

EPA's Water Reuse Program

June 17, 2026

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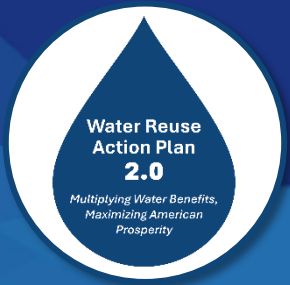


Water Reuse Action Plan **2.0**

*Multiplying Water Benefits,
Maximizing American
Prosperity*

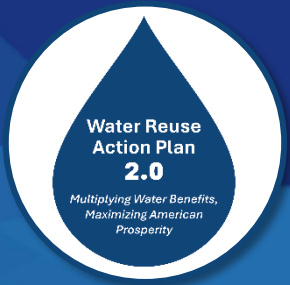


Presentation Topics



- Water Reuse Action Plan and launch of WRAP 2.0
- WRAP tools & resources to support water reuse
- Future work on water reuse
- Call to action

Background on the Water Reuse Action Plan (WRAP)



Purpose

- Convenes reuse stakeholders to identify and reduce barriers across the sector.
- Provides financial and technical information that advances implementation of reuse.
- Helps address the need for centralized resources and increased coordination on water reuse topics.



PROGRESS
SINCE
INCEPTION

2020

37 actions

86 partners

101 comments

2026



96 actions

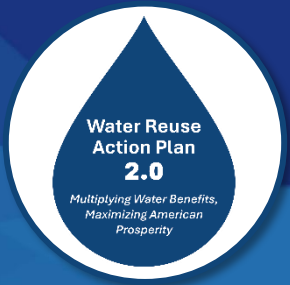


216 partners



215+ resources

WRAP 2.0 Launch



WRAP 2.0 Launch Event

April 16, 2026

In April 2026, EPA Administrator Lee Zeldin launched the Water Reuse Action Plan 2.0 at EPA HQ

WRAP 2.0 harnesses the power of water reuse for:

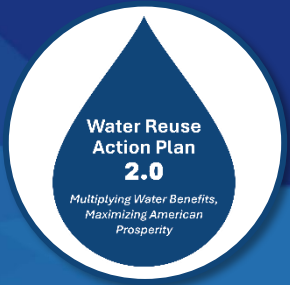
- American industry
- The artificial intelligence (AI) future and
- American energy dominance

All while strengthening public health protections and safeguarding the nation's water resources.

Water reuse is a big win for MAHA, since it preserves local water supplies for drinking and transforms wastewater into a beneficial use.



WRAP 2.0 Overview



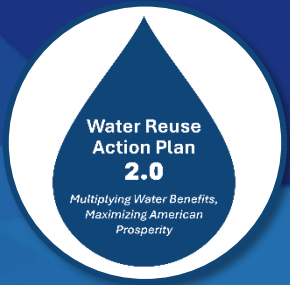
Key features

- Partnership-driven
- Rooted in cooperative federalism
- Enhanced focus on economic benefits for Americans and industry
- Builds on and continues existing WRAP:
 - Not a replacement
 - Actions are public, transparent, accountable
- 27 new actions



View the launch
booklet

Key Initiatives of WRAP 2.0



Supporting Reuse for Domestic Industry



Unleashing American Energy Dominance

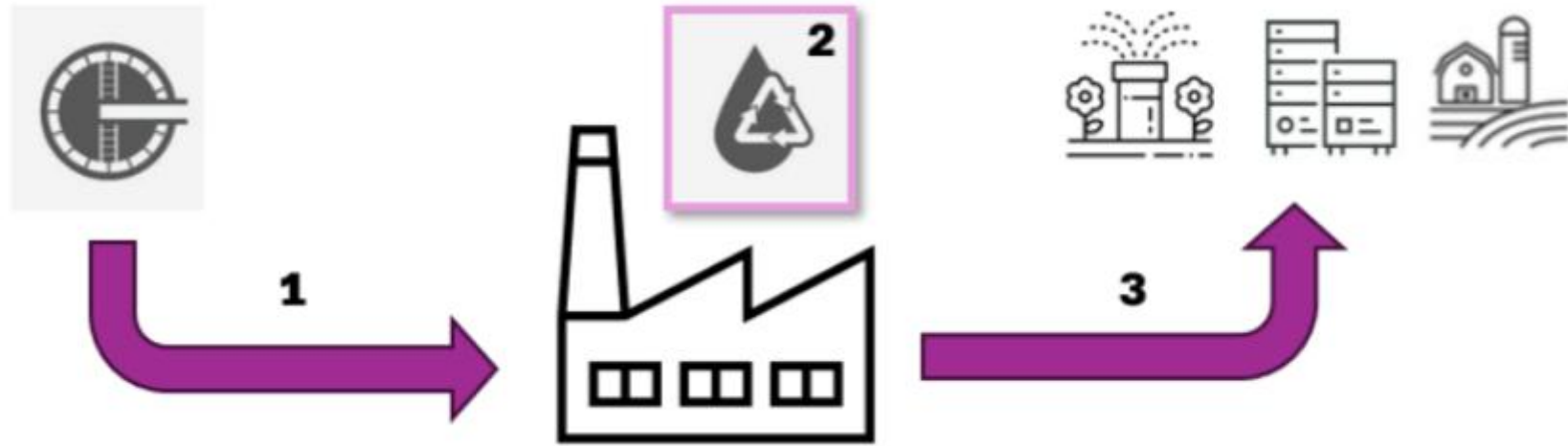
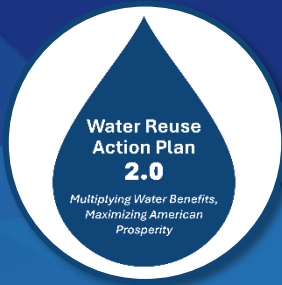


Water Reuse for the U.S. Technology Revolution



Collaboration and Cooperative Federalism

Three Areas of Opportunity to Further Industrial Water Reuse



Objective

Opportunity

1 – Get industry access to reliable sources of reclaimed water that is fit for their purpose

Better guidance on treatment performance/targets can help states approve permits faster

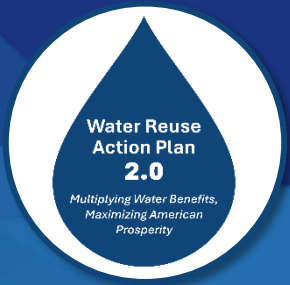
2 – Help industry identify opportunities to reuse water onsite and share success stories

Sharing successes will help smaller companies learn from those that are further ahead

3 – Help industry identify opportunities to produce reclaimed water for new uses off-site

Better science can inform treatment requirements that can beneficially use wastewater for other uses ⁷

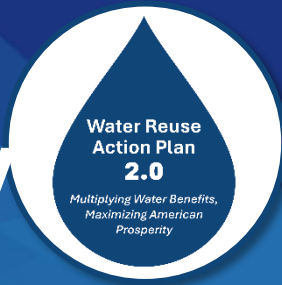
Key Initiative: Supporting Reuse for Domestic Industry



- Many great American industries need reliable water supplies to achieve their full potential, including:
 - component fabrication (e.g., bottles and batteries)
 - manufacturing finished products (e.g., food and beverage products, cars, and trucks)
 - agricultural production
- WRAP 2.0 supports the leadership of American industry and promotes the adoption of water reuse strategies in vital economic sectors

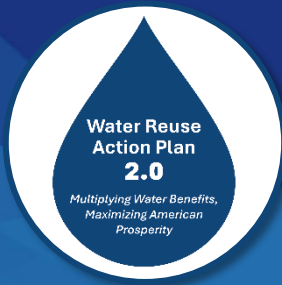


WRAP 2.0 Actions: Industrial Reuse for Resurgent Domestic Industry



Identify Opportunities to Advance Water Reuse in the Automotive Value Chain (Action 5.15)	Suppliers Partnership for the Environment, Ford Motor Company, General Motors, Toyota Motor North America, WaterReuse
Engage with Industry and Manufacturing Leaders to Scale Water Reuse (Action 8.14)	WaterReuse, NAM, WEF, EPA
Streamline the Permitting of Water Reuse for the Food and Beverage Sector (Action 3.11)	EPA, FDA
Collaborate with Tyson Foods to Demonstrate the Potential of Recycling Protein-Processing Water for Potable-Quality Uses Onsite (Action 3.12)	Tyson Foods, EPA, USDA
Advance Reuse and Desalination Technologies Through the Second Phase of the National Alliance for Water Innovation (Action 4.10)	NAWI, DOE, NREL, ORNL, U.S. research universities, industry partners
Establish a Decision-Making Framework for Water Reuse in Food and Beverage Production (Action 5.12)	GHD, Veolia, PepsiCo, BIER, WaterReuse
Expand Water Reuse to Support Industries in Geographic Regions with Stable Water Supplies (Midwest) (Action 5.14)	WRF
Create a Map of Utilities with Usable Recycled Water for Industrial Reuse (Action 5.13)	WaterReuse, CDM Smith, Amazon Web Services, Google, Grundfos, Veolia
Launch a Pledge Program for Industries to Commit to Incorporating Water Reuse into Their Operations (Action 8.10)	WaterReuse
Establish Validation and Monitoring Protocols for Water Reuse Treatment Technologies to Support Efficient Project Permitting of Industrial and Potable Reuse (Action 4.12)	EPA
Establish a Working Group on the Intersection of Industrial Water Reuse and PFAS (Action 7.13)	U.S. Chamber of Commerce, EPA

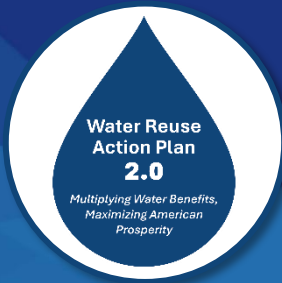
Key Initiative: Water Reuse for the U.S. Technology Revolution



- The Trump Administration is committed to making America the AI capital of the world.
- Water reuse can help ensure that the microchip fabrication facilities and data centers needed to sustain this vision have reliable, affordable water supplies.
- As part of WRAP 2.0, partners have identified actions that advance the use of recycled water for this rapidly growing sector.

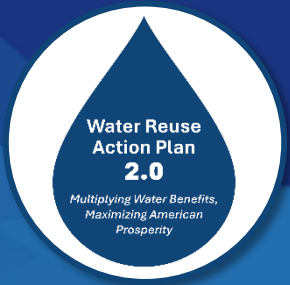


WRAP 2.0 Actions: Water for the U.S. Technology Revolution



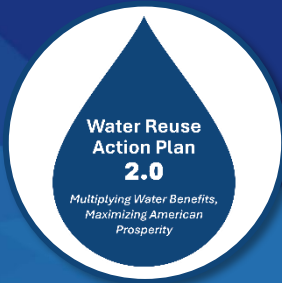
Supporting the Expansion of Recycled Water for Industrial and Data Center Cooling Applications through Information to States (Action 3.10)	EPA
Advance the Use of Recycled Water for Data Center Cooling Applications Through Information and Collaborative Partnerships (Action 2.21, Pt. 1)	Amazon Web Services, Brown and Caldwell, Loudoun Water, EPA, WEF, U.S. Chamber of Commerce, Veolia
Host a Collaborative Water and Wastewater Utility Forum on Data Centers (Action 8.12)	WRF
Advance the Use of Recycled Water for AI Through a New AI Center of Excellence (Action 2.21, Pt. 2)	WEF, Amazon Web Services, The Water Center, Leading Utilities of the World
Advance the Implementation of Onsite Water Reuse Through the BILD Initiative (Action 3.9)	Colorado State University, NBRC for OWS, EPA

Key Initiative: Unleashing American Energy Dominance



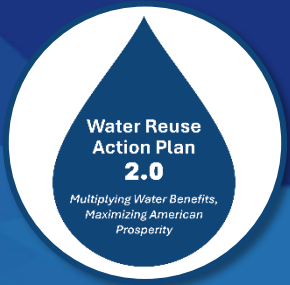
- Water reuse can play a key role in American energy by maximizing the benefits of treated wastewater for energy development and electricity generation.
- For American homes and businesses, this means better reliability and lower energy bills.
- Under WRAP 2.0, partners are focusing on new actions to support water reuse for electricity generation and the potential reuse of water from oil and gas production.

WRAP 2.0 Actions: Unleashing American Energy Dominance



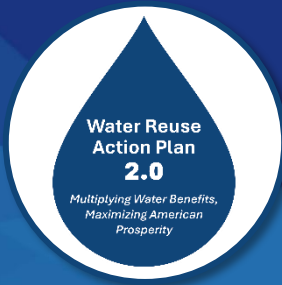
Expand Flexibilities in Managing Wastewater from Oil and Gas for Reuse (Action 2.22)	EPA
Provide Gold Standard Science to Support States Interested in Off-Field Reuse of Wastewater from Oil and Gas Operations (Action 3.13)	EPA, NMPWRC, TxPWC
Create a GIS-based Mapping and Information Tool to Advance Water Reuse Planning for the Power Sector and Other End-Uses (Action 5.11)	EPRI
Launch a Centralized Portal for Water Reuse Resources That Support States and Industries (Action 8.13)	EPA

Key Initiative: Collaboration and Cooperative Federalism



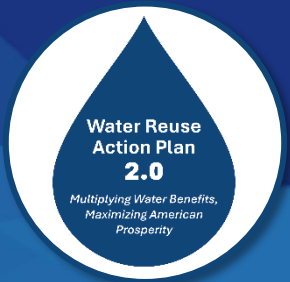
- This initiative harnesses the resources of the federal government to support the needs of states and Tribes.
- WRAP 2.0 actions range from **enhancing communication** about the safety of recycled water to ensuring states have the latest **gold standard science** to permit recycled water projects while safeguarding public health and the environment.

WRAP 2.0 Actions: Collaboration and Cooperative Federalism



Extend the Federal Water Reuse Interagency Working Group (Action 10.3)	EPA, federal partners
Build Trust in Recycled Water Nationwide (Action 8.11)	EPA, WaterReuse, NACWA
Fund Water Reuse in Rural Communities (Action 6.7)	USDA
Connect the American Workforce with Technical Assistance (Action 9.3)	EPA
Support the Production and Distribution of Advanced Technical Training Materials (Action 9.4)	WEF, AWWA, WaterReuse, Veolia, EPA
Diversify the Washington, D.C., Metro Area's Water Portfolio to Increase Water Supply Resilience (Action 1.7)	DC Water
Accelerate the U.S. Circular Water Economy and Technology Adoption Through Case Studies and Educational Resources (Action 4.11)	WEF, Center for Sustainable Infrastructure, Japan Sewage Works Association, WaterReuse
Develop a Northwest Florida Watershed Partnership Program (Action 1.8)	NWFWMD

Keeping Up with WRAP 2.0 Activities



The WRAP Online Platform provides detailed information on activities related to each action and the Water Reuse website will provide information on new products on a regular basis.



United States
Environmental Protection
Agency

Environmental Topics ▾Laws & Regulations ▾Report a Violation ▾About EPA ▾

Home / Water Reuse / Water Reuse Action Plan

Water Reuse Action Plan: Online Platform

[Water Reuse Home](#) | [Resource Hub by End Use](#) | [REUSE Explorer Tool](#) | [Information Library](#) | [Curated Topical Resources](#) | [Latest Quarterly Update](#)

The Online Platform contains the most up-to-date information on WRAP and WRAP 2.0 actions that represent the collaborative efforts of more than 200 partner organizations. WRAP and WRAP 2.0 actions seek to unleash the power of water reuse and American ingenuity to grow our economy, while supporting public health and strengthening water resources.

Through communication with action leaders, the information is updated monthly to convey progress, including completion of implementation milestones, new entities collaborating on actions, and links to relevant action outputs.

The platform reflects the latest additions of newly released actions that are introduced as frequently as once per quarter. For a compiled list of completed actions and accompanying summary documents of their accomplishments, please refer to the [Completed WRAP Action Summaries](#) page.

We also welcome your contributions. If you feel your expertise could be utilized in a new or existing action, please reach out to waterreuse@epa.gov to see how you can [join the effort](#).

Instructions: Click on an action in the table to display detailed information about each, including descriptions, background information, leaders, partners, implementation milestones, and more.

Search:

Action Title	Action No.	Status
Diversify the Washington DC Metro Area's Water Portfolio to Increase Water Supply Resilience	1.7	Not Started
Develop a Northwest Florida Watershed Partnerships Program	1.8	Not Started
Advance Water Reuse for Data Center Cooling Applications Through Information Exchanges and Collaborative Partnerships	2.21	Not Started
Support States in Expanding the Use of Recycled Water for Industrial and Data Center Cooling Applications	3.10	Not Started

National Water Reuse Action Plan: Online Platform

Instructions: Click on an action in the table to display detailed information about each, including descriptions, background information, leaders, partners, implementation milestones, and more.

Strategic Theme Area: [Show all](#)

Show 10 entries

Strategic Theme Area

Integrated Watershed Action	Develop a Federal Policy State Consideration of Water Reuse
Integrated Watershed Action	Prepare Case Studies of Successful Integrated Water Resources Management
Integrated Action	Incorporate Water Reuse and Planning Efforts at the Local Level
Integrated Watershed Action	Leverage EPA's Water Partners in the Context of Integrated Watershed Scale
Policy Coordination	Compile Existing State Policies
Policy Coordination	Enhance State Collaboration on Water Reuse
Policy Coordination	Complete the EPA Study of Oil Management
Policy Coordination	Enhance Wastewater Source Control Programs to Support Water Reuse
Policy Coordination	Compile and Develop Protective Waters for Potential Reuse
Policy Coordination	Develop Informational Materials to Facilitate Water Reuse

Showing 1 to 10 of 58 entries

Enhance State Collaboration on Water Reuse

Enhance State Collaboration on Water Reuse (Action 2.2.2)

[Action Attributes](#) | [Action Team](#) | [Implementation Milestones](#) | [Outputs and References](#)

Action Attributes

Status: Developed

Action Leaders and Key Contact:
U.S. Environmental Protection Agency (EPA)
Jeff Lape
lape.jeff@epa.gov

Association of Clean Water Administrators (ACWA)
Jake Adler
jadler@acwa-us.org

Association of State Drinking Water Administrators (ASDWA)
Wendi Wilkes
wilkes@asdwa.org

Description: Provide forums and opportunities for states to discuss water reuse policies and strategies. Some states, particularly in arid areas, have well-established opportunities to exchange ideas, experiences, successes, and challenges. This conference provides a useful model and a coordinated state-focused forum to encourage states to come together in September 2019, ACWA and ASDWA co-organized and facilitated the representatives from 16 state water programs participated in this ever engagement of additional state associations to engage in future state water reuse.

Background: Some states, particularly in arid areas, have well-established opportunities to exchange ideas, experiences, successes, and challenges. This conference provides a useful model and a coordinated state-focused forum to encourage states to come together in September 2019, ACWA and ASDWA co-organized and facilitated the representatives from 16 state water programs participated in this ever engagement of additional state associations to engage in future state water reuse.

Opportunities:

- Increase state collaboration on water reuse across the spectrum of water reuse
- Share experiences across state organizations
- Enable water reuse discussions and networking opportunities

Enhance State Collaboration on Water Reuse

Enhance State Collaboration on Water Reuse (Action 2.2.2)

[Action Attributes](#) | [Action Team](#) | [Implementation Milestones](#) | [Outputs and References](#)

Implementation Milestones

1. Convene the 1st state summit on water reuse at the 34th Annual WaterReuse Symposium in San Diego, CA.
Lead(s): ACWA (Julia Anastasio, julianastasio@acwa-us.org), ASDWA (Wendi Wilkes, wilkes@asdwa.org)
Partners: EPA, WaterReuse
Target Completion Date: September 2019
Actual Completion Date: September 2019
Milestone Complete: Yes
Status/Updates: Completed (29 representatives from 16 states attended)
2. Secure meeting facilitation and notetaking support for the 2nd state summit on water reuse.
3. Conduct water reuse-focused discussions at a session at the ASDWA Member Meeting.
4. Conduct water reuse-focused discussions at a session at the ACWA Midyear Meeting.
5. Initiate planning for next annual state summit on water reuse.
6. Compile a list of state water reuse contacts and roles and post in an accessible location online.
7. Convene the 2nd state summit on water reuse at the 20th WaterReuse Symposium in Denver, CO.
8. Prepare state summit on water reuse meeting summary for state representatives.
9. Additional milestones to be determined.

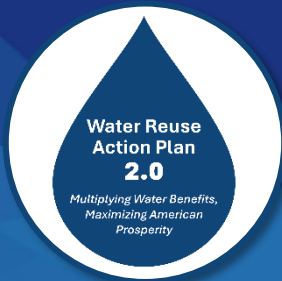
Use the arrows to navigate between actions.

[Previous Action](#) | [Next Action](#)



View the Platform

Existing Water Reuse Resources from the WRAP



96 WRAP action commitments

216 organizations involved

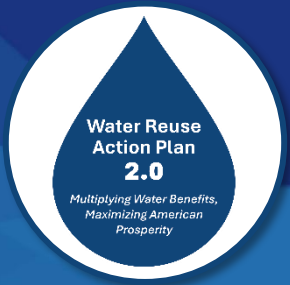
215+ resources developed

2nd Nature | ACWA | AMWA | AHA and ASHE | Athens-Clark County | **Anne Arundel County** | ARCSA
Argonne | **Arup** | ASDWA | ASHRAE | ASTHO | Austin Water Utilities | AVF | **AWS** | AWWA
AWWA Total Water Committee | BIER | **Brown and Caldwell** | CA SWRCB | CDC | Cambrian Innovation
Carollo | CASE Team | CILA | CDM Smith | CDPHE | CESPM | CESPT | CIFA | Conagua | City of Boise
City of Chicago | City of Columbus | **COG** | Columbia Water Center | Commerce | Consor Engineering
CPWC | **CSI** | CSO | **CSU** | CWCB | **DC Water** | DCPH-A | Denver Water | DOW | Design Aire | DOE | DOI
DOS | DOT | **DWM** | ECOS | EDF | EFAB | **Elevate** | El Paso Water | Embassy of Israel | EMWD | EPA | EPRI
FDA | **Fairfax County** | FEMA | **Ford** | Fox Metro WRD | Fox River WRD | GCCI | GCE | GHD | **GLC** | **GM** | GSA
Google | Greenbiz Group | Groundwork USA | **Grundfos** | GWPC | HCPU | **HRSD** | HUD | IAPMO | IBWC
ICC | IDEQ | **IDNR** | IDRA | **IEPA** | IRWA | ISPE | **Illinois Sierra Club** | IWA | IU | Israel Export Institute
ISWS | IWMI | **IWRC** | Jacobs | JCI | JFW | **JS** | Katz and Associates | LACSD | LADWP | LiUNA | **LUOW**
Loudoun Water | LVMWD | MN DPH | MoAG | MOEI | MoEP | MoH | MWD | **MWRD** | NACWA
MWD of Southern California | NADB | **NAM** | NAWI | NDRP | NBRC for OWS | NeoTech Aqua | NGWA
NMED | NM-PWRC | NMSA | NMSU | NPS | NREL | Northwest Biosolids | NRW | NSAC | NSF | NSU | NTC
NTWC | **NWFWMD** | NWRI | NYC DEP | OH EPA | One Water Econ | ORNL | OSU | **OWML** | Pacific Institute
Parker Groundwater | Penn State | PepsiCo, Inc | PHASC | Purdue | RCAC | RCAP | Reclamation | ReNUWit
Rice University | RMS | RN | RTOCs | SAWS | SBIR Programs | SCCMA | SCCWRP | SEPROA | **SP**
SRE | Stantec | **State of Illinois Water Reuse Task Force** | SWAN | SWFWMD | The World Bank
Toyota | Trussel Technologies | TTU | **TxPWC** | Tyson | UA | UIC | UNC | UNR | **UOSA**
University of Arizona | University of California | UPenn Water Center | USACE | USAID
US Water Alliance | USC | USDA | USGBC | USGS | USWP | UWFP | Valley Water | Veolia | Volcani
Wahaso | WaterEdge.IL | Village of Pingree Grove | Water Innovation Services | WaterReuse | WaTr
WEF | WFX | WI DNR | Woolpert | WRF | Wright Water Engineers | WSP Consultants | WSWC
WTA | WW | WEF Reuse Committee | MI River Basin Focus Group | Xylem | Yorkville



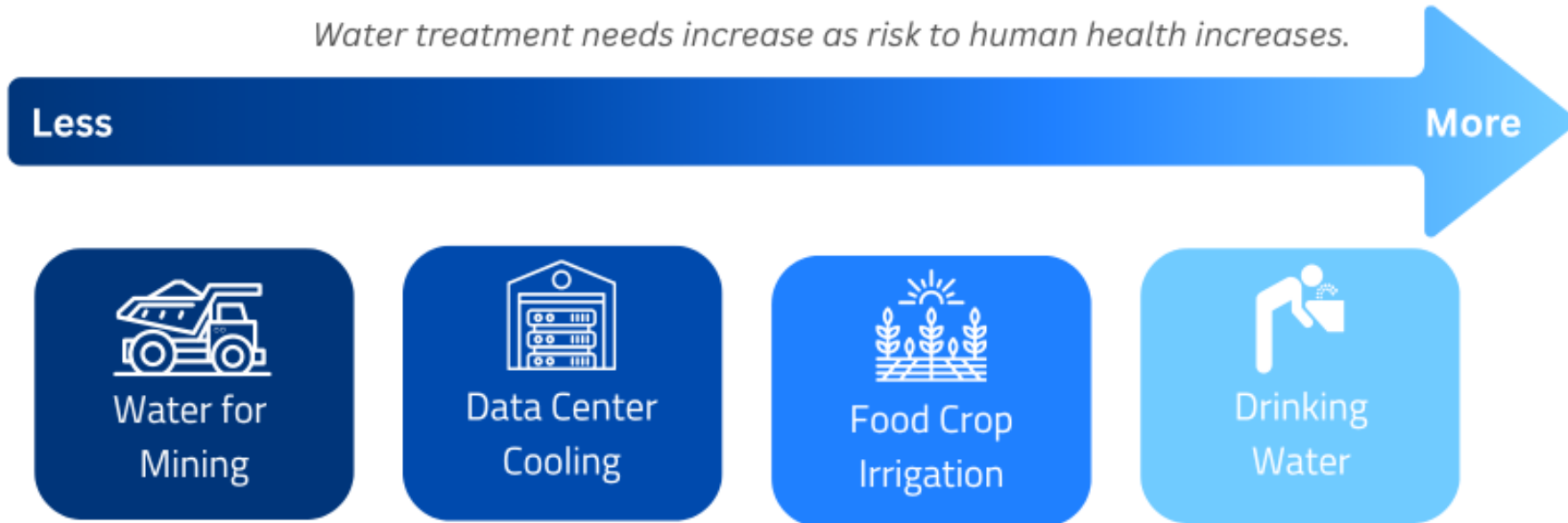
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Fit for Purpose: Matching Reuse Applications with Treatment Needs

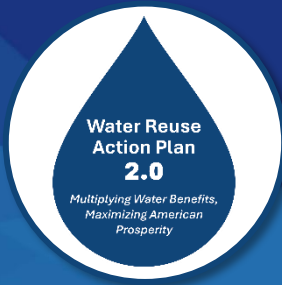


Likelihood of Human Exposure

Water treatment needs increase as risk to human health increases.



Delivering Clarity to the Regulatory & Permitting Landscape



REUSExplorer

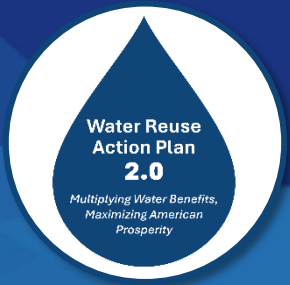
>**186** State Reuse Regulations and Guidelines **Summaries** across **38** states.

Result

- Helps states, Tribes, and territories understand the approaches of other jurisdictions.
- Used by industry (e.g., Amazon Web Services) to understand which jurisdictions can efficiently permit reuse projects.



REUSExplorer: Multi-Search Capabilities



State or Country

Alabama

Arizona

Arkansas

California

Colorado

Delaware

District of Columbia

Florida

Georgia

Hawai'i

Sources of Water

Industry Process Water

Onsite Collected Waters

Rainwater Collected Onsite

Stormwater

Treated Municipal Wastewater

Search

Reuse Application

Agriculture

Centralized Non-Potable Reuse

Consumption by Livestock

Environmental Restoration

Impoundments

Industry

Landscaping

Onsite Non-Potable Water Reuse

Potable Water Reuse

State or Country

Optional Selection

Sources of Water

Treated Municipal Wastewater x

Reuse Application

Industry x

Search

State 	Sources of Water 	Reuse Application 	Summary Document
California	Treated Municipal Wastewater	Industry	See Results
Colorado	Treated Municipal Wastewater	Industry	See Results
Florida	Treated Municipal Wastewater	Industry	See Results
Georgia	Treated Municipal Wastewater	Industry	See Results
Hawai'i	Treated Municipal Wastewater	Industry	See Results
Massachusetts	Treated Municipal Wastewater	Industry	See Results
Minnesota	Treated Municipal Wastewater	Industry	See Results
Montana	Treated Municipal Wastewater	Industry	See Results

Summary of Colorado's Water Reuse Guideline or Regulation for Industry

This page is part of the EPA's [REUSExplorer](#) tool, which summarizes the different state level regulations or guidelines for water reuse for a variety of sources and end-uses.

The source water for this summary is **Treated Municipal Wastewater**.

On this page:

- [Technical basis](#)
- [Water reuse industrial applications approved for use in Colorado](#)
- [Water reuse treatment category for industrial applications](#)
- [Additional context and definitions](#)
- [Water reuse for industrial applications specifications \(table\)](#)
- [Upcoming state law or policy](#)
- [References](#)
- [Disclaimer](#)

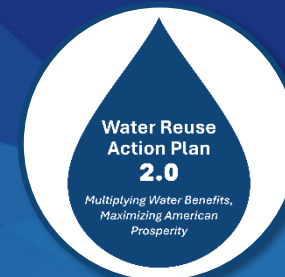
REUSExplorer Links

- [REUSExplorer home page](#)
- [News in reuse regulations](#)
- [Maps of states with water reuse regulations or guidelines](#)

This page is a summary of the state's water reuse law or policy and is provided for informational purposes only. Please always refer to the state for the most accurate and updated information.

In Colorado, [water reused for industry](#) includes reuse for evaporative and non-evaporative industrial processes, non-discharging construction and road maintenance, washwater applications and oil and gas operations. The source of water

Downloadable Specifications Tables



Onsite non-potable reuse specifications

Summary of Minnesota's Non-potable Reuse Specifications

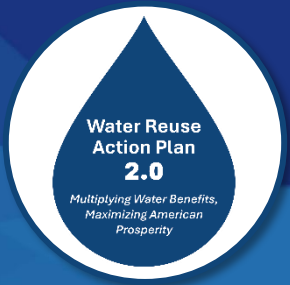
Download Table (.xlsx)		
Sampling/Monitoring Requirements (Frequency of monitoring; site/ location of sample; quantification methods)*		
Recycled Water Class/Category	Source Water Type	Water Quality Parameter
Nonpotable rainwater catchment systems (toilet and urinal flushing, water features, vehicle washing facilities, cooling tower makeup)	Rainwater	Turbidity
Nonpotable rainwater catchment systems (toilet and urinal flushing, water features, vehicle washing facilities, cooling tower makeup)	Rainwater	E. coli
Nonpotable rainwater catchment systems (toilet and urinal flushing, water features, vehicle washing facilities, cooling tower makeup)	Rainwater	Odor
Nonpotable rainwater catchment systems (toilet and urinal flushing, water features, vehicle washing facilities, cooling tower makeup)	Rainwater	Temperature
Nonpotable rainwater catchment systems (toilet and urinal flushing, water features, vehicle washing facilities, cooling tower makeup)		

Other centralized non-potable reuse specifications

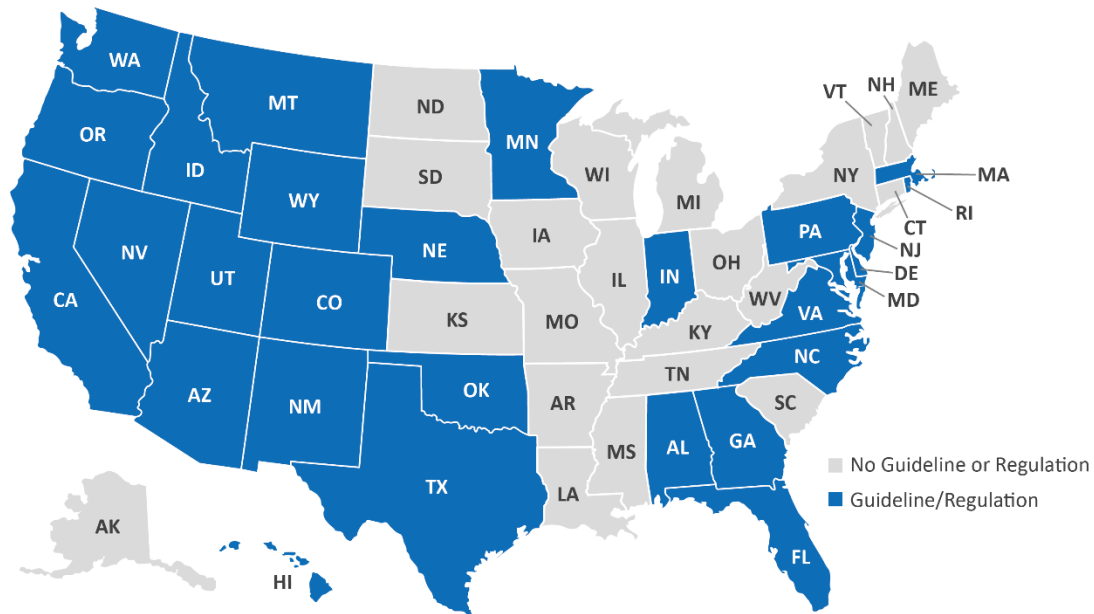
Summary of Minnesota's Other Centralized Non-potable Reuse Specifications

Download Table (.xlsx)			
Sampling/Monitoring Requirements (Frequency of monitoring; site/ location of sample; quantification methods)*			
Recycled Water Class/Category	Source Water Type	Water Quality Parameter	Specification
Disinfected Tertiary (toilet flushing, decorative fountains, artificial snowmaking, structural firefighting, commercial air conditioning involving mist)	Municipal wastewater	Total coliform	2.2 MPN/100
Disinfected Tertiary (toilet flushing, decorative fountains, artificial snowmaking, structural firefighting, commercial air conditioning involving mist)	Municipal wastewater	Turbidity	2 NTU (daily average maximum)
Disinfected Tertiary (toilet flushing, decorative fountains, artificial snowmaking, structural firefighting, commercial air conditioning involving mist)	Municipal wastewater	Turbidity	10 NTU (daily maximum)

State Reuse Guidelines: Agricultural and Potable Reuse



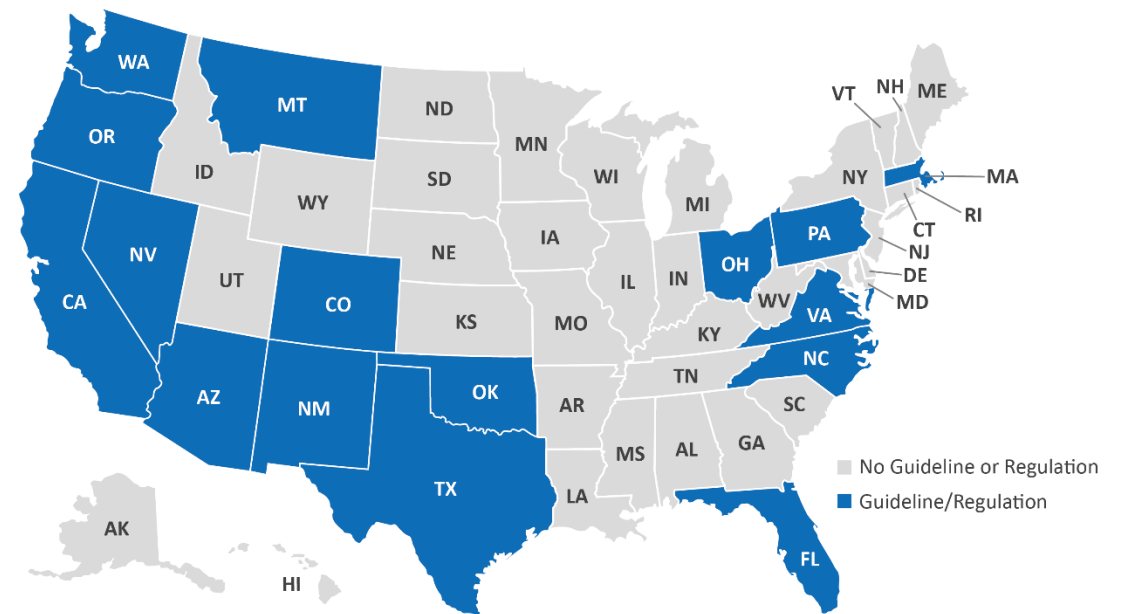
States with Water Reuse Regulations or Guidelines for Agriculture



Date created: August 2024

This is a map of states with guidelines or regulations included in the REUSExplorer tool. Some states may permit reuse on a case-by-case basis and did not have enough information to include in the tool.

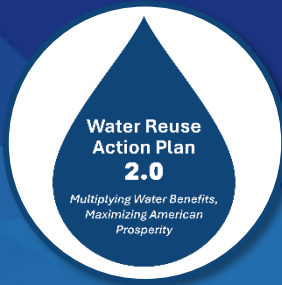
States with Potable Water Reuse Regulations or Guidelines



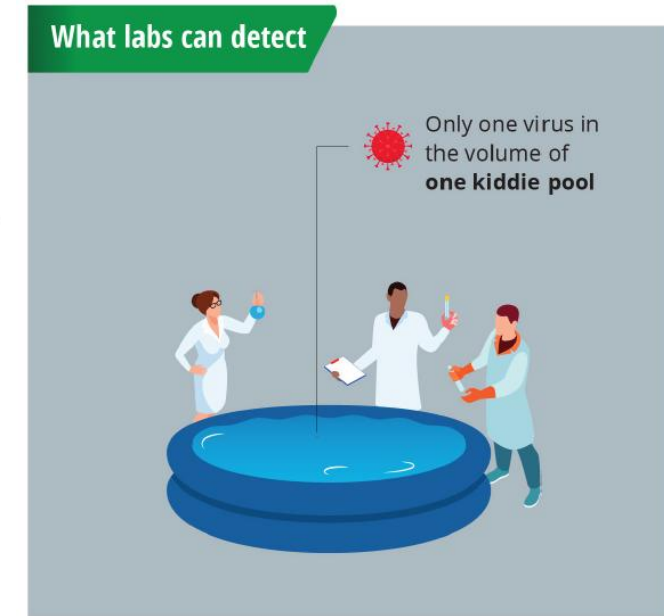
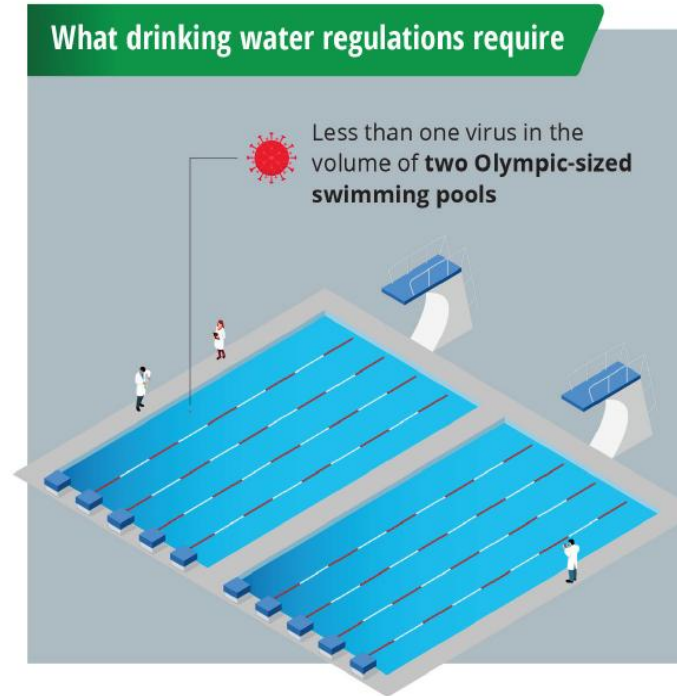
Date created: November 2025

This is a map of states with guidelines or regulations included in the REUSExplorer tool. Some states may permit reuse on a case-by-case basis and did not have enough information to include in the tool.

Pathogens are the primary acute public health risk in drinking water/ potable reuse

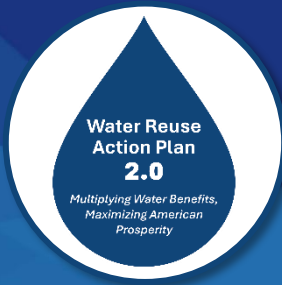


- Available methods are not capable of detecting pathogens at the level necessary to demonstrate compliance with drinking water regulations
- Instead, a risk-based approach is used to determine the levels of treatment required to reduce pathogens down to acceptable levels for drinking

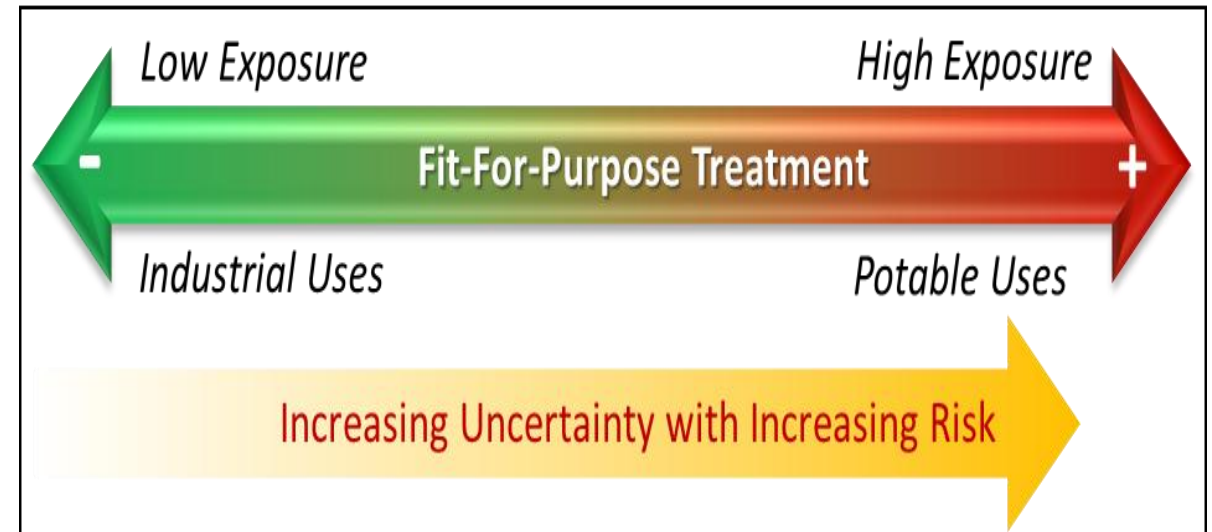


Source: <https://rewater.usc.edu/potable-water-reuse-report/>

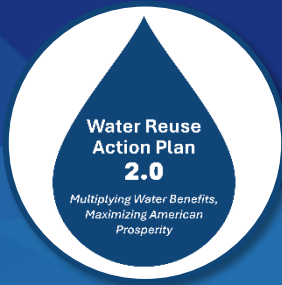
Fit-for-Purpose Risk-Based Treatment Targets



- Pathogen log-reduction targets (LRTs) are calculated to achieve a specific level of health protection for a given source and end use
 - Calculated 10-fold removal needed by treatment to meet a certain health benchmark
- Higher exposures (potable) and higher contamination (municipal wastewater) result in higher log reduction targets.

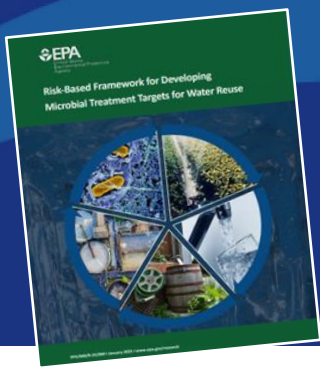


EPA Risk-Based Framework can Support States, Tribes and Territories as they Develop Treatment Targets

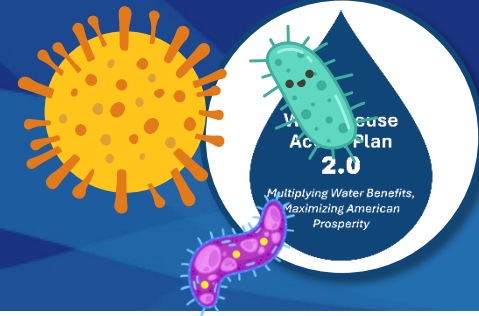


- Scientific resource for states adopting reuse, representing a decade of peer-reviewed journal articles
- Describes risk assessment framework and current parameter assumptions:
 - Reference pathogens to consider
 - Pathogen density characterizations (municipal and onsite)
 - Exposure estimates for potable and non-potable uses
 - Pathogen dose-response models
 - Risk characterization approaches
- Includes scientifically robust log-reduction targets and information needed for new calculations
- Summarizes related policy decisions for consideration by states, Tribes, and territories





Sources and End-Uses Characterized



Sources Characterized for Pathogens



Municipal wastewater



Onsite wastewater



Graywater



Stormwater



Roof runoff

Treatment Targets Calculated



Potable

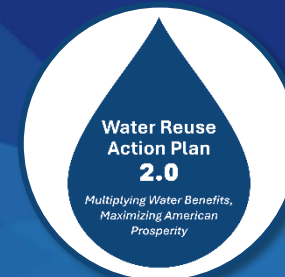


Unrestricted Landscape Irrigation



Indoor Non-potable Use

Pathogen Treatment Targets (LRTs)

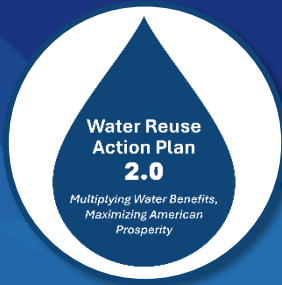


End Use	Source of Water	Norovirus		Adenovirus		Cryptosporidium spp.		Giardia spp.		Campylobacter spp.		Salmonella spp.	
		LRT _{INF}	LRT _{DALY}	LRT _{INF}	LRT _{DALY}	LRT _{INF}	LRT _{DALY}	LRT _{INF}	LRT _{DALY}	LRT _{INF}	LRT _{DALY}	LRT _{INF}	LRT _{DALY}
Potable use	Untreated municipal wastewater	14.5	12.5	NSD	NSD	10.5	10.0	9.5	8.5	11.0	7.5	9.5	9.5
	Untreated onsite wastewater	14.5	12.5	NSD	NSD	11.5	11.0	10.0	9.0	12.0	9.5	8.0	8.0
	Graywater	13.0	11.0	NSD	NSD	9.0	8.5	8.0	7.0	9.5	7.5	5.5	5.5
	Stormwater (10% wastewater)	13.5	11.5	NSD	NSD	9.5	9.0	8.5	7.5	10.0	6.5	8.5	8.5
	Roof runoff	n/a	n/a	NSD	NSD	NSD	NSD	5.5	4.5	9.0	6.5	8.0	8.0
Unrestricted access landscape irrigation	Untreated municipal wastewater	10.0	8.5	NSD	NSD	6.5	6.0	5.5	4.5	6.5	4.0	5.5	5.5
	Untreated onsite wastewater	10.5	8.5	NSD	NSD	7.0	6.5	6.0	5.0	7.5	5.5	3.5	3.5
	Graywater	8.5	6.5	NSD	NSD	4.5	4.0	3.5	2.5	5.5	3.0	1.5	1.5
	Stormwater (10% wastewater)	9.0	7.5	NSD	NSD	5.5	5.0	4.5	3.5	5.5	3.0	4.5	4.5
	Roof runoff	n/a	n/a	NSD	NSD	NSD	NSD	1.5	0.5	5.0	2.5	3.5	3.5
Indoor non-potable use	Untreated municipal wastewater	10.5	9.0	NSD	NSD	7.5	7.0	6.5	5.5	7.5	5.5	6.5	6.5
	Untreated onsite wastewater	11.5	10.0	NSD	NSD	7.0	6.5	6.5	5.5	7.5	5.5	4.0	4.0
	Graywater	9.0	7.5	NSD	NSD	4.5	4.0	4.0	3.0	5.5	3.5	2.0	1.5
	Stormwater (10% wastewater)	9.5	8.0	NSD	NSD	6.5	6.0	5.5	4.5	6.5	5.0	5.5	5.5
	Roof runoff	n/a	n/a	NSD	NSD	NSD	NSD	2.0	1.0	5.0	3.0	3.5	3.5

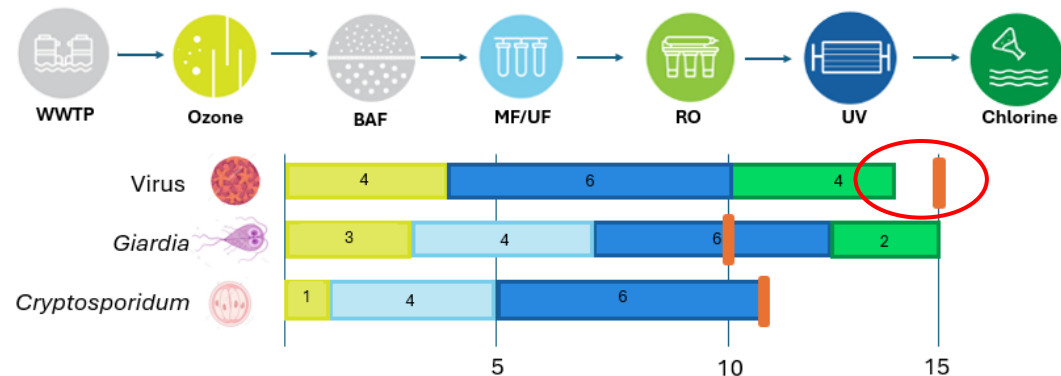
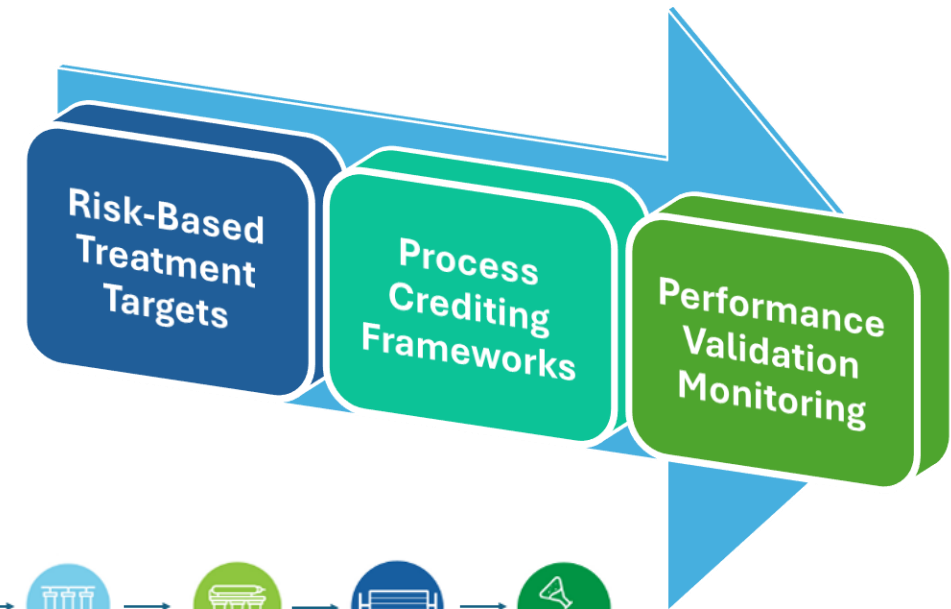
NSD = not sufficient data; n/a = not applicable.

Taken from *Table 6*.

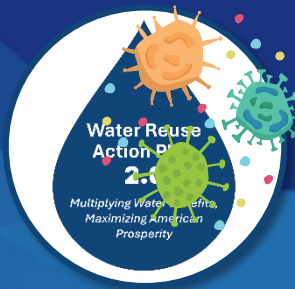
Next Step: Validation and Monitoring



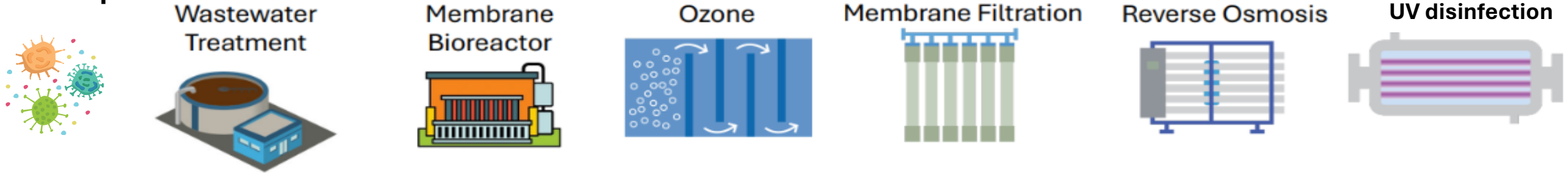
- LRTs are the first step in risk-based reuse
 - Treatment trains must be credited to meet them
 - Unit processes must be monitored for ongoing performance
- Key priorities for advancement by states
 - WRAP Action 4.12



Each unit treatment needs to be “credited” for its ability to remove pathogens



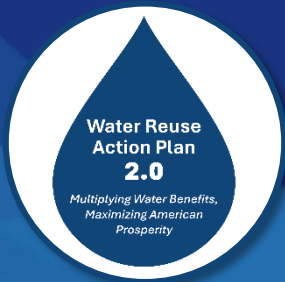
Example Unit Treatment Processes for Potable Reuse Treatment



EPA Credits for Virus Removal	0% = no removal credits	0% = no removal credits	99.99% reduction = 4 removal credits	0% = no removal credits	0% = no removal credits	99.9999% reduction = 6 removal credits
Virus removal goal: 14	0	+	+	+	+	+
	0	0	4	0	0	6

- Multiple processes are needed to remove the same pathogen type to create redundancy in case of failure and to reach removal goals. (e.g., 14 credits or >99.999999999999% virus removal)
- Some of these processes don't currently receive any or adequate credit for their ability to remove pathogens
- Some of these may be able to get more credit for their ability to remove pathogens, lowering treatment costs
- How much removal credit each process currently varies by state

Resource Hub with Relevant Publications to Support States



Water Reuse Resource Hub by End-Use Application

[Water Reuse Home](#) | [WRAP Online Platform](#) | [REUSExplorer](#) | [Information Library](#) | [Latest Quarterly Update](#)

This page is organized by water reuse application, reflecting the recycling of an alternative source of water that is adequately treated for its intended use. Each end-use page compiles resources such as state policies, webinars, information about typical source waters, and publications. Collectively, these materials inform, document, and share stories of approaches taken by communities to initiate and implement water reuse.



Potable

Highly treated water that is reused for drinking water and meets or exceeds federal Safe Drinking Water Act standards.

[Learn about potable applications](#)



Onsite Non-Potable

Water that is collected, treated, and reused at single district or building scale for non-potable applications such as toilet flushing or dust control.

[Explore onsite non-potable uses](#)



Centralized Non-Potable

Water which is generated and treated in one location and then reused in another for non-potable applications, including snowmaking or street cleaning.

[Learn more about centralized non-potable uses](#)



Agriculture

Water from a farm or local wastewater treatment plant that is appropriately treated and reused for the production of crops.

[See more on agriculture](#)



Consumption by Livestock

The use of water recycled from a farm or local wastewater utility for consumption by livestock.

[See reuse applications for livestock](#)



Landscaping

Treated recycled water used for the irrigation of land containing non-edible vegetation.

[Explore reuse for landscaping](#)

More End-Uses for Recycled Water



Impoundments and Reservoirs (Recreation and Ornamental)

The reuse of water for ornamental ponds or reservoirs that are designed for boating and recreating.

[See reuse applications for impoundments](#)



Environmental Restoration

Recycled water used to sustain and develop ecosystems such as wetlands, create a buffer against storm surges, and support natural habitats.

[Look at how reuse can help restoration](#)

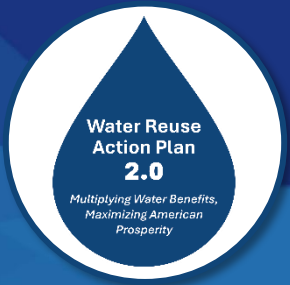


Industrial

The use of recycled water treated for industrial applications, including car manufacturing and data centers.

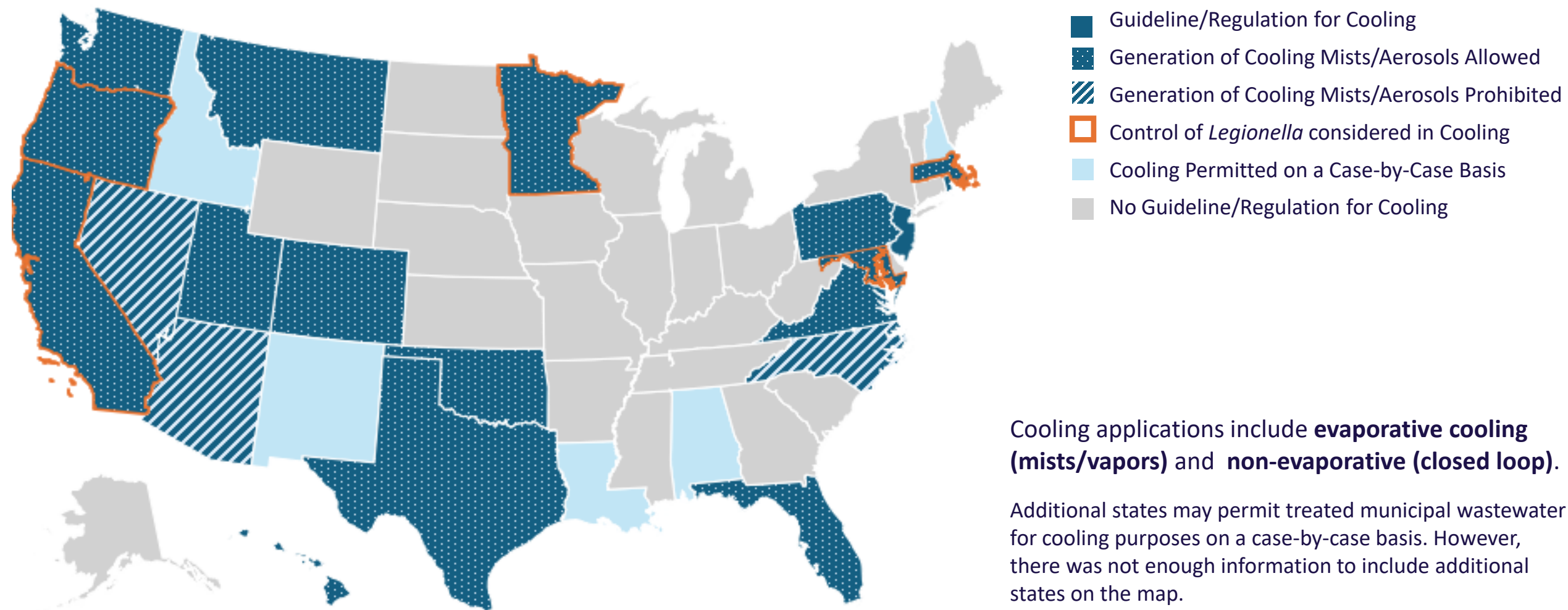
[Learn the industrial applications for reuse](#)

Advancing Water Reuse to Support Data Center Cooling Nationwide



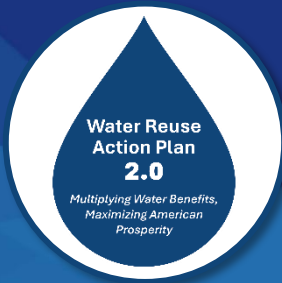
Google Data Center
Douglas County, GA
~1 mgd reclaimed water

States with Water Reuse Regulations or Guidelines: Treated Municipal Wastewater for Cooling Applications



REUSExplorer: epa.gov/reuseexplorer

Get involved with the WRAP collaborative



- Participate in annual State Regulator Summit to address state needs (Action 2.2)
- Invite you to join the WRAP collaborative:
 - Propose an action to advance water reuse
 - Engage with our reuse community
 - Sign up to receive monthly updates

waterreuse@epa.gov

Together, we can multiply water's benefits to maximize American prosperity.



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