

Public education project brings new water recycling process to life

VR experience that transports user inside a water treatment plant wins ASU team national recognition

By Jonathan Ward, ASU News
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A new virtual reality project developed by an interdisciplinary team at Arizona State University has earned the [2025 WaterReuse Award for Excellence in Outreach and Education](#). The national award honors outstanding achievements in promoting public acceptance of recycled water.

Led by Professor [Claire Lauer](#), the project's two immersive VR experiences — one headset-based and one web-based — offer Arizona residents an interactive way to explore advanced water purification, or AWP, plants and learn about state-of-the-art water recycling methods that were recently [approved](#) for implementation at the state level.

Lauer is a professor of technical communication and co-director of the [user experience master's program](#) in the [School of Applied Professional Studies](#) in the [College of Integrative Sciences and Arts](#) at ASU's Polytechnic campus.

She accepted the award on behalf of the ASU team on March 17, during the [40th Annual WaterReuse Symposium](#) in Tampa Bay, Florida.

The VR project was developed by the [Arizona Water Innovation Initiative](#), a statewide research and development project spearheaded by ASU's [Julie Ann Wrigley Global Futures Laboratory](#) in collaboration with the [Ira A. Fulton Schools of Engineering](#).

The initiative works with industrial, municipal, agricultural, tribal and international partners to accelerate the deployment of innovative technologies and strategies for water resilience.

"The goal of this gamified storytelling project is to provide an interesting way for all Arizona residents to understand how this incredibly effective new process of purifying our water works, and why it's safe to drink," said Lauer, a member of the Arizona Water Innovation Initiative's executive committee, a UX innovator, and a senior Global Futures scientist at ASU.

"AWP is a new generation of water treatment that represents a major leap forward, but the general public is largely unaware of its existence."

Clarifying complexity and filtering out misconceptions

By virtually transporting viewers inside an AWP industrial plant to follow the water through each stage of the process, Lauer's award-winning audiovisual experience shows how the AWP process takes used water that has left homes and other buildings and turns it into safe, high-quality drinking water using a multiple-barrier treatment approach that removes impurities, pathogens and harmful chemicals.

The experience illustrates how AWP leverages combinations of proven technologies such as ultraviolet light, reverse osmosis, ozone, biologically active carbon filtration, advanced oxidation and chlorine disinfection — complex technical subject matter that's easier to grasp in a visual medium.

"It's similar to a guided tour but with no hard hat or other safety gear required," Lauer said.

From the comfort of a chair, the virtual tour also shows how AWP is different from conventional purification methods that rely on natural buffers like rivers or lakes, operating in controlled environments to consistently produce exceptionally clean water. Among the many multimedia elements fleshing out the experience are talking animated characters, music, sound effects, voiceover narration, maps, popup videos and graphical animations.

Viewers learn how water produced via AWP often exceeds traditional quality standards, offering a reliable alternative in regions facing water shortages while enhancing taste — a promising solution for communities grappling with scarcity, Lauer adds.

"AWP offers a sustainable source of purified water by adding variety to our water supply and lessening our dependence on any single source. It also helps protect the environment by easing the pressure on our freshwater resources," she said.

The ASU team's two AWP experiences will be available to the public this year with details to be announced in the coming weeks. By showing Arizona residents how AWP works within an industrial plant, the digital tour builds public confidence that the water from these plants is clean and safe to drink.

"Some people don't trust recycled wastewater," Lauer said. "There is a lot of misinformation in the public sphere related to water purification, and as educators, we know that complex scientific explanations often struggle to break through while simple visualizations can bring clarity."

Tapping into Arizona communities

The Arizona Water Innovation Initiative design team rooted its creative process in community engagement, beginning with its [Arizona Water Survey](#) and interviews with residents. Their insights ensured that the VR experience addressed genuine water concerns and was accessible to all audiences.

As the UX architect for the project, Lauer led collaborations with partners from [Scottsdale Water](#), [ASU's Meteor Studio](#), [Ask A Biologist](#) and local high schools, gathering input and data to shape the experience for people with no technical background, including youth.

“Our water resilience work is inspired by the ASU Charter, which commits us to include and serve every Arizona community,” Lauer said. “With drought and climate change threatening the security of Arizona’s future water supply, the issue of water reuse affects everyone, whether you live in the Phoenix metro area or on tribal land in a small rural community.”

Reflecting on the project’s broader impact and potential, [Dave White](#), principal investigator and team lead for ASU in the initiative, highlighted the dual role of advancing research and educating the public.

"The Arizona Water Innovation Initiative is committed to empowering people and communities with the knowledge and tools necessary to actively participate in water decision-making," said White, who is the associate vice president of research advancement in [ASU's Knowledge Enterprise](#) and director of ASU's [Global Institute of Sustainability and Innovation](#).

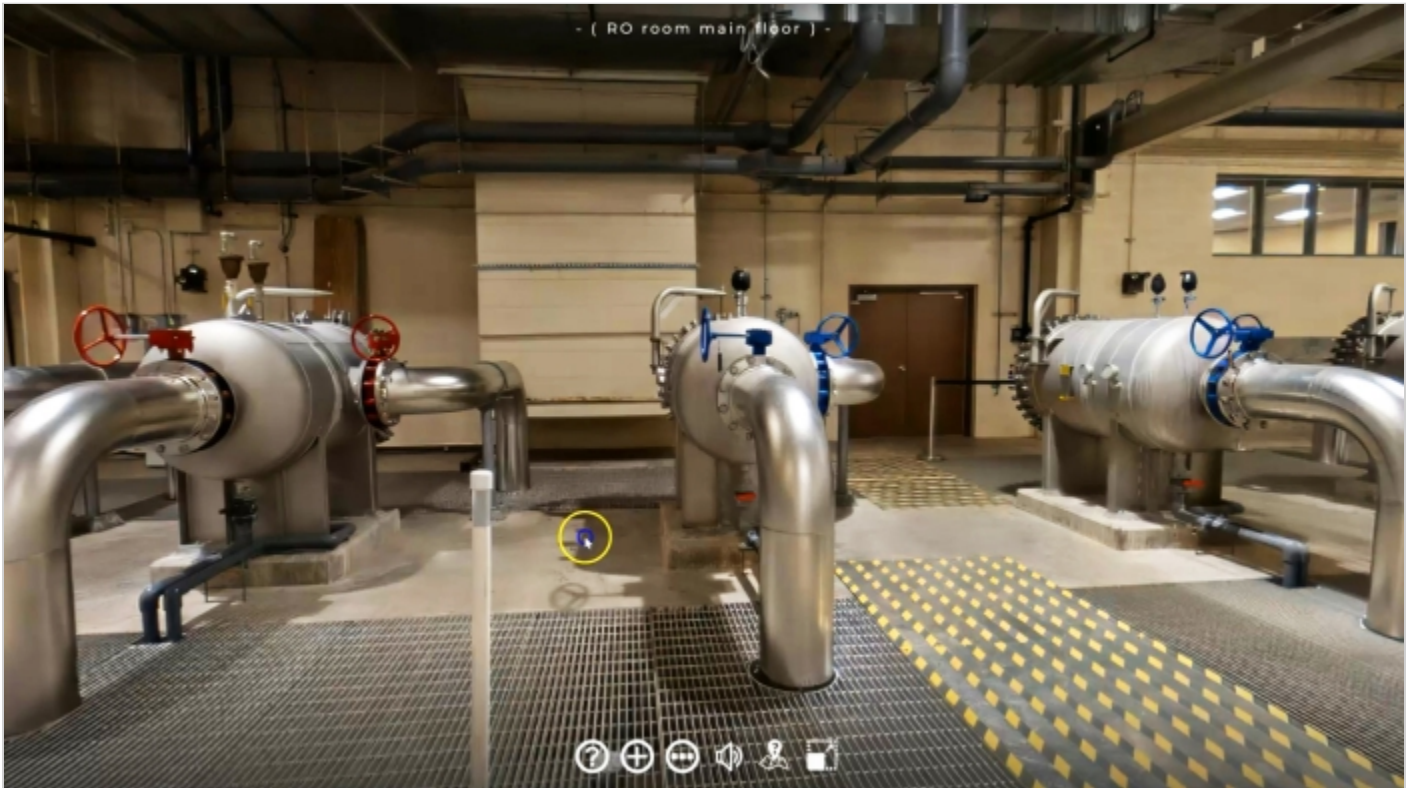
“By immersing people in interactive and meaningful learning experiences, Professor Lauer and her team are pioneering innovative approaches to water education, exemplifying ASU's leadership and commitment to making a positive impact on Arizona.”

The national recognition for ASU’s AWP virtual tour project comes at a critical time of progress for AWP in Arizona. [The Arizona Department of Environmental Quality](#) recently finalized statewide AWP regulations to expand potable water reuse, and the Governor’s Regulatory Review Council approved their implementation on March 4.

The approval puts the new AWP rules into effect, establishing a comprehensive regulatory framework that ensures treated water is purified safely and reliably for drinking while also supporting a sustainable water supply for communities across the state. The implementation follows years of technical planning, public surveys and stakeholder engagement, positioning AWP as a critical component of the [state’s strategy](#) to diversify its water portfolio amid population growth and climate pressures.

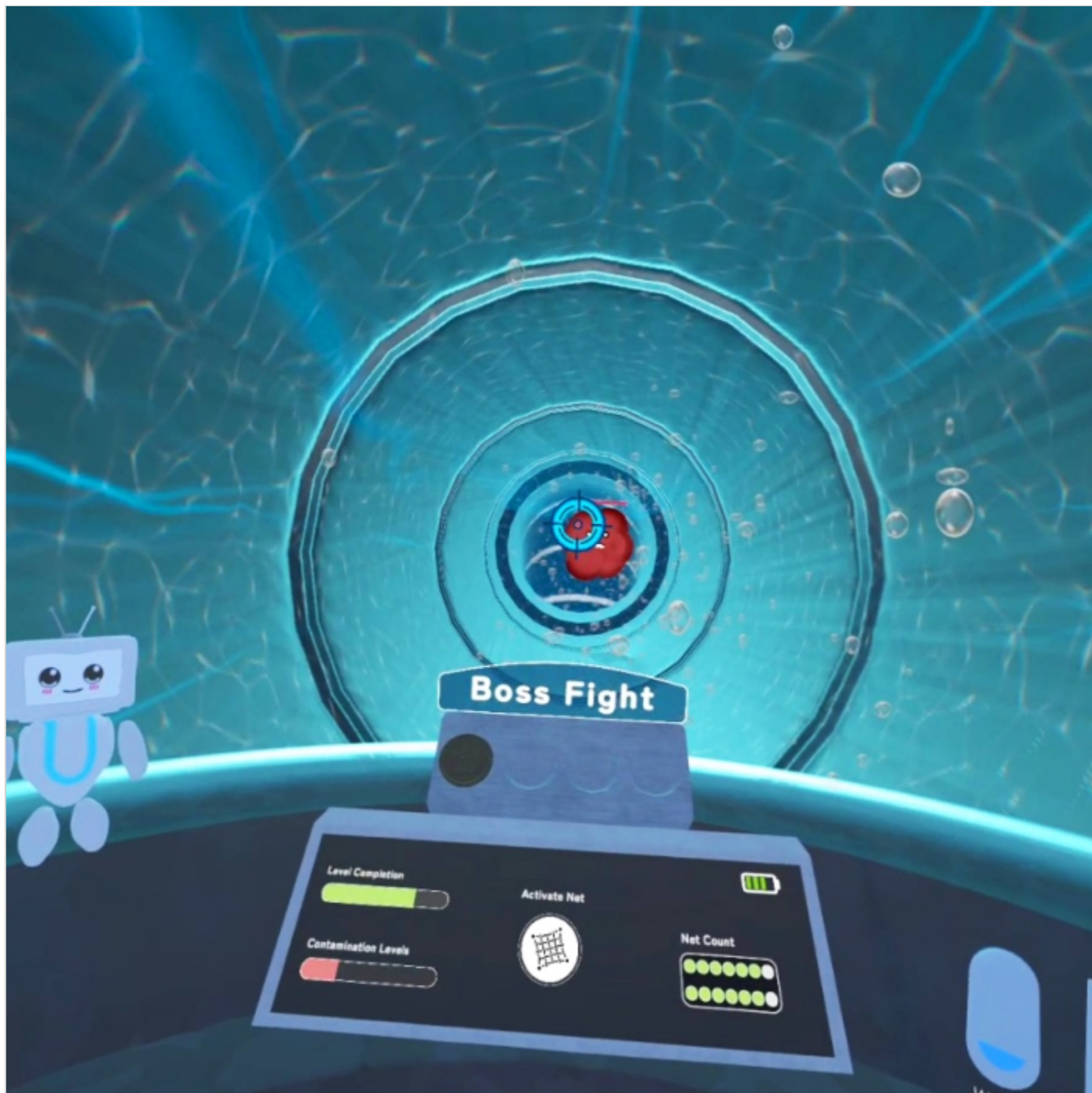
This story originally appeared on [ASU News](#).

Main image

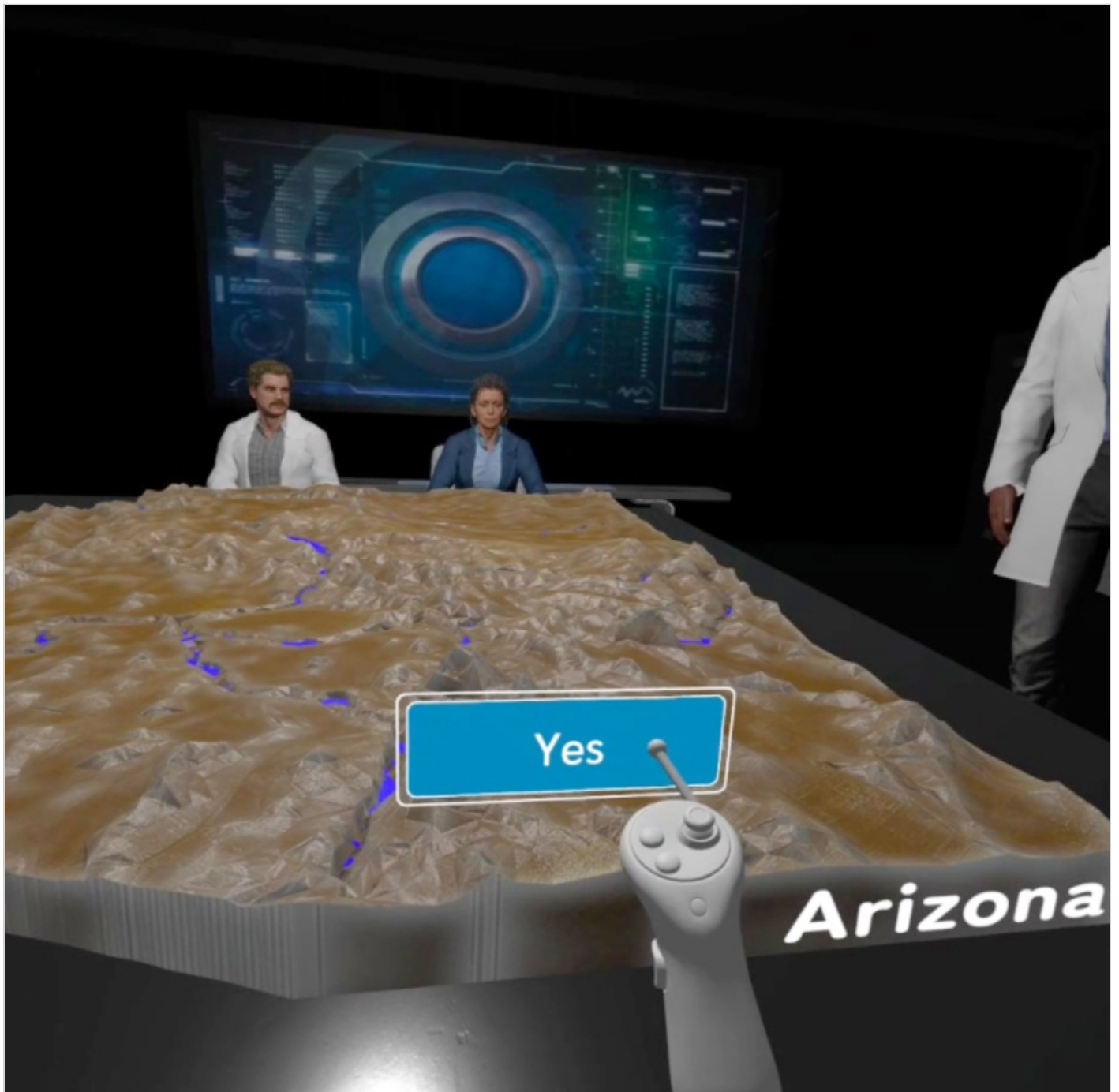


A screen capture from the virtual tour shows what viewers see as they navigate a pump room within an AWP facility. The virtual spaces contain interactive audiovisual elements such as pop-up videos and animations. Image by ASU/Arizona Water Innovation Initiative

Text image(s)



The virtual tour takes participants inside a nanosubmarine that journeys through different stages of the AWP process. Image by ASU/Arizona Water Innovation Initiative



Scientists, engineers and managers introduce AWP during a virtual welcome scene centered around a 3D map of the state. Image by ASU/Arizona Water Innovation Initiative

Gallery



Part of the gamified VR experience allows participants to zap cartoon contaminants with a UV light beam while navigating the interior of a water pipe within the virtual purification plant.



The virtual tour includes AWP plant exterior locations such as this sedimentation basin where viewers can click on an interactive element for more information on this step in the process.



Talking characters in the simulation include a helpful tour guide who prompts different interactions that require users to manipulate a virtual controller to advance.