

## Solving Arizona's Water Woes: The Case for Advanced Water Purification

Living in Arizona we are keenly aware of the importance of staying hydrated with essential, safe drinking water. For most of us, it's easy to take our drinking water for granted, because when we turn on the tap, it's there. Yet, how many of us know where our drinking water comes from?

Arizona's drinking water is sourced from surface water like the Colorado River and groundwater aquifers deep below our feet. These sources undergo treatment and testing to ensure strict [state and federal standards](#). The [Arizona Department of Environmental Quality \(ADEQ\)](#) and local utilities work diligently to ensure these standards are met and surpassed, in their role to protect the quality of Arizona's valuable water resources and the people who rely on them.

As a desert state, we must be mindful of potential water shortages and the importance of implementing timely, sustainable solutions. To ensure that all communities in Arizona have a reliable supply of safe drinking water in the future, ADEQ and industry leaders across Arizona are taking proactive steps to diversify Arizona's water portfolio. One of our best viable options is Advanced Water Purification (AWP), an innovative set of water treatment processes that purifies recycled water into safe drinking water. To ensure water sustainability in Arizona and throughout the world, it is crucial that we fully evaluate and leverage this reliable 'drought proof' option to enhance our drinking water supply.

Advanced Water Purification involves using proven technologies such as UltraViolet (UV) light, Reverse Osmosis (RO), ozone and biofiltration to purify water to meet or exceed state and federal drinking water standards. We employ advanced treatment to remove pathogens and other contaminants, transforming recycled water into pure, safe, drinkable water. It's a way to utilize our limited water resources to ensure an adequate supply of safe and reliable drinking water. Once purified, this water becomes part of the drinking water supply without the need for an environmental buffer like a lake, river, or aquifer. It's akin to giving water a second chance.

Water scarcity has been a driving force behind adopting water reuse practices across the United States. Arizona has already been utilizing recycled water for purposes such as replenishing aquifers, watering golf courses, community parks, and meeting industrial needs for years. And now, ADEQ is taking the next step by actively developing rules and guidance for AWP to facilitate the use of purified water for drinking purposes. Once the approved regulations are established and with the necessary and proven technologies in place, municipalities and public water systems can advocate to implement AWP for their communities.

This safe and proven option has received support from the U.S. Environmental Protection Agency, the Centers for Disease Control, the American Water Works Association, the Arizona Department of Water Resources, and local water-focused industry associations, such as WateReuse Arizona, AZ Water Association, affirming its usefulness to help states, tribal communities, and municipalities meet future drinking water needs. Implementing AWP in Arizona would enhance the reliability of our drinking water supply and an overallocation of critical surface water supplies by diversifying our water sources and reducing our reliance on any one particular source.

AWP has already been implemented in Arizona. One such example is the City of Scottsdale's Water Campus which includes a AWP facility that has been in successfully operating since 1999 producing purified water for replenishment of the City's groundwater. Other cities have expressed interest in constructing similar facilities. For instance, Phoenix aims to purify recycled water into drinking water [by the end of 2030](#). Many other AWP facilities are also operational in California and Texas.

ADEQ has been working with stakeholders on a [rulemaking](#) to establish a permitting process for collecting and treating recycled water to meet protective standards so that it may be used as a drinking water source. These are being designed to safeguard public health and the environment, while also using guidance from the Safe Drinking Water Act to avoid unnecessary overlapping regulations.

Considering the critical importance of strengthening drinking water sources for Arizona, embracing purified water would reduce our dependence on the dwindling Colorado River, effectively diversifying our water sources. As more

communities explore the adoption of AWP, we can be confident in the safety of the proven technologies and framework available to communities and the critical role it can play in our collective water future.

### **About the Authors**

*The authors are members of the Technical Advisory Group (TAG) that is working with Arizona Department of Environmental Quality staff regarding the direct potable reuse rulemaking in Arizona.*

**Jim Lozier.** Jim Lozier is a Global Principal Technologist leading Jacobs' membrane treatment and desalination practice. Lozier has more than 34 years of experience advancing the application of advanced treatment technologies for drinking water, potable reuse, desalination and industrial water reuse. He has pioneered the application of membrane filtration and membrane bioreactors for potable reuse and has served as a senior process consultant for potable reuse projects in the United States, Singapore and Australia.

**Robert McCandless.** Rob McCandless is the North American Water Reuse Treatment Lead at Stantec, a global company dedicated to designing solutions with community in mind. He has more than 34 years of experience in water, wastewater, and water reuse treatment process design. He is based in Tempe, AZ

**Troy Walker.** Troy Walker is the Water Reuse Practice Leader for Hazen and Sawyer, an environmental engineering firm. With 28 years of experience, he is based in Tempe, AZ

**Vijay Sundaram.** Vijay Sundaram is a Vice President and Global One Water Director with AECOM. Sundaram has 20 years of experience advancing potable water reuse solutions within the United States and around the world by developing treatment technologies and working with communities to achieve cost-effective water sustainability.