Stormwater Manufactured Treatment Devices

Certification Guidelines

Joint Task Committee on Guidelines
for Certification of Stormwater BMPs

Edited by

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Edited by
Qizhong Guo, Ph.D., P.E., D.WRE

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Preface

Since the passage of the U.S. Clean Water Act in 1972 and subsequently through the National Pollution Discharge Elimination System (NPDES) amendment in 1983, many local, state, and industrial entities are obligated to treat stormwater runoff before discharge to receiving waters. Initially with NPDES Phase I permits, regulatory compliance was only applicable to communities with a population higher than 100,000. Since 2002, NPDES Phase II permits extended the same regulatory framework to communities with populations of 10,000 or more and to areas along the urban fringe that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile. For this reason, demand for the use of compact stormwater treatment systems has increased rapidly where land space is not readily available to accommodate other types of systems. Numerous manufacturers have responded and developed a wide range of structural best management practices (BMPs), now referred to as stormwater control measures (SCMs) to remove different pollutants. For purposes of this report, these compact stormwater treatment systems are called manufactured treatment devices (MTDs).

Most MTDs function either as hydrodynamic separators (HDSs) or as filters. HDSs utilize the difference in density (between the water and stormwaterborne particles) and flow patterns to separate by inertia and/or settle by gravity stormwaterborne particles to the bottom of the device and to retain floatables, such as hydrocarbons and trash, at the surface of the device, while the effluent flows through an intermediate elevation. Filters use a medium to retain particles of a given size while the effluent flows through the filter. These devices are generally placed below ground in high population density locations and retrofits to existing infrastructure.

In recent years, the use of MTDs has increased rapidly in response to escalating water quality regulatory requirements, particularly in redevelopment and new development areas where land space is limited and potential use of other SCMs is not practical. As the use of MTDs has increased, the demand for verification of and certification for pollutant removal and meeting water quality standards has also increased. Agencies have started to realize that without a program, the process of approving, sizing, and providing regulatory oversight of MTDs is problematic. However, the establishment of a program is time consuming and expensive and requires multidisciplinary expertise. While several verification and certification programs have been proposed at the federal, state, and regional levels (e.g., TAPE, TARP, and ETV, as discussed in Chapter 7), there is no consistent protocol at a national level.