



Q & A Why is Stormwater an Issue?

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When it RAINS, it pours...

That old saying usually refers to a string of bad luck. In this instance, however, it can bring to mind overflowing storm sewers, stormwater runoff, and the pollution that gets swept into streams and rivers. Unmanaged or poorly managed stormwater runoff is becoming an increasing concern across the U.S.

What is stormwater?

Stormwater is precipitation, such as rainwater and melted snow that runs off streets, lawns, and other sites.



Why is stormwater a problem?

Typically, stormwater is absorbed into the ground where it is filtered and replenishes aquifers or flows into streams and rivers. But in developed or urban areas, where impervious surfaces—such as parking lots and roofs—don't allow precipitation to be absorbed into the earth, problems can arise, such as contaminated streams, rivers, and coastal waters.

This pollution happens as water is washed over impervious surfaces, where it can pick up pollutants, such as sediment, nitrogen, phosphorus, bacteria, oil and grease, trash, pesticides, and metals. Not surprisingly, studies have shown that stormwater pollution equals that of sewage plants and large industries.

The U.S. Environmental Protection Agency (EPA) lists the following three issues as major concerns:

1. *Pollution.* As stormwater passes over developed land, it picks up pollutants and transports them to the nearest storm drain and eventually to rivers and bays. This contamination can harm or kill fish and other wildlife—and possibly close local businesses.
2. *Flooding.* Unable to soak into the ground, stormwater quickly flows or floods downstream from developed land, which can damage homes and businesses, flood septic system drainfields and overwhelm streams, wetlands, and wildlife habitat.
3. *Water shortages.* Impervious surfaces, such as roads, parking lots and rooftops, keep rainfall from soaking into the ground and replenishing groundwater and streams used for drinking water or fish habitat.

Are there any rules that apply to stormwater?

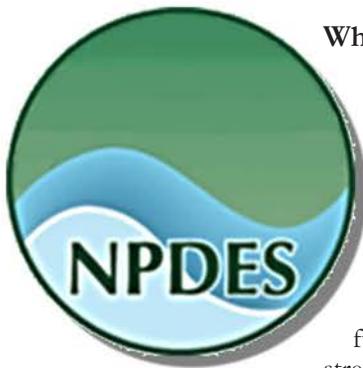
EPA continues to update its rules related to stormwater. Currently, wastewater treatment plant operators must obtain a National Pollutant Discharge Elimination System (NPDES)



permit and develop a stormwater management program to prevent prevent harmful pollutants from being washed or dumped into a Municipal Separate Storm Sewer Systems (MS4s). EPA stormwater regulations were launched in two phases.

- Phase I, issued in 1990, requires *medium* and *large* cities or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their stormwater discharges. There are approximately 750 Phase I MS4s.
- Phase II, issued in 1999, requires regulated small MS4s in urbanized areas as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. There are approximately 6,700 Phase II MS4s.

According to EPA, Phase I MS4s are covered by individual permits and Phase II MS4s are covered by a general permit. Each regulated MS4 is required to develop and implement a stormwater management program (SWMP) to reduce the contamination of stormwater runoff and prohibit illicit discharges.



What is the NPDES Stormwater Program?

The NPDES Stormwater Program regulates stormwater discharges from three potential sources: MS4s, construction activities, and industrial activities. Most stormwater discharges are considered point sources, and operators of these sources may be required to receive an NPDES permit before they can discharge. This permitting mechanism is designed to prevent stormwater runoff from washing harmful pollutants into local surface waters such as streams, rivers, lakes or coastal waters.

Most states are authorized to implement the NPDES Stormwater Program and administer their own stormwater permitting programs. EPA remains the permitting authority in a few states, territories and on most tribal lands. For these areas, EPA provides oversight and issues stormwater permits.

What is an MS4?

MS4 is shorthand for municipal separate storm sewer systems. EPA defines an MS4 as a conveyance—a way of moving or transporting—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 (including storm drains, pipes, ditches, etc.);
- Not a combined sewer; and
- Not part of a Publicly Owned Treatment Works (sewage treatment plant).

Who is covered under the NPDES Stormwater Program?

The NPDES Stormwater Program covers the following types of stormwater discharges:

- MS4s. Operators of large, medium and regulated small MS4s may be required to obtain authorization to discharge stormwater.
- Construction activities. Operators of construction sites that are one acre or larger (including smaller sites that are part of a larger common plan of development) may be required to obtain authorization to discharge stormwater under an NPDES construction stormwater permit. Where EPA is the permitting authority, operators must meet the requirements of EPA's Construction General Permit
- Industrial activities. Industrial sectors may require authorization under an NPDES





industrial stormwater permit for stormwater discharges. Where EPA is the permitting authority, operators must meet the requirements of EPA's Multi-Sector General Permit.

What's a TMDL?

Throughout the U.S. there are thousands of waters listed for impairments from stormwater sources. The most common pollutants coming from stormwater sources include sediment, pathogens, nutrients, and metals. These impaired waters need a Total Maximum Daily Load (TMDL), which identifies the total pollutant loading that a waterbody can receive and still meet water quality standards, and specifies a pollutant allocation to specific point and nonpoint sources. The TMDL is implemented via the National Pollutant Discharge Elimination System (NPDES) stormwater permitting system. States and EPA Regions have used a variety of methods to develop stormwater-source TMDLs during the past decade. With the expansion of NPDES Stormwater regulations to smaller municipalities and smaller construction activities, there has been increasing demand for more detailed quantification of stormwater allocations in TMDLs that are more useful for implementation in NPDES permits.



What is section 404 of the Clean Water Act?

Section 404 requires prior authorization from the U.S. Army Corps of Engineers for the discharge of dredged or fill material into waters of the U. S., including wetlands. The term "discharge of dredged material" means any addition of dredged material into, including redeposit of dredged material other than incidental fall back within, the waters of the U.S. The term "discharge of fill material" means the addition of fill material into waters of the U.S.



These regulations are designed to improve the effectiveness of compensatory mitigation to replace lost aquatic resource functions and area, expand public participation in compensatory mitigation decision making, and increase the efficiency and predictability of the mitigation project review process.

How can stormwater be managed?

While the challenges to stormwater management are many, solutions are available. Communities have an important role to play in protecting water resources and public health by implementing appropriate stormwater management practices. For example, best management practices (BMPs) that

include technologies and management systems reduce the impact that stormwater has on public health and the environment.

Solutions may include more traditional systems include conveyance systems, such as pipes, drains, and ditches, to transport stormwater. But BMP strategies are flexible, making site-specific solutions possible for many different circumstances. For example, solutions that are suitable for newly developed land can be retrofitted for existing areas. BMP strategies most commonly being used in urban areas involve rainwater capture and control practices. Commonly referred to as green infrastructure, these BMPs include green roofs, rain barrels and cisterns, rain gardens, pocket wetlands, and permeable pavements. These solutions can work on individual sites, at the neighborhood level, or can be incorporated into a more widespread municipal stormwater management program. And they have added benefits—they beautify neighborhoods, cleanse the air, reduce energy costs, improve economies, and support American jobs.

Where can I find more information?

For more information about stormwater, including regulations and permitting, visit EPA's site at: <http://cfpub.epa.gov/npdes/stormwater/swbasicinfo.cfm>