

Municipal Stormwater Permitting Approach for the Mid-Atlantic Region

November 2023

I. PURPOSE

In 2010, EPA Region 3 developed this document for Clean Water Act (CWA) National Pollutant Discharge Elimination System (NPDES) permitting authorities to use when developing and issuing permits and implementing regulations for discharges from municipal separate storm sewer systems (MS4)¹ in the Mid-Atlantic Region. Region 3 has revised the 2010 document to ensure that it reflects current regulatory requirements, the best-available science, and Agency priorities for the MS4 NPDES program. This document describes EPA's expectations for meeting CWA objectives, including incorporating recent Census Bureau changes, applicable Total Maximum Daily Load (TMDL) wasteload allocations (WLAs), green infrastructure, and integrated planning opportunities. This document also describes the use of residual designation to extend NPDES requirements to unregulated discharges; considerations for climate change and environmental justice; elimination of permit backlogs; and available technical guidance, training, and tools to support MS4 programs. Nothing in this document establishes authorities or requirements beyond those in the CWA or its implementing regulations. In the event of a conflict between this document and statute or regulatory provisions, the statute or regulation governs.

II. CHALLENGES

Municipal stormwater discharges can be a significant contributor to water quality impairment in the Mid-Atlantic Region, including the Chesapeake Bay and its tributaries. When rain falls on land that is unpaved, some of that water can be absorbed by the land. When rain falls on land that is paved or otherwise covered, however, it cannot be absorbed by the land and it runs off faster and in greater amounts, often taking pollutants like sediment, nitrogen, phosphorus, bacteria, oil, and grease with it. When that stormwater runs off into storm drains, it often goes straight to a waterbody without any treatment to remove those pollutants. Stormwater running rapidly into storm drains, sewer systems, and drainage ditches can cause:

- Downstream flooding
- Stream bank erosion
- Increased turbidity (muddiness created by stirred up sediment) from erosion
- Habitat destruction
- Infrastructure damage
- Contaminated streams, rivers, and coastal water

Municipal stormwater discharges typically come from three broad categories of sources: new development and construction, existing developed areas that are already regulated, and unregulated developed areas. In most states in the Region, the additional runoff resulting from the land use change associated with new development is controlled by state or local post-construction stormwater management regulations, which are applicable to both NPDES MS4 permittees and others. For existing

¹ The Clean Water Act regulates three main types of stormwater: industrial stormwater, construction stormwater (itself a subset of industrial), and municipal. This document addresses only municipal stormwater.

sources (not new development), however, stormwater discharges often are not managed effectively because permits do not set performance requirements to address existing loads and do not include other key provisions, such as designing Best Management Practices (BMPs) that are tailored to address pollutants coming from stormwater and include consideration of the impacts from climate change and changing rainfall patterns. In addition, there are many currently unregulated stormwater discharges, such as individual facilities that directly discharge to surface waters, that could be evaluated for possible NPDES permitting. EPA has received several petitions to use the CWA's residual designation authority to determine the pollutant contribution of these unregulated sources; it is essential that EPA work closely with state permitting authorities to perform the appropriate analyses, respond to the petitions, and issue NPDES permits as appropriate.

III. BACKGROUND AND REGULATIONS

Statutory and Regulatory History

In 1987, Congress amended Section 402 of the CWA to add subsection 402(p), which requires NPDES permits for certain categories of municipal stormwater sources.² Section 402(p) introduced the "maximum extent practicable" (MEP) standard for municipal stormwater permits [402(p)(3)(B)(iii)] and required EPA to develop regulations addressing municipal stormwater [402(p)(6)]. In 1990, EPA finalized regulations governing Phase I (large and medium) MS4s, defined as those areas serving a population greater than 100,000 people. 40 C.F.R. § 122.26(b)(4) and (7). Those regulations primarily establish application requirements. In 1999, EPA finalized regulations governing Phase II (small) MS4s, which are defined at 40 C.F.R. § 122.26(b)(16). Small MS4s that are regulated by the NPDES program include those located in an urban area with a population of 50,000 or more people as determined by the latest decennial census. See 40 C.F.R. § 122.32(a)(1).

In 2000, environmental, municipal, and industry groups filed multiple lawsuits challenging the Phase II regulations. That litigation resulted in a partial remand to the Agency in 2003.³ Pursuant to the remand, EPA revised the Phase II regulations (the "Remand Rule") in 2016 to promote greater public engagement through clear requirements for public participation opportunities in the permitting process.⁴

The 2016 Remand Rule established two alternative approaches an NPDES permitting authority can use to issue and administer small MS4 general permits. Under the Comprehensive General Permit approach, the permitting authority must include in its small MS4 general permit the full set of requirements that the permit writer determines are necessary to meet the MS4 permit standard and the fact sheet must include an explanation of the rationale for its determination. By contrast, the Two-Step General Permit approach allows the permitting authority to issue the base general permit that includes the requirements that apply to all MS4s covered by the permit, then establish, through a second permitting step, additional permit terms and conditions for each MS4 seeking authorization to discharge under the general permit. The additional permit terms would be subject to public notice and comment. The permitting authority must indicate which type of general permit it is using, either in the general permit itself or in the permit fact sheet. See 40 C.F.R. § 122.28(d). See EPA's diagram showing the key requirements and steps involved in both Remand Rule general permit approaches.⁵

² Water Quality Act of 1987, Pub. L. No. 100-4, § 405, 101 Stat. 69.

³ *Environmental Defense Center v. U.S. Environmental Protection Agency*, 344 F.3d. 832 (9th Cir. 2003).

⁴ 81 Fed. Reg. No. 237 at p. 89320 (Dec. 9, 2016), available at <https://www.govinfo.gov/content/pkg/FR-2016-12-09/pdf/2016-28426.pdf>. EPA signed the rule on November 17, 2016. It was published in the Federal Register on December 9, 2016 with an effective date of January 9, 2017.

⁵ https://www.epa.gov/sites/default/files/2020-01/documents/process_for_issuing_small_ms4_permits_-_remand_rule_9.13.18.pdf

The Remand Rule also modified the requirements for what must be included in Notices of Intent (NOIs) submitted for coverage under small MS4 general permits as the required contents of the NOI may vary depending on the type of general permit used. Finally, the rule clarified that, regardless of the permitting approach used, the permit “must include permit terms and conditions to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the [CWA]. Terms and conditions that satisfy the requirements of this section must be expressed in clear, specific, and measurable terms. Such terms and conditions may include narrative, numeric, or other types of requirements (e.g., implementation of specific tasks or [BMPs], BMP design requirements, performance requirements, adaptive management requirements, schedules for implementation and maintenance, and frequency of actions).” 40 C.F.R. § 122.34(a).

Scientific Developments in the Stormwater Sector

Since the inception of the MS4 program, significant advancement has been made in the field of stormwater management. In addition to regulatory updates, EPA and several states, tribes, and water trade associations have issued guidance documents with recommendations for improving MS4 permit writing and program implementation. These have been primarily informed by the experiences of permitting authorities, permit holders, academic institutions, and compliance auditors. There has particularly been an enhanced focus on green infrastructure and sustainable stormwater management.

The term “[green infrastructure](#)” refers to approaches and technologies that are designed to maintain or restore natural hydrology by infiltration, evapotranspiration, capture and reuse of stormwater. In its most basic form, green infrastructure filters and absorbs stormwater where it falls. In 2019, Congress enacted the Water Infrastructure Improvement Act, which defined green infrastructure in the CWA as “the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters.”⁶ When green infrastructure systems are installed throughout a community, city, or watershed, they can provide cleaner air and water as well as significant value for the community with flood protection, diverse habitat, and beautiful green spaces.

Sustainable stormwater management focuses on reducing runoff and improving water quality. Low impact development and green infrastructure practices help maintain natural hydrologic cycles through site grading, vegetation, soils, and natural processes that absorb and filter stormwater onsite. They also help minimize erosion, flooding and water pollution downstream from facilities where they are installed.

IV. PERMIT REQUIREMENTS AND EXPECTATIONS

This section describes EPA Region 3’s approach to ensuring that states maintain NPDES stormwater programs consistent with the CWA and federal regulations while advancing the science of stormwater management and tackling emerging issues like climate change, extreme flooding, and equity. Section A describes some of the most important requirements for MS4 permits but does not provide an exhaustive list; permit writers must ensure that permits comply with all statutory and regulatory requirements. Section B describes additional expectations and considerations for those permits. EPA Region 3 intends to use this document when reviewing state permits and writing permits for the District of Columbia.

⁶ Water Infrastructure Improvement Act of 2019, Pub. L. 115-436, 132 Stat. 5558 (Jan. 14, 2019), available at: <https://www.congress.gov/115/plaws/publ436/PLAW-115publ436.pdf>

A. Municipal Separate Storm Sewer System (MS4) Permit Requirements. Regulated MS4s⁷ are required to reduce the discharge of pollutants from the MS4 to the MEP and to meet the water quality requirements of the CWA as appropriate. EPA refers to these requirements collectively as “the MS4 permit standard.” The reduction of pollutants in stormwater discharges will need to be accomplished by improving the requirements contained in MS4 permits, implementing those requirements, and determining how to address unregulated urban stormwater. Achieving these reductions may require making difficult decisions that will lead to substantive permit and program implementation improvements. The MS4 Program is based upon an iterative approach to ensure that reasonable progress is made toward achieving water quality goals with each permit cycle.⁸ This flexible regulatory approach is important because the nature of discharges from MS4s is so variable and what constitutes “MEP” for a particular permittee may change from permit to permit.

1. Issuing Permits with Clear, Specific, and Measurable Provisions: All permit provisions must be clear, specific, measurable, and enforceable. 40 C.F.R. § 122.34(a) (“Terms and conditions that satisfy the requirements of this section must be expressed in clear, specific, and measurable terms.”). Permits must incorporate clear performance standards, include measurable goals or quantifiable targets for implementation, and include specific deadlines for compliance. Besides being a regulatory requirement, incorporating these elements in the permit will clarify expectations for permittees and the public and allow permitting authorities to assess compliance more easily.

It is important to point out that these are obligations for the permit writer – they are not elements to be delegated to permittees as part of their stormwater management program planning or updating processes. MEP determinations are the obligation of the permitting authority not the permittee. Vague phrases in a permit such as “as feasible” and “as possible” and “practicable” are not “clear, specific, and measurable” because they allow subjective interpretation, result in inconsistent implementation by permittees, and create difficulties in permit oversight and enforcement. The permit writer must determine what is necessary to achieve the MEP standard and develop clear, enforceable language in the MS4 permit that tells the permittee what it needs to do. The fact sheet that accompanies the draft permit (see #9 below) must describe how the MEP determination was made. See section B for additional permitting resources including relevant compendia and permit writing tips and practices for additional guidance.

2. Post Construction Performance Standards: Federal regulations require that the stormwater management program include controls to reduce pollutants in stormwater into the small MS4 for certain post-construction activities. This requirement focuses on long-term stormwater management when new and redevelopment occurs. See 40 C.F.R. § 122.26(d)(2)(iv)(A)(2) and 40 C.F.R. § 122.34(b)(5). Studies, such as the National Research Council study Urban Stormwater Management in the United States, and guidance, such as the Urban and Suburban Guidance for Federal Land Management in the Chesapeake Bay Watershed (EPA, 2010), described the

⁷ Municipalities with storm sewer systems that serve a population of 100,000 or more (large and medium MS4s) and municipalities with storm sewer systems that are located in an urban area with a population of 50,000 or more as determined by the last decennial census, as well as some other types of campus-like facilities (universities, military installations, hospitals, etc.) are required to obtain NPDES permit coverage. CWA § 402(p)(2)(C) and (D); 40 C.F.R. § 122.32(a).

⁸ 64 Fed. Reg. No. 235 at pp. 68753-54 (Dec 8, 1999) (“small MS4 permittees should modify their programs if and when available information indicates that water quality considerations warrant greater attention or prescriptiveness in specific components of the municipal program. If the program is inadequate to protect water quality, including water quality standards, then the permit will need to be modified to include any more stringent limitations necessary to protect water quality.”). See also 40 C.F.R. § 122.34(c)(1); 40 C.F.R. § 122.44(d)(1)(vii)(B).

critical importance and means of managing stormwater flows both for purposes of hydrologic stability and for meeting water quality standards. Most states in Region 3 have developed post-construction stormwater regulations that apply statewide to certain development, including areas where MS4 permits are effective. These post-construction requirements establish a measurable performance standard for on-site retention and/or options for off-site stormwater management or payment of a fee-in-lieu. MS4 permits, to be consistent with federal regulations at 40 C.F.R. § 122.34(b)(5), must include post-construction performance standards for newly developed and redeveloped projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger plan of common development or sale. A standard that meets the requirement should not only account for discharge rates, but also for discharge volume and duration. EPA expects states to periodically update these standards to account for changes in storm frequencies, durations, intensities, and in-stream flows.

3. Managing/Addressing Existing Discharges: The standard for all MS4 permits is broad and flexible, enabling permitting authorities to determine the appropriate terms of each permit. CWA Section 402(p)(3)(B)(iii) requires “controls to reduce the discharge of pollutants to the maximum extent practicable, *including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.*” (emphasis added). Pursuant to 40 C.F.R. § 122.34(c)(1), permits for small MS4s must include any more terms and conditions, including permit requirements that modify, or are in addition to, the minimum control measures⁹, based on an appropriate TMDL or equivalent analysis, or where the Director determines such terms and conditions are needed to protect water quality. As EPA stated in a 2016 memorandum, “Where the NPDES authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that the NPDES permitting authority exercise its discretion to include clear, specific, and measurable permit requirements and, where feasible, numeric effluent limitations, as necessary to meet water quality standards.”¹⁰ It has been well documented that existing stormwater discharges from impervious surfaces contribute to many of the impairments to urban receiving waters. Therefore, where necessary to ensure that discharges do not cause or contribute to exceedances of water quality standards, permits must include provisions for implementing stormwater management practices at existing sources of stormwater discharges; not just require practices for new development/sources.

Permit writers may consider including a permit condition that requires development of a long-term retrofit strategy that includes enforceable interim milestones to track progress in achieving the strategy’s longer-term objectives. Retrofit requirements, when expressed in measurable, numeric terms, are easier to track and enforce than non-numeric commitments. However, they should also allow sufficient flexibility for the permittee to find the means to comply and ensure that proposed retrofit projects will provide the intended water quality outcomes. Strategies to achieve retrofit objectives may include the use of publicly controlled lands (e.g., retrofitting streets as green streets) and the use of numeric objectives for the adoption of various green infrastructure techniques (i.e., green roofs, bioretention, tree plantings, establishing riparian buffers, and other management practices). Preventative and end-of-pipe treatment controls may also be required for certain types of pollutants to implement TMDL WLAs. Incentive programs may be considered for privately held lands where direct authority is not available. In all cases, the necessary accountability mechanisms must be included to ensure that stormwater controls are built to the appropriate specifications, inspected at a regular frequency, and maintained properly so that they continue to function as designed.

⁹ See 40 C.F.R § 122.34(b).

¹⁰ https://www.epa.gov/sites/default/files/2015-12/documents/epa_memorandum_establishing_tmdl_wlas_for_stormwater_sources_2014_00000002.pdf at p. 5.

4. Tracking and Reporting Metrics: MS4 permits must include enforceable accountability mechanisms¹¹. Particularly in relation to requirements for site planning and review, operation and maintenance, inspections, and enforcement follow-up, permits need to include specific requirements for development and maintenance of tracking systems and standard reporting metrics. In 2015, EPA published the NPDES Electronic Reporting Rule (the eRule) at 40 CFR Part 127, which requires states to submit specific reports and data electronically. In 2020, EPA finalized updates to specific data elements in the eRule related to MS4s to reflect the MS4 Remand Rule. MS4s are included in Phase 2 of the eRule's implementation, mandating that all program reports for MS4 permits must be submitted electronically by December 21, 2025. The list of reports that must be submitted electronically can be found on EPA's website (<https://www.epa.gov/compliance/npdes-ereporting>). EPA will review draft permits to ensure that they require electronic reporting.

5. Operation and Maintenance: Pursuant to 40 C.F.R. § 122.34(b)(6)(ii), operation and maintenance is an integral component of all storm water management programs. Permits require regulated MS4 owners/operators to ensure adequate long-term operation and maintenance of best management practices. Ensuring existing BMPs receive the proper operation and maintenance (O&M) can help manage current runoff. While some states include O&M requirements in state regulations, not all states have specific requirements for inspection frequencies, property/deed restrictions, and procedures for repair and/or replacement of damaged or malfunctioning BMPs, etc. MS4 permits should contain these items to ensure that BMPs will continue to function as intended.

6. TMDL Implementation: Pursuant to Section 301(b)(6)(C) of the Clean Water Act and 40 C.F.R. § 122.44(d)(1)(vii)(B), NPDES permits must include any more stringent limitations, including those necessary to meet water quality standards, that are consistent with the assumptions and requirements in all approved TMDL WLAs. MS4 permits that include requirements to address applicable TMDLs should include specific activities intended to reduce the pollutant(s) of concern and/or a mechanism whereby permittees develop plans to implement future projects and practices that achieve WLAs. These plans may be written to achieve allocations over multiple permit terms, and should contain milestones, as well as schedules for final WLA attainment. Each subsequent permit term would contain provisions that provide for progress toward meeting applicable water quality standards. Furthermore, permits should include lists of relevant impaired waterbodies and/or TMDLs with WLAs applicable to the eligible permit area, as well as provisions that allow for reopening and modification of permits if new WLAs are adopted during the permit term.

EPA established a TMDL for nitrogen, phosphorus, and sediment loadings in the Chesapeake Bay in December 2010, which identified the levels of those pollutants that would result in attaining applicable water quality standards for the Chesapeake Bay. Stormwater is a significant source of pollutants to the Bay and is one of the source sectors identified in the Bay TMDL. The seven Bay states¹² developed Watershed Implementation Plans (WIPs) that identified the pollutant reductions they planned to achieve from point and nonpoint sources. The WIPs further outlined the program improvements and funding mechanisms the states would use to accomplish these reductions. The Bay states have been implementing the TMDL since 2010 by incorporating water quality requirements into their MS4 permits that are consistent with their most recent WIP and two-year milestones. The ultimate goal, established by the Chesapeake Bay Program partnership, is to have all of the practices and programs in place by the end of 2025 to restore water quality in the Bay.

¹¹ 40 C.F.R. § 122.34(d).

¹² The seven Bay jurisdictions are Delaware, DC, Maryland, New York, Pennsylvania, Virginia, and West Virginia. DC is considered a state for Clean Water Act purposes. CWA Section 502(3), 33 U.S.C. 1362.

7. Water Quality Monitoring Requirements: Pursuant to 40 C.F.R. §§ 122.44(i) and 122.48, NPDES permits must include relevant, interpretable, and statistically significant evaluation and monitoring provisions. For MS4 permits specifically, 40 C.F.R. § 122.26(d)(2)(iv)(C) requires a description of a program to monitor and control pollutants in stormwater discharges to certain municipal systems. Infrequent end-of-pipe grab sample wet weather monitoring is insufficient for meeting this regulatory requirement. Permittees may be encouraged or required to participate in regional monitoring consortiums. For example, Maryland’s Phase I MS4 Permits issued in 2021 and 2022 include the option for permittees to collaborate with MDE in a Pooled Monitoring Advisory Committee administered by the Chesapeake Bay Trust for determining monitoring needs and selecting appropriate monitoring studies. EPA strongly recommends that monitoring/evaluation metrics include physical and biological indicators in receiving water bodies. Regardless, all monitoring and evaluation frameworks must be clear about how data will be interpreted.

8. Prohibition on Transfer of Liability: Responsibility and/or liability for compliance with an MS4 permit cannot be transferred to third parties. Memoranda of Understanding and other agreements may be used as tools for permittees to implement needed controls and/or to ensure their own internal accountability, but responsibility for complying with the permit, and liability for not doing so, rests with the permittee(s) for all permit requirements. See 40 C.F.R. § 122.35.

9. Fact Sheets: 40 C.F.R. § 124.8(a) requires a fact sheet to be prepared for every draft NPDES permit. The purpose of the fact sheet is to set forth the principal facts and significant legal, methodological, and policy questions that were considered in drafting the permit. 40 C.F.R. § 124.8(b) lists the information the fact sheet must include, including but not limited to: a brief summary of the basis/rationale for the draft permit conditions, references to applicable statutory and/or regulatory provisions, and appropriate supporting guidance/reference documents. In addition, 40 C.F.R § 124.56 requires that fact sheets contain any calculations or other necessary explanation of the derivation of specific effluent limitations, including required BMPs, and pollutant reduction requirements. Fact sheets must also contain a description of the process and/or rationale used by the permit writer to support its conclusion that the permit conditions as a whole meet the MS4 permit standard. If a draft permit submitted to EPA for review is not accompanied by a fact sheet consistent with the federal regulations it will be considered incomplete.

B. Additional Expectations and Considerations for MS4 Permits. EPA recommends that NPDES permitting authorities consider the expectations and provisions described in items 1-6 below when drafting MS4 permits.

1. Use of EPA Permit Resources: EPA recommends that NPDES permit writers take advantage of resources available to assist with developing permits, including EPA’s series of compendia on the following stormwater topics:¹³

- Six Minimum Control Measures
- Post-Construction Standards
- Water Quality-Based Requirements
- Transportation Stormwater
- Trash
- Green Infrastructure
- Off-site Stormwater Management

¹³ <https://www.epa.gov/npdes/municipal-sources-resources>

Additionally, EPA maintains on its website¹⁴ a list of resources for NPDES permit writers, including the NPDES Permit Writers' Clearinghouse and MS4 Permit Improvement Guide among other useful tools. EPA also recently updated its series of Phase II MS4 fact sheets¹⁵ to correct outdated references and to include the most recent language from the final rule clarification related to the Census Bureau phase-out of the term "urbanized area". Finally, EPA's website has a compilation of Permit writing Tips and Best Practices as well as an associated training.^{16,17}

2. Federal Facilities: When drafting NPDES permits for MS4s that are owned/operated by federal facilities, permit writers should consider specific practices and requirements for new development and redevelopment. For examples, see the 2009 *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*¹⁸ (EISA). This guidance identifies a number of practices and techniques (e.g., on-site retention volume, matching of hydrologic curves) that may be appropriate for meeting CWA requirements. CWA permits do not implement EISA; however, EISA guidance may contain helpful information that could be used in determining what constitutes "maximum extent practicable" for MS4s with respect to stormwater controls for new development and redevelopment at federal facilities. State and local requirements must be used if they are more stringent than the EISA guidance. EPA supports the perspective that federal facility operators should continue to serve as a premier model for stormwater management.

3. Reducing Turf Grass Fertilizer: For discharges to waterbodies with impairments attributable to nutrients and/or TMDLs for nitrogen or phosphorus (such as the Chesapeake Bay TMDL), permits should include specific activities to reduce the excessive use of phosphorus and/or nitrogen fertilizers in turf grass. The permit should include numeric objectives and milestones for these activities and should describe how reductions in the use of such fertilizers will be measured relative to a baseline year. Where a municipality may not have authority over the application of fertilizer by private individuals or businesses, such as individual homeowners and private golf courses, public education campaigns with measurable goals should be considered.

States are also encouraged to implement state-wide turf grass fertilizer restriction programs outside of the permitting program. Multiple Region 3 states have implemented "blackout dates" for fertilizer application that ban fertilizer application during the winter months. For example, Maryland does not allow the use of lawn fertilizers containing nitrogen or phosphorus between November 16th and February 28th. Similarly, Delaware prohibits the use of commercial and manure-based fertilizer from December 7th to February 15th and prohibits application on snow-covered or frozen ground or on any impervious surface. Virginia entirely prohibits the use of any lawn fertilizer containing nitrogen, phosphorus, or urea and the application of all herbicides on its public property and introduced a pilot program to implement organic land management on a larger scale.

4. Water Quality Trading and Other Market-Based Approaches: Some Bay states incorporate trading, offsets, or other market-based approaches in their NPDES MS4 programs. Trading programs in the Chesapeake Bay watershed are expected to follow Appendix S of the Chesapeake

¹⁴ <https://www.epa.gov/npdes/resources-permit-writers>

¹⁵ <https://www.epa.gov/npdes/stormwater-phase-ii-final-rule-fact-sheet-series>

¹⁶ https://www.epa.gov/sites/default/files/2020-02/documents/npdes_permit_tips_and_best_practices_compilation.pdf

¹⁷ https://www3.epa.gov/npdes/permittips/permit-writing-tips-storyline/story_html5.html

¹⁸ <https://www.epa.gov/nps/stormwater-management-federal-facilities-under-section-438-energy-independence-and-security-act>

Bay TMDL,¹⁹ which is consistent with policies outlined in the Water Quality Trading Toolkit for Permit Writers (EPA 2007, updated 2009) and other Agency guidance. Water quality trading and other market-based mechanisms have been used in multiple MS4 permits in Region 3; for example, the DC MS4 permit allows the use of Stormwater Retention Credits, and many of Maryland's Phase I large MS4 permits incorporate the use of the state's water quality trading program.

5. Considerations for Equity and Environmental Justice: Executive Order (EO) 14008²⁰ directs all federal agencies to embed equity into their programs and services to ensure the consistent and systematic fair, just, and impartial treatment of all individuals. EO 14008 also includes a section on environmental justice. EPA is working to better infuse equity and environmental justice principles and priorities into our practices, policies, and programs. See <https://www.epa.gov/environmentaljustice> for more information.

In many areas, residents of low-income and underserved communities have long been excluded from land use decisions. Many such underrepresented communities lack the resources to properly capture, reuse, and manage stormwater runoff. They also often lack green spaces that could absorb stormwater and filter contaminated runoff. EPA strongly encourages states to consider environmental justice in the permit development process and to articulate that in the fact sheet. EPA recommends that permits include provisions to increase implementation of stormwater controls in historically excluded communities. Permit writers can also consider developing BMP retrofits, public outreach and education programs, and funding sources to help disproportionately affected communities. EPA has available technical assistance and funding mechanisms to help communities that do not have the resources to complete this work²¹. In addition, EPA's EJScreen tool²² can be used to help locate underserved communities, in addition to any tools the states may have. EJScreen is an interactive map that helps users identify locations with minority and/or low-income populations, potential environmental quality issues, a combination of environmental and demographic indicators, and other factors.

An important aspect of environmental justice is making sure that underserved populations are represented and able to meaningfully participate in the public comment process. EPA recommends that permitting authorities conduct additional outreach during the public notice and comment period to reach these parts of the community and to ensure they know they have an important role in the permit process. Permitting authorities and permittees can also enhance engagement by holding hearings, public listening sessions, or discussion sessions at times and places that maximize the public's ability to participate.

6. Incorporating Climate Change: Climate change is altering the frequency and intensity of precipitation across the Region. Changing hydrologic conditions, combined with increased amounts of impervious surface, sea level rise, larger storm surges, and temperature increases, will significantly impact local water bodies. During more frequent, heavier, and flashier storms, impervious surfaces deliver faster, more forceful runoff with potentially higher pollutant loads and increased sediment erosion, which can significantly impact local storm sewer systems and controls as well as local waterbodies.

Given how rapidly climate change is altering precipitation data, the data that stormwater infrastructure designers rely on may be outdated. Many stormwater BMP manuals currently in use refer to outdated sources and datasets such as NOAA's Atlas 14, which is composed of data that is already two decades

¹⁹ https://www.epa.gov/sites/default/files/2015-02/documents/appendix_s_offsets_final.pdf

²⁰ Executive Order 14008 (Jan. 27, 2021) <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/>

²¹ <https://www.epa.gov/environmentaljustice/environmental-justice-grants-funding-and-technical-assistance>

²² <https://ejscreen.epa.gov/mapper>

old. Using out-of-date manuals and data likely underestimates the amount of precipitation a BMP must be designed to withstand, in turn leading to undersized infrastructure. In addition, floodplain boundaries are constantly shifting, making flood maps and community flood zones difficult to keep current.

Updated stormwater design criteria and floodplain management regulations are critical to minimize or prevent projected climate change impacts and BMP vulnerabilities. EPA recommends that state permitting authorities as well as localities revisit and update BMP manuals, design manuals, and other types of guidance for both green and grey infrastructure practices to incorporate this new information. The most up to date floodplain boundaries should be used and floodplains should be surveyed more frequently to account for potential changes in their boundaries.

A description of existing floodplain management controls should be included in MS4 permit applications. In addition, proposed management programs should include procedures to ensure that flood management projects assess the impacts on the water quality of receiving waters and to evaluate whether existing structural flood control devices can be retrofitted to provide additional pollutant removal. See 40 C.F.R. 122.26(d)(1)(v) and (d)(2)(iv)(A)(4).

MS4 permit writers should consider including permit provisions such as restoration of impervious surfaces, green infrastructure and stormwater reuse, and retrofitting existing impervious surfaces with practices that mimic natural conditions. As climate change is expected to alter the volume and distribution of precipitation across the region, one strategy to mitigate the impact is to increase the implementation of volume control BMPs that address both water quality and quantity. In line with this strategy, impervious area restoration, stormwater BMP retrofits, and stormwater BMP design criteria should allow for a certain percentage of stormwater be infiltrated through volume control BMPs. While BMPs tailored to protecting water quality remain a priority, using these measures in conjunction with BMPs targeted at volume control will better position communities for future precipitation changes.

In addition, EO 14008 requires the government to work with stakeholders to conserve at least 30 percent of our lands and waters by 2030. EPA will work with our state partners on how BMPs implemented under MS4 permits can help achieve this goal.

V. ADDITIONAL MS4 PROGRAM CONSIDERATIONS

A. Permitting Additional Discharges/Residual Designation

1. Automatic Designation of Small MS4s – U.S. Census Bureau Changes. 40 C.F.R. § 122.32(a) defines what is termed “automatic designation” for small MS4s. This designation has historically been based upon location in an “urbanized area” as determined by the latest decennial census conducted by the U.S. Census Bureau. With the 2020 Census, the Bureau ceased distinguishing between “urbanized areas” and “urban clusters” and instead elected to delineate only “urban areas”. As a result of this change, EPA clarified its regulations and replaced the term “urbanized area” with the term “urban area with a population of at least 50,000” to align with the Bureau’s longstanding definition of an urbanized area. In June 2023, EPA published the final rule, *NPDES Small MS4 Urbanized Area Clarification*, to clarify the designation criteria for small MS4s following the Census Bureau’s recent urban area mapping revisions. The final rule became effective on July 12, 2023.²³

²³ EPA signed the rule on June 7, 2023 and published it in the Federal Register on June 12, 2023. See 88 Fed. Reg. No. 112 at p. 37994 (June 12, 2023), available at <https://www.govinfo.gov/content/pkg/FR-2023-06-12/pdf/2023-12494.pdf>

2. Additional Designations of Small MS4s. 40 C.F.R. § 123.35(b) requires permitting authorities to develop a process and criteria to designate small MS4s outside of automatically regulated areas and to apply such criteria, at a minimum, to any small MS4 serving a jurisdiction with a population density of at least 1,000 people per square mile and a population of at least 10,000. MS4s meeting the criteria must be designated and required to obtain NPDES permits. A small MS4 also may be regulated if it is determined that it is contributing substantially to the pollutant loadings of a physically interconnected MS4 that is already permitted. 40 C.F.R. § 123.35(b)(4).

EPA recommends permitting authorities review their criteria for designating MS4s and revise them where necessary to accomplish pollutant reductions called for in applicable TMDLs. With each general permit reissuance, permitting authorities should revisit previous MS4 designations and permit waivers granted under 40 C.F.R. § 122.32(c) and § 123.35(d) and identify whether any unregulated MS4s may need to be regulated to meet the water quality objectives of the CWA.

3. Residual Designation of Additional Unregulated Stormwater Discharges. Pursuant to 40 C.F.R. § 122.26(a)(9)(i)(C) and (D), EPA or the state permitting authority may designate currently unregulated, stormwater discharges for NPDES permit coverage if it is determined that stormwater controls are needed for the discharge based on TMDL WLAs that address the pollutant(s) of concern or that the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. Any person can petition EPA or a state permitting authority to exercise this authority. (See 40 C.F.R. § 122.26(f)). This designation authority is not limited to designating MS4s. Indeed, in the past few years, EPA has received multiple petitions requesting it to use this authority to regulate certain unpermitted commercial, industrial, and institutional stormwater discharges. Some EPA Regions have already used this authority to require additional NPDES permits²⁴. EPA will work closely with state partners in the application of these authorities.

B. Eliminating the Municipal Stormwater Permit Backlog. Each Region 3 state authorized to implement the NPDES program maintains a Memorandum of Agreement or Understanding with EPA that requires, among other things, the timely reissuance of expiring and expired permits. EPA intends to actively oversee the status and reissuance of all MS4 permits and recommends that state NPDES programs consult with EPA early in the permit development process. If a permit is administratively extended, EPA may ask a state to submit a schedule for issuing it. The schedule should allow adequate time for coordination with EPA before public notice, as well as target dates for public notice and comment (and hearing if necessary), and permit finalization.

C. Integrated Planning. EPA recognizes that focusing separately on clean water obligations for various sectors (e.g., wastewater, stormwater, drinking water) may prevent a municipality from addressing all its water quality issues in an efficient, cost-effective manner. An integrated plan identifies efficiencies from separate wastewater and stormwater programs to best prioritize capital investments and achieve human health and water quality objectives in a more cost-effective way. This approach can also lead to more sustainable and comprehensive solutions, such as green infrastructure²⁵, that improve water quality and provide multiple benefits to a community. EPA published a framework for integrated permitting in 2012, which provides guidance for developing and implementing effective integrated plans under the CWA²⁶.

²⁴ <https://www.epa.gov/system/files/documents/2022-09/epa-r1-rda-determination-charles-mystic-neponset-2022-combine-signed.pdf> and <https://www.epa.gov/system/files/documents/2022-07/los-cerritos-dominguez-prelim-designation-2022-07-15.pdf>

²⁵ <https://www.epa.gov/green-infrastructure>

²⁶ https://www.epa.gov/sites/production/files/2015-10/documents/integrated_planning_framework.pdf

In January 2019, Congress enacted the Water Infrastructure and Improvement Act (WIIA²⁷). WIIA added section (402(s)) to the CWA, which requires NPDES permitting authorities to inform municipalities that they can voluntarily develop an integrated plan that may be incorporated into permits. On September 26, 2019, EPA issued a memorandum to ensure consistent implementation of WIIA for enforcement actions and modifications to an existing administrative order or settlement agreement based upon the use of integrated planning²⁸. On December 3, 2019, EPA issued another memorandum to highlight the new provisions in WIIA and how EPA will continue to support integrated planning and green infrastructure²⁹. WIIA also required EPA to establish an office headed by a Municipal Ombudsman in the Administrator's Office to provide outreach and technical assistance.³⁰ EPA met that requirement in March 2020³¹. The law also required EPA to report to Congress³² highlighting integrated plan implementation strategies, the benefits of integrated planning, and providing case studies; EPA published that report in June 2021³³.

In May 2023, EPA released a toolkit for permitting authorities to review integrated plans and incorporate them into permits.³⁴ Additionally, EPA developed innovative models, tools, and technologies for communities to manage water runoff in urban and other environments³⁵. The resources in this toolkit incorporate green or a combination of green and gray infrastructure practices to help communities manage their water resources in a more sustainable way, increasing resilience to future changes.

D. Training, Guidance and Tools. Implementation of successful stormwater programs requires solid technical support. With technologies evolving and new rainfall data becoming available, updating guidance and tools is critical. Not doing so means that inadequate, undersized, or ineffective BMPs could continue to be designed, leading to critical failures and an increase in pollution events. EPA's website³⁶ includes a number of tools that can be used to help MS4 communities when designing BMPs, including:

1. Maintaining up-to-date design manuals and other reference materials. These materials should be updated with new information every 5 to 10 years or as conditions change and include practices with specifications that can meet the performance standards described in IV.A.1-4. As BMP technology improves, there may be an underutilization of more effective BMPs that could provide cost savings and less O&M requirements. Permitting authorities should include an annual evaluation and approval process for new BMP technologies to augment design manuals.
2. Recently, the Intensity Duration Frequency (IDF) curves used in the Chesapeake Bay watershed³⁷ were updated so that practices can be designed to account for climate change and be adjusted for storms that produce more intense runoff on a more frequent basis. Updated IDF curves and climate change models should be utilized to update design specifications to match the most up to date/localized rainfall data.

²⁷ <https://www.congress.gov/115/plaws/publ436/PLAW-115publ436.pdf>

²⁸ <https://www.epa.gov/sites/production/files/2019-10/documents/implentationofintegratedplanningandgreeninfrastructurethroughenforcementtools092619.pdf>

²⁹ https://www.epa.gov/sites/production/files/2020-01/documents/wiia_integrated_planning_implementation_memo_december_2019_508.pdf

³⁰ WIIA Section 4, 42 U.S.C. 4370j.

³¹ <https://www.epa.gov/ocir/municipal-ombudsman>

³² WIIA Section 3(c), 42 U.S.C. 4370m-7.

³³ <https://www.epa.gov/npdes/report-congress-integrated-plans-and-municipality-profiles>

³⁴ <https://www.epa.gov/npdes/integrated-planning-implementation-documents#toolkit>

³⁵ <https://www.epa.gov/water-research/green-infrastructure-modeling-toolkit>

³⁶ <https://www.epa.gov/arc-x/tools-water-related-climate-change-adaptation#tab-1>

³⁷ <https://www.rand.org/pubs/tools/TLA1365-1.html>

3. As Chesapeake Bay Expert Panel Reports are developed and/or modified, states should ensure that permits and state guidance documents are also updated so that the most accurate information is being used to design BMPs.
4. EPA and states host trainings/forums for permittees as needed. For example, EPA has hosted MS4 forums throughout the various states in the Region over the past few years to allow permittees the opportunity to share experiences and network to assist one another with permit compliance.
5. Region 3 has developed an SOP that outlines the regional stormwater permit review process and a series of permit review checklists. Once shared with the states, it is anticipated that this will make EPA reviews more efficient and consistent.

Any suggestions for technical support or needs related to the NPDES Stormwater program and/or state-federal collaborations should be shared with Region 3 staff for consideration.

VI. STATE AND EPA OVERSIGHT OF NPDES PROGRAMS

Most of the states in the Mid-Atlantic Region are authorized to implement the NPDES program, meaning that the states issue NPDES permits; EPA issues NPDES permits for the District of Columbia and certain subcategories in some states. Although it is critical to issue MS4 permits that meet the requirements of the CWA and regulations, actual environmental benefits only occur if the permits are fully implemented. It is important that states and EPA conduct adequate oversight of MS4 permits to ensure they are being correctly implemented.

A. State Oversight of NPDES Programs

Compliance evaluations of MS4 programs, and the necessary compliance/enforcement follow-up activities, are critical for the success of the program. It is EPA's expectation that state compliance/enforcement authorities will regularly schedule MS4 inspections/audits and take appropriate action to ensure that permittees maintain compliance. Developing permit language and conditions that are clear, specific, measurable, and enforceable will support this effort.

In 2014, EPA developed a CWA/NPDES Compliance Monitoring Strategy (CMS) which provided inspection frequency goals for the core NPDES program and for wet weather sources. The CMS defines program priorities, implementation strategies, and regional performance measures, which are in turn used in establishing yearly commitments for compliance monitoring activities with authorized states. States develop an annual CMS and submit it to EPA; EPA provides comments as appropriate.

B. EPA Oversight of NPDES Programs

EPA retains oversight and enforcement authority of the NPDES program. For example, most NPDES permits issued by a state must be sent to EPA for review and EPA may object to issuance of a permit if it finds the permit is inconsistent with the CWA or federal regulations.³⁸ EPA also has residual designation authority, by which it can designate a source or category of sources if it finds certain criteria, listed in the federal regulations, have been met.³⁹ Finally, CWA section 309 provides EPA with enforcement authority to ensure that NPDES permittees are complying with their permits. 33 U.S.C. 1319. Region 3 will be releasing a Standard Operating Procedure that will identify specific procedures and deadlines associated with the Region's review of draft stormwater permits.

³⁸ See 40 C.F.R. § 123.44.

³⁹ See CWA section 402(p)(2)(E), 33 U.S.C. 1342(p)(2)(E); see also 40 C.F.R. § 122.26(a)(9)(i)(C) and (D).

On December 29, 2009, EPA provided a letter to state programs outlining components of an accountability framework developed by the Chesapeake Bay Program partnership. Part of that accountability framework is the potential for EPA to take federal actions pursuant to its authority under the CWA; several federal actions⁴⁰ described in that letter may be appropriate should MS4 programs fail to meet the expectations outlined in this document. EPA will continually evaluate whether it should exercise its discretion to take one or more of those actions.

EPA welcomes state proposals for innovative alternatives to the approaches outlined in Part IV but emphasizes that rigorous and substantive solutions are necessary to meet our shared water quality objectives. Any proposed alternative must demonstrate that the environmental outcomes will meet the water quality requirements of the CWA. EPA also emphasizes the complementary roles of EPA and State NPDES programs and welcomes suggestions for collaboration on any of these elements.

⁴⁰ Potential actions include expanding NPDES permit coverage/residual designation, objecting to NPDES permits and increasing program oversight, conditioning and/or redirecting EPA grants, and increasing and targeting enforcement and compliance assurance.