



National Water Reuse Action Plan

NATIONAL WATER REUSE ACTION PLAN QUARTERLY UPDATE January – March 2021

A Message from National Program Leader for Water Reuse, Sharon Nappier

February 27th marked the one-year anniversary of the [National Water Reuse Action Plan](#) (WRAP). To commemorate the incredible work of the action teams and set the stage for future activities and collaborations across the sector, **please join us for a free webinar on April 29, 2021, from 2:00 to 3:30 PM EDT.** “Resilience Through Collaboration: First Year Highlights and Future Directions of the National Water Reuse Action Plan” will celebrate accomplishments of action leaders and partners and forecast anticipated 2021 outcomes. It will also feature a lively discussion with leaders from across the water sector about the future of reuse and its importance as a tool to address the impacts of climate change and meet local water demands. The virtual event will be complemented by the release of a progress report that provides a “year in review” and forecasts anticipated WRAP-related efforts and outputs. Please share this with your networks and register [here](#). Thank you to the 105 organizations and individuals that have joined this collaborative. I look forward to celebrating with you!

Building Water Reuse Capacity Within EPA

In late 2020, EPA established a Water Reuse Team within the Office of Water to help ensure the longevity of the WRAP and serve as a resource hub for technical analysis and guidance. Dr. Rabia Chaudhry joined the Water Reuse Team as EPA’s National Water Reuse Expert in mid-January.

This winter, the Water Reuse Team held listening sessions with staff across the 10 EPA Regions. Discussions centered around water reuse drivers and priorities, barriers to the implementation of water reuse applications, current reuse-related regional efforts, and support needs. Regional engagement is critical as EPA looks to institutionalize water reuse within its core programs. A list of EPA Regional contacts for water reuse is available [here](#).

Highlighting Completed WRAP Actions

Upon completion of a WRAP action, Water Reuse Team members and action leaders will collaborate to create an action closeout document, summarizing action accomplishments and impact. The closeout document also describes how the action established a foundation for potential work, identifies work that will continue into the future, and lists ideas that may be a natural progression of the completed action. The action closeout process will be an important way to document and share accomplishments while identifying additional needs. Currently, three WRAP actions are complete, and the closeout documents are available on a newly developed webpage [here](#).

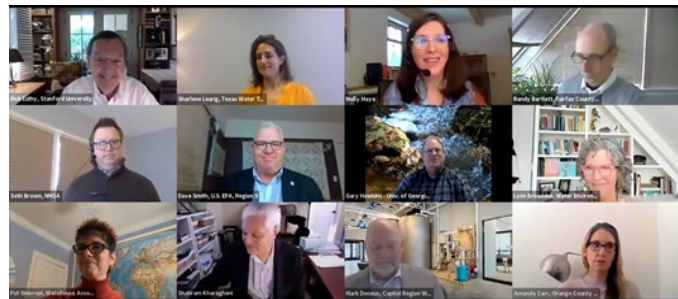
Active Action Highlights

The following action highlights provide a snapshot of WRAP activities and efforts over the past quarter, including the completion of key milestones and outputs. Brief updates on all WRAP actions are included in the status update table. Organization acronyms are defined in the abbreviations table at the end of this document.

WRAP BY THE NUMBERS

41 active actions
3 complete actions
105 action leaders and collaborating partners
165 complete implementation milestones out of **359**

- *Develop Case Studies of Successful Low-Input Water Reuse Solutions to Meet Local Water Needs (Action 1.5)*: Through April 23, **ECOS** is soliciting case studies of “low-input” solutions used to meet local water needs. Low-input solutions include projects that can be considered low-energy, low-cost, or low-maintenance, or that have another feature that makes them accessible to a variety of practitioners while still meeting public health and environmental goals. The projects should highlight small community efforts to employ reuse effectively, demonstrate how low-input water reuse solutions can address water scarcity issues, help communities access alternative sources of water, create cost or energy savings, and/or alleviate permitting issues or regulatory compliance costs. If you would like to share a project for consideration to be included in the case study compilation, please see the [solicitation](#) for guidance.
- *Utilize Existing Multi-Agency Federal Working Groups to Serve as Forums for Coordinated Engagement on Water Reuse (Action 2.7)*: To continue federal collaboration on water reuse issues and activities, representatives from **13 federal agencies and departments** convened for the 16th WRAP federal engagement meeting in April. Discussion focused on specific opportunities to coordinate among partners on resource tool development, including federal involvement in [Action 6.1](#): “Compile Existing Federal Funding Sources for Water Reuse and Develop an Interagency Decision Support Tool.”
- *Convene Experts to Address Opportunities and Challenges Related to Urban Stormwater Capture and Use (Action 3.3)*: **NMSA** hosted two webinars in a four part series on stormwater harvesting, co-sponsored by **ReNUWit, WEF, JFW, EPA, and WaterReuse**. In the [first webinar](#), a group of stormwater management leaders from around the United States examined stormwater capture motivations and drivers, barriers to progress, and future directions. In the [second webinar](#), public agencies and researchers discussed how they are working to identify the level of treatment needed to safely use captured stormwater and rainwater and reviewed current efforts to establish treatment standards. Collectively, over 650 participants attended these webinars.
- *Develop Research and Tools to Support the Implementation of Onsite Non-Potable Water Reuse Systems (Action 3.4)*: **EPA ORD**, in partnership with **NBRC for ONWS**, developed and released the [Non-Potable Environmental and Economic Water Reuse \(NEWRE\) Calculator](#). The calculator is a web-based tool for screening-level assessments of source water options for any urban building location across the United States



“Stormwater Capture Drivers, Impediments, and Future Visions” webinar

FEDERAL GRANT FUNDING

Through May 17th, EPA is [requesting](#) applications for \$12 million in funding for projects to provide training and technical assistance for small, rural, and tribal wastewater utility systems and onsite septic systems, which includes water reuse. Additionally, in celebration of World Water Day, EPA [announced](#) the availability of \$2.7 billion for State Revolving Funds (SRFs) to assist states, tribes, and territories with infrastructure projects that help provide safe drinking water and protect surface waters in communities across the United States. EPA is providing approximately \$1.1 billion in new federal grant funding for the [Drinking Water SRF](#) and \$1.6 billion in new federal grant funding for the [Clean Water SRF](#) which is available for various water infrastructure projects, including implementing water reuse and recycling.

that is considering onsite non-potable reuse. EPA shared fit-for-purpose risk assessments and life cycle comparisons of non-potable reuse scenarios and provided an overview of the NEWR tool in a [webinar](#).

- ***Coordinate and Promote Water Reuse Technology in Federal Small Business Innovation Research Programs (Action 7.5):*** EPA [announced](#) nearly \$2.5 million in awards to 24 U.S. small businesses to develop innovative technologies that help support EPA’s mission of protecting human health and the environment. Nine small businesses were awarded EPA SBIR funding of up to \$100,000 to develop and commercialize novel water reuse monitoring and treatment technologies. Read more about these projects [here](#).

WRAP INVOLVEMENT AT THE WATEREUSE SYMPOSIUM

The 36th WaterReuse Virtual [Symposium](#), held virtually on March 15-25, showcased the important role that water reuse plays in ensuring water security, safety, and supply under the theme “Resilience Redefined.”

- EPA Water Reuse Team members **Sharon Nappier**, **Rabia Chaudhry**, and **Justin Mattingly** engaged in live roundtable sessions pertaining to water recycling and policy, water recycling and public health, and reuse research and innovation.
- [Action 2.16](#) partner **Felicia Marcus** was a panelist for a live session on recycled water as a resiliency tool.
- [Action 7.2](#) leader **Julie Minton** (WRF) facilitated a live session on water recycling research and innovation.
- [Action 8.4](#) leader **Jon Freedman** (Suez) facilitated a live session on water recycling and policy.
- [Action 9.2](#) leader **Jim Horne** (EPA) facilitated a live session on the implementation and operation of water recycling systems.
- Five technical sessions featured WRAP-related content presented by action team members:
 - **“Water Reuse Applications Within Integrated Water Resources Management Framework”** ([Action 1.2](#))
 - **“State Efforts: Identifying Technical, Regulatory, and Information Needs”** ([Action 2.2](#))
 - **“Lions, Gazelles, and Hippos: Lessons in Cooperation from the Waterhole”** ([Action 2.16](#))
 - **“Tailoring Stormwater Capture: Building Regional Capacity to Harvest Stormwater”** ([Action 3.3](#))
 - **“Implementing and Scaling Up Onsite Non-Potable Water Systems”** ([Action 3.4](#))



New Active WRAP Actions

The [January quarterly update](#) introduced three new proposed actions across three WRAP strategic themes. These actions were updated and expanded by action leaders, partners, and the Water Reuse Team to reflect public feedback. They are now active on the [WRAP Online Platform](#).

NEW ACTIVE WRAP ACTIONS		
Action Title	Action Number	Leader(s)
Strategic Theme: Integrated Watershed Action		
Develop Case Studies of Successful Low-Input Water Reuse Solutions to Meet Local Water Needs	1.5	ECOS
Strategic Theme: Technology Development and Validation		
Evaluate and Optimize Low-Input Treatment Methods to Remove Pharmaceutical Residues from Treated Wastewater Used for Irrigation	4.7	USDA
Strategic Theme: Water Information Availability		
Quantify the National Volumes of Water Potentially Available for Reuse for Municipal Wastewater and One Additional Source of Water	5.5	EPA, WaterReuse, WEF

New Proposed WRAP Action

New actions are introduced as often as once each quarter to address identified needs and knowledge gaps related to water reuse. The new proposed action for this quarter is presented in the table below, with additional information on the action available through the Online Platform.

NEW PROPOSED WRAP ACTION		
Action Title and Number	Action Leader	Brief Description
Strategic Theme: Integrated Research		
Life-Cycle Analysis to Support Cost-Effective Enhanced Aquifer Recharge (Action 7.7)	EPA Jacquelyn Bell	Fund research through the Science to Achieve Results (STAR) program to support safe and sustainable water resources. Research will focus on better understanding the life-cycle costs and benefits of enhanced aquifer recharge.

The Water Reuse Team invites the water user community to propose, lead, and collaborate on actions to advance water reuse. Ideas for new actions may be sent to waterreuse@epa.gov at any time. For information about how to propose a WRAP action, please reference [this webpage](#).

Action Numbering





In March, the first “2” across all WRAP action numbers was removed to better emphasize the connection to the WRAP’s 11 strategic themes. For example, what was previously referred to as Action 2.3.1 is now Action 3.1 under the 3rd strategic theme of “Science and Specifications.”







Status Update on WRAP Actions

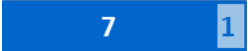

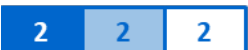


* The number of updates made to each action on the [Online Platform](#) is cumulative (February 2020–March 2021).







** For the implementation progress bar graphs in the table below, the dark blue area indicates the completed milestones, the light blue area indicates milestones that are in progress, and the white area reflects forecasted future milestones.

*** Complete actions are those where all supporting milestones are completed, and no additional milestones will be added.







Shortened Action Title and Number	Action Leader(s)	Brief Update	# of Updates to Online Platform*	Implementation Progress**
Integrated Watershed Action				
Prepare Case Studies of Successful Water Reuse Applications (Action 1.2)	Aliza Furneaux (WateReuse)	The action team developed a template for the integrated water resources management case study compilation and presented a session at the WateReuse Symposium titled “Water Reuse Applications Within an IWRM Framework.”	32	
Leverage EPA’s Water Partnership Programs (Action 1.4)	Bob Benson (EPA)	After completing a report inventorying existing water reuse practices within the Urban Waters (UW) Program and the National Estuary Program, the partnership programs chose the San Antonio River (TX) and the Upper Verde River (AZ) systems to kick off WRAP pilot projects. These projects are scoping opportunities for integrated water resource management and water reuse planning with a diverse set of stakeholders, including UW partners. In conjunction, the UW utilities and infrastructure project is working with 10 cities to develop water equity strategies that will address water supply and infrastructure issues (including water reuse needs and opportunities).	46	
Develop Case Studies Low-Input Solutions (Action 1.5)	Layne Piper (ECOS)	ECOS developed an Action Implementation Plan and released a solicitation for case studies showcasing the integration of low-input solutions across a variety of geographic areas, community sizes, and types of water reuse.	0 New!	
Policy Coordination				
Compile Existing State Policies and Approaches to Water Reuse (Action 2.1)	Jake Adler (ACWA), Wendi Wilkes (ASDWA), Sharon Nappier (EPA), Greg Fogel (WateReuse)	Work has begun to compile and organize state policy and regulatory documents.	21	

Shortened Action Title and Number	Action Leader(s)	Brief Update	# of Updates to Online Platform*	Implementation Progress**
Enhance State Collaboration on Water Reuse (Action 2.2)	Jake Adler (ACWA), Wendi Wilkes (ASDWA), Ashley Harper (EPA)	GWPC, in collaboration with ACWA, ASDWA, ASTHO, and ECOS, planned and held a session at the WaterReuse Symposium titled “State Efforts: Identifying Technical, Regulatory, and Information Needs.” The team is also compiling a list of state water reuse contacts and roles to make publicly accessible.	42	
Enhance Wastewater Source Control Through Local Pretreatment Programs (Action 2.4)	Cynthia Finley (NACWA), Claudio Ternieden (WEF)	NACWA is developing an online resource library for case studies and other relevant documents that characterize how pretreatment pollution prevention programs can be incorporated into a water reuse program.	8	
Develop Materials on How CWA NPDES Permits Can Facilitate Water Reuse (Action 2.6)	David Smith (EPA), Kevin Weiss (EPA), Sean Rolland (ACWA)	The workgroup, consisting of EPA, state, permittee, and other stakeholder volunteers, is developing a white paper to compile case-studies addressing key NPDES permitting questions specific to water reuse.	28	
Utilize Existing Working Groups to Coordinate Federal Engagement (Action 2.7)	Sharon Nappier (EPA)	The Inter-Sustainability Working Group, Interagency Water Working Group, and National Drought Resilience Workgroup continue to convene with their partners. A status report for the NDRP is expected to be published in June.	32	
Align Tools to Promote Best Management of Unused/Expired Pharmaceuticals (Action 2.9)	Sharon Green (LACSD)	The action team meets monthly to explore opportunities to align messaging related to pharmaceutical waste disposal and is working on the development of case studies to highlight pollution prevention strategies, such as drug takeback programs. Planning is underway for the NACWA National Pretreatment Workshop, scheduled for May 17–21, 2021, which will include a roundtable session titled “Pharmaceuticals: Hazardous Waste Rule and Other Disposal Issues.”	19	
Leverage Existing USDA Programs for Consideration of Agricultural Water Reuse (Action 2.12)	Alan Gillespie (USDA)	In February 2021, NRCS published detailed project descriptions for the 31 funded WaterSMART Initiative Priority Areas. NRCS is providing new and innovative technology for aquifer and groundwater recharge through two interim practice standards, Managed Aquifer Recharge, and Groundwater Recharge Basin or Trench. NRCS will evaluate their effectiveness in California as part of their FY22 program delivery.	46	

Shortened Action Title and Number	Action Leader(s)	Brief Update	# of Updates to Online Platform*	Implementation Progress**
Conduct Outreach and Training with Tribes to Build Water Reuse Capacity (Action 2.15)	David Smith (EPA)	EPA continues to assess the need for additional tribal support concerning water reuse and is exploring cross-action collaborative opportunities with Action 8.5.	45	
Support Local and Regional Reuse Projects (Action 2.16)	Eric Rosenblum, Greg Fogel (WateReuse), David Smith (EPA)	The action team identified examples of water reuse governance models and interagency agreements used successfully by water agencies and communities. For each case study, the action team is analyzing advantages, constraints, similarities, differences, and adaptability to different settings. The action team recorded a session for the 36th WateReuse Symposium titled “Lions, Gazelles, and Hippos: Lessons in Cooperation from the Waterhole,” during which representatives from Virginia, Texas, Arizona, and California shared experiences in developing successful water reuse programs through interagency partnerships.	30	
Propose Nationwide Permit Addressing Reuse (Action 2.17)	Jennifer Moyer (USACE)	USACE published its proposed nationwide permit for water reuse in the Federal Register on September 15, 2020, for public comment. Proposed nationwide permit E is being considered for finalization in the coming months.	2	
Science and Specifications				
Compile Existing Fit-for-Purpose Specifications (Action 3.1)	Sharon Nappier (EPA)	EPA and contractors convene weekly and have ongoing meetings with action partners. The team is currently working to summarize the technical basis for state regulatory and guidance documents with fit-for-purpose reuse specifications.	16	
Convene Experts on Urban Stormwater Capture and Use (Action 3.3)	David Smith (EPA), Chris Kloss (EPA), Danielle Johnson (JFW), Seth Brown (NMSA), Richard Luthy (ReNUWIt), Greg Fogel (WateReuse), Claudio Ternieden (WEF)	EPA, WateReuse, NMSA, ReNUWIt, and WEF co-sponsored two stormwater harvesting webinars in February 2021. The action team also recorded a session titled <i>Tailoring Stormwater Capture: Building Regional Capacity to Harvest Stormwater</i> that was made available for viewing in March 2021 during the 36th WateReuse Symposium.	50	

Shortened Action Title and Number	Action Leader(s)	Brief Update	# of Updates to Online Platform*	Implementation Progress**
Develop Research and Tools to Support ONWS (Action 3.4)	Paula Kehoe (NBRC for ONWS)	In February 2021, EPA ORD and NBRC ONWS announced the NEWWR calculator , a web-based tool for screening-level assessments of source water options for any urban building location across the U.S. considering non-potable reuse. The calculator was presented at an EPA research webinar on February 24.	25	
Assess Specifications of Wastewater in Food Animal Protein Processing Facilities (Action 3.5)	Jay Garland (EPA)	EPA initiated and defined sampling design in January 2020 and resumed work in March 2021.	7	
Viral Pathogen and Surrogate Approaches for Assessing Treatment Performance (Action 3.6)	Sarah Ludwig-Monty (EPA)	Eligibility, peer, and relevancy review is underway for EPA Science to Achieve Results (STAR) program Viral Pathogen and Surrogate Approaches for Assessing Treatment Performance in Water Reuse applications.	1	
Technology Development and Validation				
Implement New Mexico Produced Water Research Consortium (Action 4.2)	Rebecca Roose (NMED), Lynette Guevara (NMED)	New Mexico's PWRC Directors issued the first request for proposals to advance the research agenda for year two, supporting the research and development of projects evaluating treatment technologies, produced water availability, quantitative risk assessments, and cost-benefit analyses.	38	
Support Water Reuse Through DOE's Water Security Grand Challenge (Action 4.3)	Diana Bauer (DOE)	DOE announced 10 winners of the Waves for Water (Stage III: Adapt) and opened the next stage on February 9, 2021.	62	
Support Air-Cooling Condensate Water Reuse in Large Buildings (Action 4.5)	Thomas Lawrence (ASHRAE), Bob Boulware (Design Aire), Pete DeMarco (IAPMO), Greg Eades (EPA), John Wammes (WW), Fred Betz (ASHRAE), Jay Garland (EPA), Gaby Schubert (WTA)	WTA and co-leaders met in March 2021 to continue to assess opportunities to promote public awareness of condensate reuse at virtual events. As an EPA nationwide study of condensate water quality commences, the team is promoting study collaboration from partner universities and utilities. The team also continues to investigate condensate disinfection via new technologies to ensure safety from opportunistic pathogens when reopening buildings for use and onsite water reuse.	24	

Shortened Action Title and Number	Action Leader(s)	Brief Update	# of Updates to Online Platform*	Implementation Progress**
Implement and Manage the National Alliance for Water Innovation (NAWI) Energy-Water Desalination Hub (Action 4.6)	Melissa Klembara (DOE), Peter Fiske (NAWI), Meagan Mauter (NAWI)	The Roadmaps and baseline analysis to support the research priorities of NAWI over the next five years is anticipated to be released in early May 2021.	0	
Evaluate Low-Input Methods to Remove Pharmaceutical Residues (Action 4.7)	Clinton Williams (USDA)	USDA developed an Action Implementation Plan and ongoing research is being conducted by partners at Penn State University.	1 New!	
Water Information Availability				
Foster USDA Watershed-Scale Pilot Projects to Share Water Information (Action 5.1)	Alan Gillespie (USDA)	USDA NRCS's Conservation Innovation Grant program is authorized through 2023 as per the 2018 Farm Bill; new opportunities will be tentatively announced in the spring of 2021.	15	
Identify Monitoring Practices for Reuse Applications (Action 5.2)	Erin Partlan (WRF), Erin Swanson (WRF)	EPA's ORD Elizabeth Medlock Kakaley, and co-authors Mary Cardon, Nicola Evans, Justin Conley, Earl Gray, and Vickie Wilson (retired) published a paper in Science of the Total Environment on bioassay application to assess biological activity (endocrine activity and cytotoxicity) in wastewater and reuse water extracts.	5	
Develop National Integrated Water Availability Assessments (Action 5.4)	Mindi Dalton (USGS)	USGS developed project plans; work is underway to identify gaps and compile information needed to initiate simulations for suitable use estimates.	4	
Quantify the National Volumes of Water Potentially Available for Reuse (Action 5.5)	Ashley Harper (EPA), Patrick Dube (WEF), Greg Fogel (WaterReuse)	EPA, WEF, and WaterReuse coordinated with action partner, the California State Water Resource Control Board, to develop an Action Implementation Plan. This action will begin by building off the 2018 WEF ReNEW Water Project to quantify the current amount of municipal wastewater reuse and potential volumes available for additional reuse. The action team will concurrently assemble a steering committee to provide support and expertise to quantify the potential for water reuse from one additional source of water.	1 New!	

Shortened Action Title and Number	Action Leader(s)	Brief Update	# of Updates to Online Platform*	Implementation Progress**
Finance Support				
Compile Federal Funding Sources and Develop Interagency Decision Tool (Action 6.1)	Sonia Brubaker (EPA), Stephanie Santell (EPA), David Smith (EPA)	Workshops were held with EPA and federal partners to identify highest-priority functionalities of the decision tool. Workshops included demonstrations of tool design, highlighting the importance of this tool for resource-limited communities navigating the federal funding process.	24	
Communicate Eligibility of Water Reuse in SRF Programs (Action 6.2A)	Justin Mattingly (EPA), Kiri Anderer (EPA)	EPA is currently developing a Best Practices Guide for incorporating water reuse in the Clean Water State Revolving Fund that is expected to be published in Spring 2021.	27	
Compile and Promote Existing USDA Resources for Rural Communities (Action 6.4)	Steve Polacek (USDA)	USDA's two funding programs (Water and Waste Disposal Loan and Grant and Water and Waste Disposal Technical Assistance and Training Grant) will be renewed for FY2021.	16	
Integrated Research				
Develop a Coordinated National Research Strategy (Action 7.2)	Julie Minton (WRF)	WRF developed a scope of work to develop a national water reuse research strategy. The first phase will address stormwater as a source, leveraging both WRAP Action 3.3 and WRF project 4841 (Assessing the State of Knowledge and Research Needs for Stormwater Harvesting).	11	
Increase Understanding of Current Aquifer Storage and Recovery Practices (Action 7.4)	Mike Paque (GWPC), Justin Mattingly (EPA), Kara Goodwin (EPA)	On February 9, GWPC's ASR-MAR Workgroup hosted a webinar as part of its Groundwater & Underground Injection Control (UIC) Educational Series, with an update from EPA on the state of practice for water reuse, stormwater, and UIC. The recording and slides can be found on the Workgroup's webpage . The three EPA-led white papers on aquifer recharge and aquifer storage and recovery are under development.	35	
Coordinate and Promote Water Reuse Technology in Federal SBIR Programs (Action 7.5)	April Richards (EPA)	EPA finalized proposal reviews for proposals submitted under Phase 1 topic areas 1A and 1B. There was a strong response to the water reuse solicitation topics with 39 proposals submitted in this category. Nine small businesses were awarded SBIR funding of up to \$100,000 to develop novel water reuse monitoring and treatment technologies.	24	

Shortened Action Title and Number	Action Leader(s)	Brief Update	# of Updates to Online Platform*	Implementation Progress**
Develop USBR's Advanced Water Treatment Research Roadmap (Action 7.6)	Yuliana Porras-Mendoza (USBR)	USBR has drafted an advanced water treatment research roadmap that is currently undergoing internal review.	3	
Outreach and Communications				
Compile and Develop Outreach and Communication Materials (Action 8.1)	Pat Sinicropi (WateReuse), Greg Fogel (WateReuse)	WateReuse began an assessment of existing communications materials and will issue a request for proposals to develop a communications plan in the summer.	2	
Establish a Water Reuse Champion Award Program (Action 8.4)	Pete May (GreenBiz), Greg Fogel (WateReuse), Jon Freedman (Suez)	The action team will hold a planning call in the spring to outline an approach for 2021.	9	
Engagement with Disadvantaged and Rural Communities on Water Reuse (Action 8.5)	David Smith (EPA)	The working group, including local utilities, AWWA, USDA Rural Development, and the National Rural Water Association convened to plan outreach and training activities. Collaborative efforts have begun to identify, include, and support key communities to participate in these efforts.	2	
Workforce Development				
Support and Promote Opportunities for Creating a Skilled Workforce (Action 9.2)	Jim Horne (EPA), Greg Fogel (WateReuse), Barb Martin (AWWA), Claudio Ternieden (WEF)	AWWA is currently collecting information on existing water reuse training materials to support state-level efforts to develop advanced water treatment operations and water reuse training programs.	13	
Metrics for Success				
Facilitate Implementation of the National Water Reuse Action Plan (Action 10.3)	Sharon Nappier (EPA)	Dr. Rabia Chaudhry joined the EPA Water Reuse Team as the National Water Reuse Expert in January 2021.	34	
International Collaboration				
Facilitate U.S.-Israel Collaboration on Water Reuse (Action 11.1)	Sharon Nappier (EPA), Adam Schalimtzek (MoEP), Omer Bab (MoEI)	MoEP, MoEI, and EPA, in collaboration with various partner organizations, are planning a three-day virtual tour on water reuse in Israel in May 2021. The event should include three different stakeholder groups: state regulators and policy makers, utility operators, and the agricultural sector. The in-person delegation has been postponed until fall 2021.	40	

Shortened Action Title and Number	Action Leader(s)	Brief Update	# of Updates to Online Platform*	Implementation Progress**
Raise Global Water Reuse Awareness and Preparedness (Action 11.2)	Allie Davis (DOS)	DOS continues to collaborate with the environment-focused International Visitors Leadership Program to explore on-demand programs and facilitate relationships with participants and water reuse experts.	53	14 4 3
Complete Actions***				
Inclusive of the following completed actions: <ul style="list-style-type: none"> • Develop Federal Policy Statement to Support Consideration of Water Reuse (Action 1.1) • Complete the EPA Study of Oil and Gas Extraction Wastewater Management (Action 2.3) • Support and Communicate WIFIA Funding (Action 6.2B) 			38	7
41 Active Actions 3 Complete Actions	32 Unique Action Leaders		931 Updates to Online Platform	165 Milestones Completed

Abbreviations Used in This Document

ACWA	Association of Clean Water Administrators	LACSD	Sanitation Districts of Los Angeles County	PWRC	Produced Water Research Consortium
ASDWA	Association of State Drinking Water Administrators	MoEP	Ministry of Environmental Protection (Israel)	SBIR	Small Business Innovation Research
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers	MoEI	Ministry of Economy and Industry (Israel)	USACE	U.S. Army Corps of Engineers
ASTHO	Association of State and Territorial Health Officials	NACWA	National Association of Clean Water Agencies	USBR	U.S. Bureau of Reclamation
AWWA	American Water Works Association	NAWI	National Alliance for Water Innovation	USDA	U.S. Department of Agriculture
DOE	U.S. Department of Energy	NBRC	National Blue Ribbon Commission	USGS	U.S. Geological Survey
DOS	U.S. Department of State	NMED	New Mexico Environment Department	WEF	Water Environment Federation
ECOS	Environmental Council of the States	NMSA	National Municipal Stormwater Alliance	WIFIA	Water Infrastructure and Finance Innovation Act
EPA	U.S. Environmental Protection Agency	NPDES	National Pollutant Discharge Elimination System	WRF	Water Research Foundation
GWPC	Groundwater Protection Council	NRCS	Natural Resources Conservation Service	WSWC	Western States Water Council
IAPMO	International Association of Plumbing and Mechanical Officials	ONWS	Onsite Non-potable Water Reuse System	WTA	Water Tech Alliance
JFW	Johnson Foundation at Wingspread	ORD	Office of Research and Development	WW	Water Works, Inc.