NATIONAL WATER REUSE

ACTION PLAN

Interagency Sustainability Working Group

December 5, 2019

Version 4.2 – October 18, 2019
Draft – Do Not Quote or Cite

Agenda

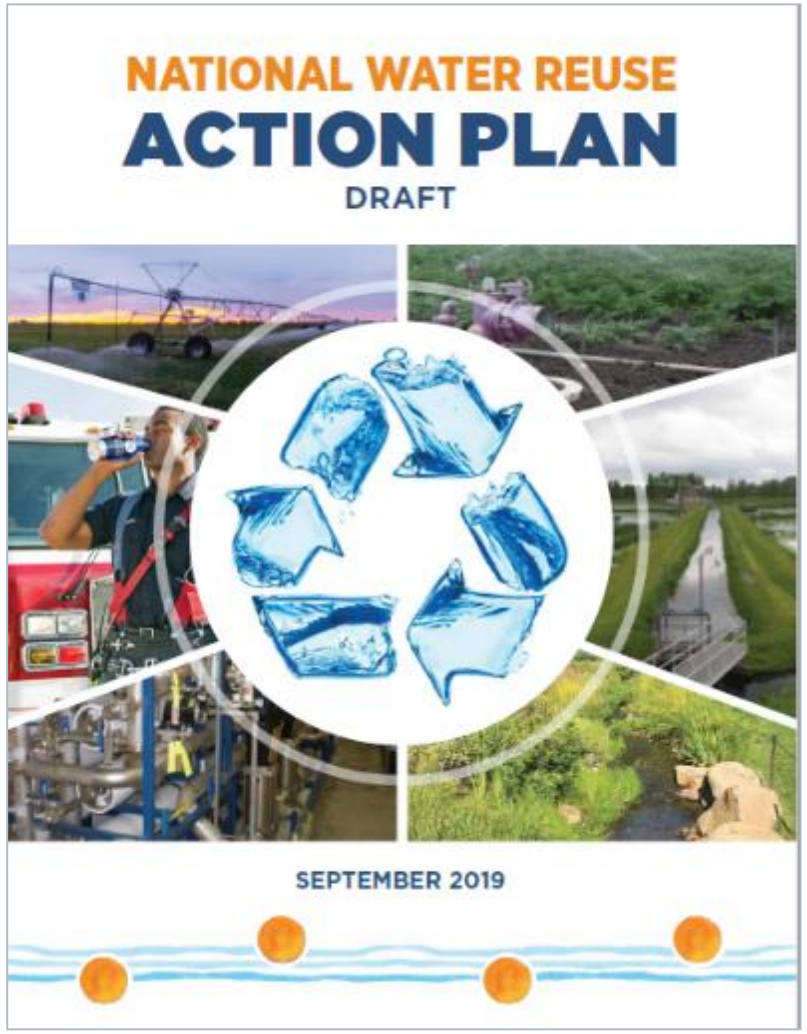
1. Overview and background
2. Strategic objectives
3. Relevant actions
4. Public commitment period
5. Envisioning implementation

Photo courtesy of WateReuse Association

Draft Action Plan announcement with federal partners at the WateReuse Symposium, September 10, 2019.

Content Overview

- Call to Action
- Section 1
  - The business case
- Section 2
  - **10 strategic objectives**
  - **46 proposed actions**
- Section 3
  - Looking forward



Released Sept. 10, 2019

~45 pages

9 appendices

Source Materials

- Analysis and summary of literature (over 155 sources)
- Outreach with ~2,300 participants (>20 forums)
- Public input from the docket (55 commenters)
- WateReuse Association expert convening report (spring 2019)
- Review of international experiences (Israel, Singapore, Australia, South Africa, Namibia)
- Reuse case studies for facilities in the United States
- Current federal agency roles

1.1 Drivers, Opportunities, and Challenges for Water Reuse

Water security: The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socioeconomic development.

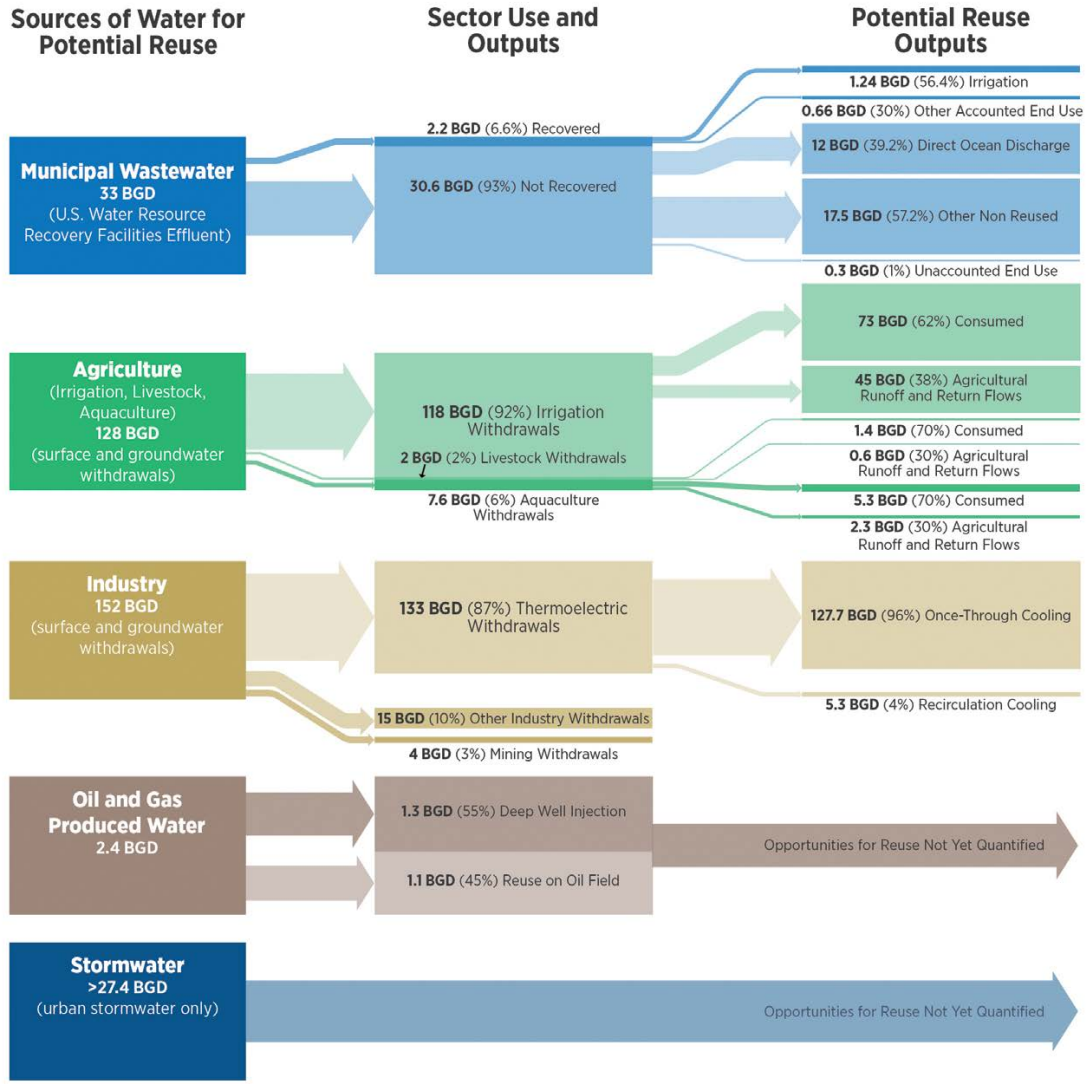
Water sustainability: Ensuring an adequate and continual supply of clean water for human uses and ecosystems.

Water resilience: The ability of a community water system or an asset of a community water system to adapt to or withstand the effects of rapid hydrologic change or a natural disaster.

1.2 Sources of Water and Potential Applications for Water Reuse

- Clear potential to reclaim more of nation's water
  - Nearly 350 BGD sources of water discharged
  - Over 280 BGD potentially available for reuse
- Sources* of water for potential reuse:
  - 33 BGD - Municipal wastewater
  - 128 BGD - Agriculture
  - 152 BGD - Industry
  - 2.4 BGD - Oil and gas produced water
  - >27.4 BGD – Stormwater

* Graphic and estimates from draft Action Plan, page 6



2.1 Enable Consideration of Water Reuse with Integrated and Collaborative Action at the Watershed Scale

"The Action Plan will be a critical step toward advancement of Integrated Planning across regulatory boundaries and for promoting more resilient water management across the United States."

–New York City Department of Environmental Protection

Vegetation along a stream at the Brooklyn Botanic Garden in New York filters water collected on the garden grounds as part of their treatment and recirculation infrastructure, reducing the garden's freshwater consumption.

2.2 Coordinate and Integrate Federal, State, Tribal, and Local Water Reuse Programs and Policies

A farm in Idaho applies treated, reclaimed wastewater to a potato field.

"Going forward, perhaps the most important action EPA can undertake is to maintain its stature as an honest broker for water reuse policy. As our nation's lead regulator for water policy, the Agency is in a unique position, one that allows the Agency to backstop sound local and state decision making."

–American Water Works Association (AWWA)

2.3 Compile and Refine Fit-for-Purpose Specifications

"The academic and professional communities in the United States are embracing a 'One Water' approach that recognizes that water sources that were once thought to be unfit for consumption (e.g., treated wastewater, urban runoff, agricultural runoff) can now potentially be made safe for human consumption with appropriate treatment technologies."

–ReNUWIt

The Heyburn reuse site in Benewah County, Idaho, reuses treated wastewater to irrigate a 20.5-acre native forested site during the growing season.

2.4 Promote Technology Development, Deployment, and Validation

"Establishing a national framework for reuse water quality, dictated by the source and end use, would promote reuse technology development and provide a greater economy of scale for manufacturers of equipment and engineered solutions."

– The U.S. Chamber of Commerce Business Task Force on Water Policy

Purple pipes in the City of Meridian, Idaho, which has begun installing water reuse infrastructure with a goal to "recycle and/or reuse 80 percent of the waste stream" by 2030.

2.5 Improve Availability of Water Information

Final effluent leaving constructed wetlands in Orlando. In-field water quality monitoring of reclaimed ensures fit-for-purpose specifications are being met.

"Sharing information in a sector-specific context can help build awareness of the benefits of reuse and encourage stakeholders not yet engaged in reuse to consider options for implementation."

–WateReuse Association Convening Report

2.6 Facilitate Financial Support for Water Reuse

"EPA should clarify that water reuse projects are eligible expenses for State Revolving Funds (SRF) and which SRF, clean water or drinking water, should fund which pieces of a project."

–ACWA and ASDWA

A storage facility with purple pipe distribution in Altamonte Springs, Florida.

2.7 Integrate and Coordinate Research on Water Reuse

"Federal leadership is sorely needed to help assure that, as we go forward with utilizing this critically important resource, we make sound, scientifically based decisions that work to prepare our country for the successful utilization of all alternate water sources."

–Plumbing Industry Leadership Coalition

The private Hidden Springs sewage treatment facility provides treated wastewater to be reused for irrigation on public and small-scale crops.

2.8 Improve Outreach and Communication on Water Reuse

Bilingual signage about the use of reclaimed water for landscaping is protective of the entire community at one Florida hotel complex.

"More messaging on a national level of the benefits and successes [of water reuse] in tandem with discussion of the public health and environmental protection safeguards and benefits is necessary."

–NACWA

2.9 Support a Talented and Dynamic Workforce

"With increasingly complex systems, particularly in the case of direct potable reuse, there are skills, knowledge and abilities that go beyond traditional operator certification requirements. ACWA and ASDWA recognize and respect the States' autonomy in implementing their operator certification programs, however water reuse represents a unique opportunity for EPA to partner with states to identify key knowledge and skills needed by water system operators who are presiding over these water reuse projects."

–ACWA and ASDWA

A large wheel line sprinkler system in Idaho.

2.10 Develop Water Reuse Metrics that Support Goals and Measure Progress

The Don van Rasfeldt Power Plant in Santa Clara, California, takes high-salt water (750 mg/L total dissolved solids) and runs it through reverse osmosis. The resulting reclaimed water is fed into the power plant boilers.

"According to the 2017 Reuse Inventory Report, Florida reused approximately 813 MGD (over 161 billion gallons per year) of potable quality water while serving to add 252 MGD (approximately 92 billion gallons per year) back to available water supplies."

–Florida DEP

Example Actions

ACTION 2.2.7

Convene a Federal Multi-Agency Working Group to Serve as a Forum for Coordinated Engagement on Water Reuse

Convene a working group (or groups) to serve as a forum for discussion of water reuse, including in federal installations and buildings. This would include working with all federal agencies that have designated responsibilities related to practices enabling water reuse. See Insets 17 and 18 as examples of federal leadership.

ACTION 2.4.4

Provide Case Examples and Identify Candidates for Water Reuse System Implementation in Federally Owned Facilities

Review the portfolio of federally owned facilities to identify candidates for water reuse systems and compile examples where federal facilities have been champions of water reuse. For example, the federal supercomputer facilities may be able to consider using reclaimed water for cooling.

Reuse Case Studies

The San Ysidro Land Port of Entry (CA) features a membrane bio-reactor blackwater onsite treatment system, producing non-potable treated graywater (stored in a 400,000-gallon cistern) that is combined with rainwater for flushing toilets, irrigation, and cooling towers.

The Hart-Dole-Inouye Federal Center (MI) sends rainwater to a 125,000-gallon cistern, treats and filters the water, and uses it onsite for cooling tower make-up water and irrigation.

The green roof at the U.S. Coast Guard Headquarters (DC) intercepts, stores, and treats stormwater—up to and including water from a 95th percentile storm—and uses it for onsite irrigation and water features.

Reuse Case Studies

The National Security Agency (MD) uses reclaimed wastewater from Howard County as industrial cooling water for critical IT infrastructure at its East Campus, addressing all first phase cooling needs.

Fort Carson Army Base (CO) conserves up to 300 million gallons of potable water annually through wastewater reuse for irrigation and a closed-loop vehicle wash facility.

GSA's Federal Center South Building 1202 (WA) captures water from the roof and stores it in a 25,000 gallon cistern for toilet flushing, irrigation, rooftop cooling tower and water features in the atrium.

90-Day Public Commitment Period

Commenters are encouraged to:

1. Identify the most important proposed actions they feel should be taken in the near term;
2. Identify the specific attributes and outcomes of proposed actions that will achieve success;
3. Identify implementation steps and milestones necessary to implement the proposed actions;
4. Commit to lead or collaborate with others on implementing any of the proposed actions; and
5. Inform revisions and recommendations to the proposed 46 actions.

Comments on the draft plan may be submitted and viewed through regulations.gov (EPA-HQ-OW-2019-0174) on or before December 16, 2019.

Envisioning Implementation

Goal: issue a National Water Reuse Implementation Plan, available online and updated in real-time, which includes clear commitments and milestones for actions.

Attributes of action scoping and implementation plans may include:

- Background/Context/Framing
- Problems to be Solved/Opportunities to be Gained
- Entities and Organizations with Equities and Interests
- Steps to Implement the Action
- Key Contacts/Discussants

We look forward to your comments and continued engagement.

Thank you!

Jeff Lape, National Program Leader for Water Reuse
EPA Office of Water
lape.jeff@epa.gov

https://www.epa.gov/waterreuse/water-reuse-action-plan