erosion, and Stormwater Management Program, and by regulation the Office of Ocean and Coastal Resource management (OCRM) implements the program in the eight coastal county areas. A local government may become a State-delegated authority after submitting a request and receiving approval by the State. However, Federal, State, local government, and public school projects must be submitted to DHEC even if they are located within the jurisdiction of a State-delegated entity.

As indicated previously, the Federal NPDES Stormwater Construction Activity Program requires permit coverage for construction sites that disturb more than 1 acre of land and, on a case-by-case basis, even less than 1 acre of land. Consequently, an overlap exists currently between the State's Sediment, Erosion, and Stormwater Management Program and the NPDES Stormwater Construction Activity Program (that is, when more than 2 acres of land are disturbed due to a construction activity, permits must be secured under both programs). The State coordinates the various aspects of the two programs (i.e., permitting, compliance, monitoring, and enforcement) to minimize the overlapping responsibilities. The two programs are integrated into a comprehensive Stormwater Regulatory Program for the State of South Carolina.

The South Carolina Stormwater Management and Sediment Control Handbook for Land Disturbance Activities (DHEC, 2003) includes all existing South Carolina stormwater management regulations required for individuals to submit a stormwater management and sediment reduction permit application to DHEC. Elements of the Federal NPDES Stormwater Program, Coastal Zone Management Program, and the State's Stormwater Management and Sediment Reduction regulations are included in the handbook.

Table 1 summarizes the State regulatory requirements that are applicable to Southern Lowcountry, including jurisdictions in the State of South Carolina’s Coastal Zone Management Program. For land disturbance of 0.5 acre or less that is within 0.5 mile of a receiving waterbody in the coastal zone, Section R.72- 307H of the State Stormwater Management and Sediment Reduction Act of 1991 is applicable. Section R.72-307H is also applicable for land disturbance of less than 1 acre, at locations that are not within 0.5 mile of a coastal zone receiving water. If the land disturbance is at least 1 acre, but less than 2 acres, the NPDES General Permit and Section R.72-307H apply. Development is highly impervious or is located directly adjacent to a critical area, the more stringent R.72-307I regulations are applicable; otherwise, the less stringent R.72-307H regulations are appropriate.

Table 1. South Carolina Requirements for Land Development in Southern Lowcountry.

Extent of Land Disturbance (acres)	Applicable Regulatory Requirements
Less than 0.5 acre and within 0.5 acre of receiving waters	R.72-307H
Less than 1 acre and not within 0.5 acre of receiving waters	R.72-307H
At least 1 but less than 2 acres	R.72-307H, SCR100000
More than 2 and less than 5 acres	R.72-307I, SCR100000
5 acres or more	R.72-305, R.72-307, SCR100000

Section R.72-307I regulations are also applicable for developments of more than 2 and less than 5 acres. For developments of 5 acres or more, the applicable regulations include Sections R.72-305 and R.72-307 of the Stormwater Management and Sediment Reduction Act of 1991, plus the NPDES General Permit.

Features of the regulations highlighted in Table A-1 are presented in

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Table 2. The regulations under Section R.72-307H provide for a simplified stormwater management and sediment control plan that does not require approval by DHEC and does not require preparation or certification by a registered engineer, landscape architect or Tier B land surveyor (SCDHEC, 1997). However, DHEC staff does have the authority to conduct site inspections to ensure compliance with the submitted plan. Under Section R.72-307I, the stormwater management and sediment control plan must be approved by DHEC, and requires preparation and certification by a registered engineer, landscape architect or Tier B land surveyor. The plan must also include BMPs to control erosion and sediment, and measures to control peak discharge rates and peak velocities of stormwater runoff from the site.

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Table 2. South Carolina Sediment, Erosion, and Stormwater Management Program Land Development Regulatory Requirement Details Applicable to Non-Coastal Counties.

Plan Feature	Applicable Regulation(s)		
	R.72-307H	R.72-307I	R.72-305, R.72-307, SCR100000
Plan Approval by Implementing Agency	Not required	Required	Required
Plan Preparation / Certification by Registered Professional Engineers / Landscape Architects / Land Surveyors	Not required	Required	Required
BMPs to Control Erosion and Sediment	Not required	Required	Required
Measures to Control Stormwater Quantity	Not required	Required ¹	Required ¹
Measures to Control Stormwater Quality	Not required	Not required	Required ²
<p>1. Stormwater quantity control requirements include:</p> <ul style="list-style-type: none"> a. Post-development peak discharge rates shall not exceed pre-development discharge rates for the 2- and 10- year frequency, 24-hour duration storm events. Implementing agencies may utilize a less frequent storm event (e.g., 25-year, 24-hour storm) to address existing or future stormwater quantity or quality problems. b. Discharge velocities shall be reduced to provide a non-erosive velocity flow from a structure, channel, or other control measure or the velocity of the 10-year, 24-hour storm runoff in the receiving waterway prior to the land disturbance activity, whichever is greater. c. Watersheds other than “designated watersheds” that have well documented water quantity problems may have more stringent, or modified, design criteria determined by the local government that is responsive to the needs of that watershed. <p>2. See Table A-3 for a summary of stormwater quality requirements.</p>			

The State regulation requires that post-development peak flows shall not exceed the pre- development peak flow rate for the 2-year/24-hour and 10-year/24-hour design storms. Developments of 5 acres or more must meet all of the requirements listed above and must provide measures for stormwater quality control.

The current NPDES general permit SCR100000 (effective September 1, 2006) includes requirements for inspections on construction sites. Once construction begins, these inspections must be conducted at least once every 7 calendar days, or at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. The inspections must be conducted by qualified personnel (as defined in the permit) and an inspection report must be completed for each inspection. The report must be retained for at least 3 years from the date that permit coverage expires or is terminated. For construction activities disturbing 10 acres or more, a monthly report must also be submitted to DHEC. Monthly reports may also be required on a case-by- case basis.

Stormwater runoff quality control measures required for developments of 5 acres or more are presented in Table 3. In general, the water quality storage requirements depend upon the type of BMP and, in some cases, the location of the development site.

Table 3. South Carolina Coastal Zone Management Program Stormwater Quality Bmp Requirements Beaufort County.

BMP Facility Type	Water Quality Volume Requirements		
	General	Within 0.5 Miles of a Receiving Waterbody in the Coastal Zone	Within 1,000 Ft of Shellfish Beds
Water quality facility with permanent pool of water (e.g., wet detention pond)	Permanent pool volume of 0.5 inches of runoff per acre of drainage; storage above permanent pool of 0.5 inches of runoff per acre of drainage, required to bleed down over a 24-hour period	Permanent pool volume of 0.5 inches of runoff per acre of drainage <u>or</u> 1.0 inches of runoff per impervious acre of drainage, whichever is greater; same general storage requirement above permanent pool	Permanent pool volume of 0.5 inches of runoff per acre of drainage <u>or</u> 1.5 inches of runoff per impervious acre of drainage, whichever is greater; same general storage requirement above permanent pool
Water quality facility without permanent pool of water (e.g., extended dry detention pond)	Storage of 1.0 inches of runoff from the entire drainage area, required to bleed down over a 24-hour period	General requirements apply	Not applicable
Infiltration practices	Storage of 1.0 inches of runoff per impervious acre of drainage, required to drain completely in 72 hours	General requirements apply	Storage of 1.5 inches of runoff per impervious acre of drainage, required to drain completely in 72 hours

The basic water quality volume requirements vary based on the type of BMP. A water quality facility with a permanent pool of water (e.g., a wet detention pond) has a required permanent pool volume equivalent to 0.5 inch of runoff per acre of drainage, as well as another 0.5 inch of storage above the permanent pool. The storage above the permanent pool is required to bleed down over a 24-hour period. In contrast, a water quality facility without a permanent pool of water (e.g., an extended dry detention pond) has a required water quality storage volume equivalent to 1.0 inch of runoff per acre of drainage, and this volume is required to bleed down over a 24-hour period. Infiltration facilities, which capture runoff and then release the captured runoff through evapotranspiration and infiltration into the underlying soil, are required to provide water quality storage equivalent to 1.0 inches of runoff per impervious acre of drainage.

Under existing State regulations, water quality control facilities with a permanent pool of water may have more stringent requirements if the development is within 0.5 mile of a receiving waterbody in the coastal zone. In this case, the required permanent pool volume is the greater of: (a) 0.5 inch of runoff from the entire drainage area, or (b) 1.0 inch of runoff per impervious acre of drainage. The latter condition will apply for commercial, industrial and high-density residential land uses with an imperviousness of more than 50 percent. There are no special requirements for infiltration facilities and facilities without a permanent pool of water.

Special considerations also apply when the development is within 1,000 ft of shellfish beds (determined from State mapping or by site inspection). In this case, the regulations require that 1.5 inches of runoff

per impervious acre of drainage must be retained. Of the three BMP types discussed above, only infiltration facilities are designed to retain runoff (i.e., captured runoff is depleted by storage through evapotranspiration and infiltration into the underlying soil, rather than released to a drainage channel or waterbody). In contrast, facilities such as ponds are designed to detain runoff (i.e., captured runoff is detained for treatment and is then released to a drainage channel or waterbody).

Table 3 shows how the shellfish bed regulation has been interpreted for this report. The requirement for infiltration facilities is 1.5 inches per impervious acre of drainage, which is 50 percent greater than the general requirements. For facilities with a permanent pool, it was presumed that the requirement would be met by providing a permanent pool volume equivalent to 1.5 inches of runoff per impervious acre. For storms producing runoff of 1.5 inches or less, the runoff will be stored in the permanent pool and an equal volume of water will be displaced from the pool and discharged to a drainage channel or waterbody. The table provides no interpretation of the shellfish bed requirements for other facilities without a permanent pool. Such a facility would actually be operating as an infiltration facility.

As mentioned previously, DHEC administers the Federal NPDES Program on behalf of EPA; therefore, along with having jurisdiction over the NPDES Construction Program, DHEC also has jurisdiction over the NPDES Industrial Program. Under the latter program, the general permit (SCR000000) covers all categories of stormwater discharges associated with industrial activity, except the construction activity, which is covered under the Construction Program. SCR000000 requires the development of a SWPPP, which identifies potential sources of stormwater pollution and describes practices to be implemented for reducing stormwater pollutant discharges. These practices may include structural BMPs (e.g., wet detention ponds), good housekeeping practices, spill prevention procedures, and employee training. Annual or semi-annual monitoring of stormwater discharge from the site is required for certain industrial facilities. The monitoring would include measurement of specific pollutants such as nutrients and metals, and acute whole effluent toxicity tests.

Information on the South Carolina Sediment, Erosion, and Stormwater Management Program can be found at: <http://www.scdhec.net/water/html/erfmain.html>

Information on NPDES Stormwater Program Implementation in South Carolina can be found at: <http://www.scdhec.net/eqc/water/html/swnhistory.html>