

NATIONAL WATER REUSE ACTION PLAN



WRAP QUARTERLY UPDATE October–December 2024

A message from Dr. Peter Fiske, Executive Director of the National Alliance for Water Innovation—the U.S. Department of Energy’s Innovation Hub for Desalination and Water Reuse



When the National Alliance for Water Innovation (NAWI) was selected in 2019 by the U.S. Department of Energy (DOE) to lead a five-year, \$110 million investment to make desalination more cost and energy efficient, most assumed our research program would focus on ocean desalination. But the NAWI community recognized that the biggest gains would come from utilizing desalination as an important tool in a larger water reuse toolbox. Instead of thinking about “desalination” solely as large coastal facilities producing high-quality fresh water from the ocean, we saw the potential to use and improve upon desalination technologies like reverse osmosis to treat and reuse a more diverse set of ‘non-traditional’ water sources, such as municipal and industrial wastewater and inland brackish groundwater. These ‘non-traditional’ water sources are geographically widespread, compositionally diverse and can be used for a myriad of applications. Additionally, rather than build large-scale inland water reuse plants (whose costs may rival those of coastal desalination plants), why not consider small-scale, modular, decentralized water treatment and reuse systems that use and reuse the water locally?

In the past five years, NAWI has launched more than 50 collaborative applied research and technology development projects to enable autonomous, fit-for-purpose treatment and reuse systems, including a dozen pilots that will be operating in 2025. Descriptions of each of these projects can be found [here](#).

On April 11, 2024, at the Onsite Water Reuse Summit in Washington, D.C., Deputy Secretary of Energy David Turk announced that the NAWI program would be renewed for another five years, with an additional investment of \$75 million from the DOE.

In the next five years of the NAWI Program (NAWI 2.0), we will focus on many of the same themes of the 1.0 program while expanding our technology readiness research. In 2025, we will issue a set of funding opportunity announcements seeking teams to demonstrate next-generation water treatment pilot systems in operating environments. NAWI is interested in future-focused research on topics such as industrial cooling water, brackish groundwater, direct potable reuse and premise-scale reuse. You can find more information by joining the free NAWI Alliance at nawihub.org to get connected with a community of innovators who are working to make 21st-century water systems more resilient; or follow along with our new [WRAP action](#). I am excited to see the federal leadership in water reuse, not just from NAWI, but from the federal Water Reuse Interagency Working Group and the EPA’s leadership regarding the National Water Reuse Action Plan—their collaborative work is creating a lasting impact on the water sector.

Abbreviations are defined at the end of this document. See the [Online Platform](#) for more information about each action.

New WRAP Action

WRAP actions seek to advance water reuse planning and implementation across the country. Actions are organized by strategic theme to help focus efforts and inspire future action. We are pleased to announce that the following new action is now underway. To get involved or provide input, please email the action leaders using contact information from the [Online Platform](#).

IN CASE YOU MISSED IT

WRAP email updates highlight relevant water reuse activities and events. Monthly updates from this past quarter are available online:

- [October update](#)
- [November update](#)
- [December update](#)



Technology
Development
and Validation

Advance Reuse and Desalination Technologies through the Second Phase of NAWI ([Action 4.10](#), led by DOE and NAWI, in collaboration with four partners)

Launched in January 2020, NAWI is a research program focused on desalination and reuse-associated water treatment technologies. Guided by its goal of securing affordable and energy-efficient water supplies from nontraditional sources, NAWI funded more than 50 projects within its first five years. This action will build on NAWI's progress as it enters its second phase of DOE funding by continuing to bring together a team of industry and academic partners to examine the technical barriers and research needed to lower the cost and energy of water purification technologies. These advancements will help modernize America's water infrastructure and increase access to potable water.

We welcome federal, state, Tribal, local and water-sector partners to propose actions to advance water reuse. Ideas for new actions may be sent to waterreuse@epa.gov. For information about how to propose, lead or collaborate on a WRAP action, visit [this webpage](#).

Completed WRAP Action

One WRAP action was completed this quarter, demonstrating continued progress under the strategic theme of Water Information Availability. The EPA works with action leaders to develop [Completed WRAP Action Summaries](#) that highlight impacts, lessons learned and potential future activities.



Water
Information
Availability

Identify Water Reuse Opportunities in the Beverage Industry ([Action 5.7](#), led by GHD, in collaboration with nine partners)

Beverage manufacturing is energy and water intensive. Water reuse, along with associated treatment schemes, can maximize both energy efficiency and water recovery, helping beverage companies meet their sustainability and operational goals. The action team published a white paper, [Advancing Water Reuse Within the Beverage Industry](#), to identify impediments and solutions to water reuse in beverage manufacturing. This report presents a framework for approaching challenges in the areas of treatment and technology, stakeholder engagement and regulation to encourage the use of recycled wastewater in beverage development.

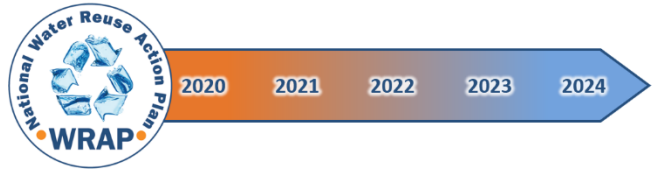
This Quarter's WRAP Action Outputs and Activities

Visit the [Water Reuse Information Library](#) for a robust set of WRAP outputs and other water reuse resources.

Events and Publications

[The EPA Publishes Report on Accelerating Water Reuse and Innovation in Wastewater Management.](#)

In 2023, the EPA organized an expert workshop in partnership with the University of California, Berkeley and Stanford University to discuss and validate a new permitting framework for supporting water reuse and innovation in wastewater management. The report, *A Framework for Permitting Innovation in the Wastewater Sector*, details the results of this workshop and key actions that permitting authorities and utilities can take to advance innovative efforts, particularly water reuse. ([Action 2.19: Advance Strategies for Permitting Innovative Wastewater Management Practices and Water Reuse](#))



The WRAP has:

- 74** Action Commitments
- 175** Action Leader & Partner Organizations
- 180+** Developed Resources

[The EPA Water Reuse Program Publishes a Potable Water Reuse and PFAS Q&A Document.](#) After the EPA regulated six PFAS chemicals in drinking water in early 2024, many stakeholders questioned how the regulation may impact water reuse. This brief document answers some frequently asked questions, including those about source control and treatment. Understanding PFAS sources and removal options can help potable reuse systems develop programs to ensure the protection of public health. ([Action 3.7: Develop Papers on Emerging Public Health Topics in Reuse](#))

[The ReWater Center Publishes Potable Water Reuse Report on Pathogen Reduction.](#) The newest issue of the Potable Water Reuse Report explores pathogen crediting frameworks, which ensure that treatment systems effectively remove pathogens and safeguard public health. The report, “Pathogen Reduction Crediting: It’s not what you can remove, it’s what you can prove,” describes how treatment facilities determine pathogen reduction, compares different crediting frameworks and presents recommendations for their improvement. **Sign up to receive these reports!** ([Action 7.10: Implement the DoD-funded Water Reuse Consortium for Water Resiliency at Military and Municipal Facilities](#))

[Amazon Web Services and Microsoft Receive 2024 Global Industrial Water Reuse Champion Awards.](#) The Global Industrial Water Reuse Champion Award recognizes Fortune 1000 companies achieving excellence through their leadership in water reuse and recycling. In December 2024, Amazon Web Services and Microsoft were named winners at the International Desalination and Reuse Association World Congress in Abu Dhabi, United Arab Emirates. Both companies have reached significant water management goals and are on track to considerably expand their reuse programs by 2030, particularly by integrating water recycling into data center operations. ([Action 8.4: Establish a Water Reuse Champion Award Program](#))

[The EPA Publishes CWSRF Project Case Studies, Including Case Studies on Water Reuse.](#) This new site allows users to explore over 200 CWSRF project case studies. The site is filterable by project category, assistance recipient, project name, state and assistance amount. Search “water reuse” to find 10 case studies, such as Bartlesville’s Indirect Potable Water Reuse Solution and San Antonio Water System’s Water Recycling Delivery System. ([Action 6.2A: Communicate Eligibility of Water Reuse in SRF Programs](#))

[The DoD-Funded WRC Premieres the Documentary Series *Flowing Forward*](#). In late 2024, the WRC premiered the first episode of *Flowing Forward*, a five-part docuseries examining water sustainability. “From Mountaintop to Metropolis: Chasing LA’s Water” examines the origins of Los Angeles’ water supply and explores future solutions to the city’s water scarcity. With a focus on water reuse, the episode investigates new technologies and practices that will shape future water sources in Los Angeles and beyond. ([Action 7.10: Implement the WRC](#))

[Study From the EPA’s EFAB Finds That a Tax Incentive for Water Reuse Can Have Public Benefits](#). In November 2024, the EPA’s EFAB Water Reuse Workgroup completed an assessment of the potential public benefit of an industrial reuse investment tax credit at the direction of Congress. This study—the outcome of a public listening session and regular workgroup meetings—presents their recommendations to Congress on the development of an investment tax credit focused on both onsite reuse and centralized reuse using treated municipal wastewater. The study identifies the different factors and externalities that should be considered when structuring a potential tax credit. ([Action 6.6: Study the Public Benefit of a Potential Water Reuse Tax Credit](#))

[WRF Publishes Report on Stormwater Capture and Use](#). A new WRF report, “Diversifying Water Portfolios through Stormwater Capture and Use: Contributing to a Water Resilient Future,” addresses obstacles to SCU implementation across multiple geographic scales. With an emphasis on the drought-affected states of the western United States, this report provides guidance for quantifying SCU volumes and characterizing its benefits. This effort builds on [WRAP Action 3.3](#), which identified finding solutions to western water rights challenges as a critical need. ([Action 5.8: Evaluate SCU in Colorado](#))

[Independent Advisory Panel Established to Create Single-Family Water Reuse Applications Report](#). The San Francisco Public Utilities Commission established an Independent Advisory Panel to consider public health, treatment needs and best management practices for treating water onsite for reuse at the single-family dwelling scale. Join a [webinar](#) on January 16th, 2025 to learn more about the findings and recommendations.

[The CDC Publishes a Recycled Water Webpage](#). The CDC published a new webpage, “Recycled Water for Drinking: An Overview,” on its Drinking Water site. The webpage presents an overview of recycled water practices in the United States that is accessible for non-scientific audiences and summarizes associated treatment processes and research on the safety of potable reuse. ([Action 8.6: Develop Water Reuse Communication Tools](#))

Infrastructure Funding Announcements

[The EPA’s WIFIA Program Celebrates Its 20th Water Reuse Loan](#). The EPA announced a \$268 million WIFIA loan to Hampton Roads Sanitation District, which serves areas across southeastern Virginia and the Eastern Shore. This is the third WIFIA loan and part of a \$1.3 billion agreement to implement the SWIFT Program, which will help secure the drinking water supply for 1.9 million residents. The SWIFT Program plans to utilize water reuse and advanced water treatment technologies to replenish the stressed Potomac Aquifer with treated water that meets drinking water standards. This loan marks the WIFIA program’s 20th closed loan for water reuse projects. ([Action 6.2B: Support and Communicate WIFIA Funding](#))

[Reclamation Announces \\$125 Million Investment for Large-Scale Water Recycling Projects](#). Reclamation announced a \$125 million investment in five water reuse projects to create new water sources and improve drought resilience across California and Utah. These investments are part of the Large-Scale Water Recycling Program, which supports water conservation projects that help communities develop local, drought-resistant water supplies by turning unusable water sources into clean, reliable ones. ([Action 6.5: Develop Reclamation’s Large-Scale Water Reuse Funding Opportunity](#))

State Updates

Illinois General Assembly Repeals Water Reuse Prohibition. Illinois recently repealed its ban on water reuse. House Bill 3046 of the 103rd General Assembly repealed the prohibition of the use of recycled sewage treatment plant effluent, while simultaneously approving revisions to any rules that are necessary to facilitate water reuse in the state. ([*Action 7.11: Identify Industrial Water Reuse Opportunities in Illinois*](#))

Florida Environmental Regulation Commission Approves New Potable Reuse Rules. The potable reuse rules developed by the Florida Department of Environmental Protection were unanimously approved by the Florida Environmental Regulation Commission during a hearing on December 13th, 2024. The potable reuse rules establish a legal framework for direct and indirect potable reuse implementation in Florida, including planned deliveries or discharges to groundwaters and surface waters intended to be utilized as potable sources.

Abbreviations Used in This Document			
CDC	Centers for Disease Control and Prevention	Reclamation	U.S. Bureau of Reclamation
CWSRF	Clean Water State Revolving Fund	SCU	Stormwater capture and use
DoD	U.S. Department of Defense	SRF	State Revolving Fund
DOE	U.S. Department of Energy	SWIFT	Sustainable Water Initiative for Tomorrow
EFAB	Environmental Financial Advisory Board	WIFIA	Water Infrastructure Finance and Innovation Act
EPA	U.S. Environmental Protection Agency	WRAP	National Water Reuse Action Plan
NAWI	National Alliance for Water Innovation	WRC	Water Reuse Consortium
PFAS	Per- and Polyfluoroalkyl Substances	WRF	Water Research Foundation
Q&A	Question & Answer		