

NATIONAL WATER REUSE ACTION PLAN

COMPLETED ACTION



Action 2.6 Develop Informational Materials to Address How CWA NPDES Permits Can Facilitate Water Reuse/Capture

Background

EPA, states, tribes, and local governments implement programs under the Clean Water Act (CWA) to protect the quality of surface water bodies to support public and environmental health. Under the CWA, National Pollutant Discharge Elimination System (NPDES) permits, which are typically administered by the states or tribal governments, regulate point source pollutant discharges to waters of the United States, including those generated by or associated with water reuse activities.

Stakeholders have suggested that NPDES permitting requirements can enable or challenge the implementation of water reuse. However, early adopters of reuse from treated municipal wastewater and stormwater capture and use have generally found it possible to devise workable permitting approaches to authorize and even promote these practices.

WRAP Action 2.6 aimed to inform NPDES permit writers of possible approaches for permitting discharges generated by or associated with water reuse activities and provide real world examples. To understand how NPDES permitting intersects with water reuse, action leaders assembled a diverse group of permittees, permitting authorities, reuse experts, and other stakeholders to explore NPDES permitting opportunities and concerns in water reuse implementation, identify approaches for effective water reuse permitting, and develop case studies that demonstrate where reuse practitioners have successfully worked with permitting authorities to expedite the NPDES permitting process.

Action Team

Action Leaders and Partners

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Accomplishments/Impact

Action leaders and partners published the report [*Navigating the NPDES Permitting Process for Water Reuse Projects: Strategies to Enable Recycling and Protect Water Quality*](#) in March 2022. The report summarizes key considerations when permitting wastewater reuse and stormwater capture projects, presents strategies to effectively permit water reuse projects, and draws upon case studies that illustrate those strategies. The paper aims to help permitting authorities and permittees better understand the broad range of potential NPDES permitting approaches, explain how NPDES permits can accommodate and/or incentivize water reuse, and assist permitting authorities and permittees to work cooperatively when permitting projects.

Lessons Learned

Permitting Strategies for Municipal and Industrial Wastewater Treatment Facilities

NPDES permits can include approaches and provisions that incentivize water reuse from municipal and industrial wastewater treatment facilities. Examples of these permitting approaches include:

- Permits can help permittees optimize the design of wastewater treatment and reuse facilities to meet regulatory requirements by establishing effluent limitations that allow for variability in wastewater effluent

characteristics and other provisions that clarify water recycling performance objectives (e.g., [King South Treatment Plant permit WA0029181](#)).

- Permitting authorities can issue NPDES general permits for discharges from facilities that reuse water to simplify the process of obtaining permit coverage (e.g., [NC General Permit NCG580000](#), [Arizona De Minimis Discharge Permit No. AZG2021-001](#)).
- Permits can be designed to provide operational flexibility or to account for several related facilities (e.g., [Tapia WRF permit](#)).
- Permitting authorities can issue regional or sector permits that address several facilities within a geographical area, which may help neighboring facilities work together to establish connections and manage discharges in aggregate ([San Francisco Bay Regional Nutrient permit CA0038873](#)).
- Discharges from water reuse operations may be diluted when recycled water is transported through canals (e.g., CA authorizes use of the Delta-Mendota Canal to move treated wastewater downstream to the Del Puerto Water District, where it is used for agricultural irrigation).
- Some permitting authorities have also adopted innovative permitting strategies to address discharges of brine residuals from water reuse facilities implementing reverse osmosis (RO) treatment. In situations where these concentration waste streams are not discharged to saline waters and/or waters with substantial dilution capacity, it may be feasible to develop water quality-based effluent limitations expressed solely in terms of mass loads, if it can be demonstrated that the mass-based limits are sufficient to meet applicable water quality standards consistent with permitting requirements.

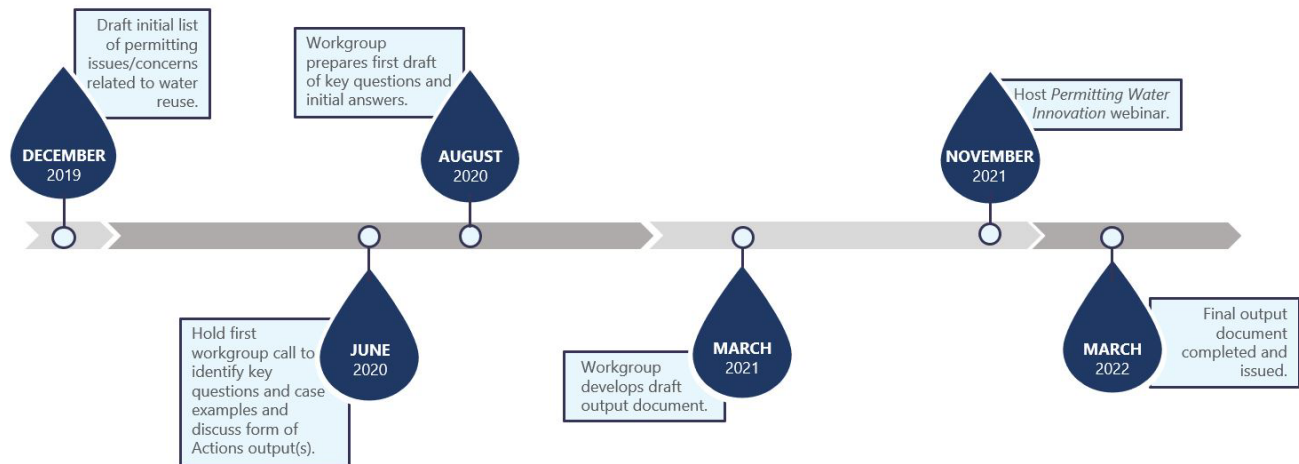
Permitting Strategies for Stormwater Management Facilities

Stormwater permits may address activities designed to capture stormwater for several kinds of uses. Municipal Separate Storm Sewer System (MS4) permits require permittees to develop and implement stormwater management programs to reduce pollutants discharged. As a part of the program, they implement practices and controls consistent with required minimum measures and applicable water quality-based requirements (e.g., TMDL-based requirements related to specific pollutants and wasteload allocations). For instance, permitting authorities have adopted innovative MS4 permitting strategies that allow permittees to implement stormwater capture and use projects to address high priority pollutants (e.g., [San Diego Regional MS4 permit](#), [2018 District of Columbia MS4 permit](#)). The flexibilities in these MS4 permits allow for, but do not require, permittees to implement stormwater capture and water reuse projects to demonstrate compliance in controlling pollutants of concern. In addition, some MS4 permits incorporate provisions that track the implementation of facilities and practices that may result in capture and recharge across the permitted jurisdiction, including large-scale detention and infiltration facilities and/or small-scale, distributed practices. (e.g., [Los Angeles County MS4 permit](#)).

Generally Applicable and Crosscutting Topics

Other generally applicable and crosscutting permitting strategies discussed in the report include anti-backsliding; ensuring proper treatment facility operations and maintenance; monitoring, tracking, and reporting; diverting urban runoff/stormwater into wastewater collection systems; incorporating reuse-related provisions in NPDES permits; addressing ground water quality protection; understanding the relationship of regulation under the CWA and Safe Drinking Water Act (SDWA); addressing discharges of recycled water; and addressing information and data needs.

Action Implementation Process



Future Activities

Building off of the work completed under this action, [action 2.19](#) (Advance Strategies for Permitting Innovative Wastewater Management Practices and Water Reuse) aims to refine, communicate, and disseminate information on the role of NPDES permitting processes in promoting innovative wastewater treatment and management. The action 2.19 team plans to hold an expert workshop to create the foundation for a potential future permit writer training to encourage the adoption of innovative technologies and management practices. The workshop will focus on identifying and articulating the impact of permitting on innovation in the wastewater sector. A conceptual framework for effective regulatory relationships will be presented to demonstrate ideas and key lessons from previous research to support innovation through permitting. This is intended to gain support from key leaders in the regulatory and utility community. The permit writer training materials to be developed as an output to Action 2.19 will satisfy one of the follow-up activities identified in the report

Additional Resources

- Cantor, A., L. Sherman, A. Milman, and M. Kiparsky. (2021). Regulators and utility managers agree about barriers and opportunities for innovation in the municipal wastewater sector. *Environmental Research Communications*, 3, 031001. <https://doi.org/10.1088/2515-7620/abef5d>
- Sherman, L., A. Cantor, A. Milman, and M. Kiparsky. (2020). Examining the complex relationship between innovation and regulation through a survey of wastewater utility managers. *Journal of Environmental Management*, 260, 110025. <https://doi.org/10.1016/j.jenvman.2019.110025>
- Nylen, N. G., M. Kiparsky, and A. Milman. (2022). Cultivating effective utility-regulator relationships around innovation: Lessons from four case studies in the U.S. municipal wastewater sector. *PLOS Water*, 1(8), e0000031. <https://doi.org/10.1371/journal.pwat.0000031>