



National Pollutant Discharge Elimination System (NPDES)

Municipal Separate Storm Sewer Systems (MS4s)

Stormwater from major metropolitan areas is a significant source of pollutants discharged to waters of the United States. While rainfall and snow are natural events, the nature of stormwater discharges and their impact on receiving waters are greatly affected by human activities and land use. Stormwater from lands modified by human activities can affect surface water resources by modifying natural flow patterns or by elevating pollution concentrations and loadings.

An MS4 is a conveyance or system of conveyances that is:

- owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.,
- designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches),
- not a combined sewer, and
- not part of a sewage treatment plant, or publicly owned treatment works (POTW).

To address concerns associated with municipal stormwater runoff EPA established phased NPDES requirements for stormwater discharges. Phase I of the stormwater program addressed permits for discharges from medium and large MS4s serving a population of 100,000 or more, as well as certain categories of industrial activity, including construction activity disturbing greater than 5 acres. Phase II expanded the stormwater program to include small MS4s and construction activity disturbing between 1–5 acres.

To prevent harmful pollutants from being washed or dumped into MS4s, certain operators are required to obtain NPDES permits and develop stormwater management programs (SWMPs). The SWMP describes the stormwater control practices that will be implemented consistent with permit requirements to minimize the discharge of pollutants from the sewer system. The MS4 stormwater application regulations (Phase I) established requirements for a two-part permit application that allowed large and medium local governments to help define priority pollutant sources in the municipality and to develop and implement appropriate controls for such discharges to MS4s. Part II of the application requires municipal applicants to propose municipal SWMPs to control pollutants to the maximum extent practicable and to effectively prohibit non-stormwater discharges to the municipal system.

Medium and large MS4 operators are required to submit comprehensive permit applications and are issued individual permits. Phase II of the stormwater program extended the NPDES permitting program to small MS4s in urbanized areas. The Phase II MS4 regulations require small MS4s to develop a program to address six minimum control measures that include BMPs and measurable goals for each BMP. Small MS4 may be regulated under an individual permit or a general permit. Municipal

stormwater management programs combine source controls and management practices that address targeted sources in the boundaries of the municipal system. For example, a municipality that expects significant new development may focus more on proposing requirements for new development and construction. On the other hand, a municipality that does not expect significant new development could focus more on municipal activities that affect stormwater quality such as: maintenance of leaking sanitary sewers, road de-icing and maintenance, operation of municipal landfills, flood control efforts, and control of industrial contributions of stormwater.

The six minimum control measures that small MS4s must implement include:

- **Public education:** Municipalities are required to provide educational material about stormwater to four audiences (residents, industry, commercial, and construction).
- **Public participation:** Municipalities are required to at least annually provide an opportunity for the public to participate in the development/implementation of their SWMP
- **Illicit discharge detection and elimination:** Municipalities are required to find and eliminate sources of non-stormwater from their storm sewer system. The permit requires a proactive rather than a reactive approach. Municipalities are expected to systematically look in their system for non-stormwater sources and remove them.
- **Management of construction site runoff:** Municipalities are required to have an ordinance from management of stormwater discharges from construction sites that disturb one or more acres of land. Their ordinance should include requirements for projects to implement sediment and erosion control practices as well as requirements for site plan review.
- **Management of post construction site runoff:** Municipalities are required to address stormwater runoff from new development and redevelopment that disturb one or more acres of land. The goal of this measure is to try to management stormwater where it falls and retain it on site. This control measure encourages the use of low impact design techniques and requires the retention or treatment of runoff on site using green infrastructure practices.
- **Good housekeeping:** Municipalities are required to implement good housekeeping practices in municipal operations such as vehicle maintenance, open space, buildings and infrastructure. The permit requires at least annual street sweeping and optimization of catch basin cleaning. Development of pollution prevention plans are required at waste management facilities and maintenance garages not already regulated by another NPDES permit.

For more information regarding MS4s, please visit: <https://www.epa.gov/npdes/stormwater-discharges-municipal-sources>