2021 WateReuse Symposium

SUMMARY WHITE PAPER: WATER RECYCLING & PUBLIC HEALTH



OVERVIEW & CONTEXT

In March 2021, the WateReuse Association convened the virtual 36th Annual WateReuse Symposium, which included eight live roundtable discussions with facilitated breakout sessions. Led by WateReuse members and Champion sponsors, the live roundtables were presented in a format that allowed both knowledge sharing and interaction between participants. First, a group of six to ten experts on a given roundtable topic participated in a web-based video panel discussion viewed by several hundred attendees. When the live roundtable discussion concluded, the attendees moved into one of six pre-selected breakout sessions. Each breakout session focused on one aspect of the broader live roundtable discussion. WateReuse member volunteers facilitated the breakout dialogs, with one taking notes that were later used to produce this series of summary white papers.

This paper summarizes the discussions held during the 36th WateReuse Symposium live Water Recycling & Public Health roundtable.

LIVE ROUNDTABLE SUMMARY

During the live roundtable, the panel of seven experts discussed water recycling and public health from the perspectives of science and specifications, contaminants of emerging concern (CECs), pilot demonstration projects, communications and public outreach, medical community engagement, and research.

As many water managers and city planners understand, public perception and understanding of public health protections in water reuse and recycling projects resoundingly matters. The water community's influence on public perception relies on both the "how" and "who." Panelists acknowledged that the public is often swayed by large events that have a high impact on their lives. Examples include water stress, climate variability, and droughts. Panelists spoke to the essential need for "trusted messengers" to help the water community educate the public. For potable reuse, the medical community can be an effective ally to strengthen the water community's

SPEAKERS

- RABIA CHAUDHRY, National Water Reuse Expert, U.S. Environmental Protection Agency
- ALLEGRA DA SILVA, Rocky Mountain Region Water Reuse Practice Leader, Brown and Caldwell
- DAN GERRITY, Principal Research Scientist, Southern Nevada Water Authority
- ROBERT MCCANDLESS, Membrane Technology Specialist, Brown and Caldwell (Moderator)
- DANIEL NIX, Utilities Operations Manager, City of Wichita Falls, Texas
- CHANNAH ROCK, Professor, University of Arizona
- PATRICIA TENNYSON, Executive Vice President, Katz & Associates



message when communicating the safety of water reuse. Nix noted in Wichita Falls, Texas the most powerful message their community members received was from medical professionals declaring, "I would drink it."

The City of Wichita Falls provided tours of the city's stateof-the-art laboratories, wastewater plants, and advance treatment systems to academic and practicing medical professionals to familiarize them with the engineering process and safety. The city learned a co-benefit of the combined tours included peer-to-peer learning between the M.D.s and PhDs of the medical community.

Effectively communicating the availability of research and data on the safety of water reuse and protection from contaminants of emerging concern is of equal importance. Panelists said they have heard from medical professionals and academics, alike, the desire to conduct their own research before supporting potable reuse.

Data dashboards were suggested for conveying large data sets and accompanying materials to explain spikes or outliers. Other panelists emphasized the importance of amplifying research, data collection, and guidelines at the national scale through the creation of compilations like those expected under the National Water Reuse Action Plan (WRAP). The work of WRAP Action 3.1 will release a compilation of existing fit-for-purpose specifications from across the country. One panelist encouraged the water sector to capitalize on the media attention regarding sewer surveillance research in detecting COVID-19 in communities to grow trust with the community and public health sector.

The panel discussed pilot demonstration projects as powerful tools in addressing the public and industry directly. In Arizona, a mobile demonstration advanced purification treatment facility was used for an education campaign in which beer was brewed with purified recycled water, winning over brewers and the public one beer at a time. The panel emphasized that trust is gained through pilot projects when the curtain is pulled back to create transparency in the treatment process, technologies, and operations.



Arizona demonstration purified recycled water.

BREAKOUT DISCUSSIONS TAKEAWAYS

Echoing the themes of the roundtable, the six breakout rooms discussed science and specifications, contaminants of emerging concern, pilot demonstration projects, communications and public outreach, medical community engagement, and research. The breakout discussions included 127 participants, with anywhere from 9 to 29 attendees in each room.

BREAKOUT ROOM 1 COMMUNICATING PUBLIC HEALTH PROTECTION THROUGH MEDIA & OUTREACH

This breakout built upon themes explored by panelists Patricia Tennyson and Daniel Nix. Breakout room participants listed some of the most successful messaging and communications approaches as pilot/ demonstration facilities, brewery contests, focus groups and surveys, virtual communications/council meetings (initiated during COVID), partnering with cities and city planners, and continual messaging on topics such as water conservation. The participants agreed that scientists, regulators, and community medical professionals from hospitals were the most trusted spokespeople. The attendees felt the support of medical professionals could be leveraged in communicating water reuse safety by including them on panels with utility representatives and developing partnerships to teach lectures on the value of water and potable reuse in medical programs.

BREAKOUT ROOM 2 MEDICAL COMMUNITY ENGAGEMENT

This breakout provided an opportunity for more in-depth discussions into avenues for engaging with the medical community and the need to address the lack of existing relationships between the water and medical communities. Participants noted that avenues for reaching medical professionals include working with local medical associations, city and county health departments, and public health departments of state universities. Once medical professionals are on board, getting them to say they would drink the water in educational videos and directly to patients is vital.



BREAKOUT ROOM 3 PROTECTING PUBLIC HEALTH IN LIGHT OF EMERGING ISSUES (PFAS/COVID)

This breakout picked up on panel discussions around the recent media coverage of wastewater surveillance to predict future COVID outbreaks. On the positive side, the attention on wastewater surveillance brought greater acknowledgment and appreciation for the work the public health and water sector does, enhanced the relationship between water and public health agencies, and in some such cases, such as with the California State Water Board, allowed increased participation through virtual platforms. On the other hand, the spotlight on wastewater surveillance also increased public concern around, "if we can detect COVID in the wastewater, what else is in the water and how does that impact water reuse?" The advancements in sewershed surveillance increase the smart technologies and predictive analysis that can be beneficial to water reuse down the line. Communities such as the City of Boise, Idaho are working to better communicate their data on a public webpage, which is referenced by local health leaders. Regarding the emergence of PFAS, breakout room attendees indicated that source control becomes imperative for protecting public health when direct potable reuse is implemented.



BREAKOUT ROOM 4

STATE AND FEDERAL GOVERNMENTS' ROLES IN HEALTH RISK COMMUNICATION

This breakout explored the federal government's role in standardizing terminology for efficient communication and developing resources and research states could utilize to develop their own regulations. The participants saw an important role in establishing operator workforce training and materials to fill in the knowledge gaps between a drinking, wastewater, and an advanced water treatment facility. At the state-level, attendees broadly recognized that stakeholder engagement is key in drafting and updating regulations. Colorado launched their stakeholder process for direct potable reuse regulations in March 2021.





BREAKOUT ROOM 5 THE ROLE OF PILOT PROJECTS TO DEMONSTRATE HEALTH PROTECTION

This breakout discussed drivers for getting pilot or demonstration facilities approved, including Florida's rule requirement for new water reuse projects to incorporate a one-year pilot or demonstration project. Participants noted that anecdotal evidence suggests that projects without a pilot have a more difficult time earning approval with notable examples in California and Virginia. When discussing if pilot projects should be a requirement, the group felt pilot projects are useful in explaining multi-barrier treatment approaches, data, process technologies, and public outreach, but did not recommend a definitive requirement. They further explored panel remarks on utilizing data dashboards to build public confidence in data, noting data needs to be shared in a way that grabs attention, uses simple language and graphics, and shows live data on a webbased platform. The room agreed live data access, when done appropriately, provides public transparency and builds trust.

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BREAKOUT ROOM 6 THE ROLE OF RESEARCH TO DEMONSTRATE HEALTH PROTECTION

This breakout explored how the water sector leverages existing research from the perspectives of end-users, regulators, and utilities or treatment facilities. For end-users, getting stakeholder buy-in for research and implementation is most effective through peer-to-peer communication. Regulators view research as a crucial piece in developing benchmarks, providing context, and providing the basis for developing user-friendly tools for industry. Applied research for optimizing treatment processes, clarifying research questions, or testing novel treatment trains allows utilities and treatment facilities to innovate. When it comes to the development and communication of research projects, including multiple stakeholders on expert advisory panels has proven useful in making connections and translating knowledge across disciplines. The discussion emphasized the need for the water sector to forecast future issues or CECs to play less catch-up with regulations.

CLOSING SUMMARY OF THE DISCUSSION

In the end, panelist Robert McCandless efficiently summed up the need to discuss and inform perceptions of both the public and medical communities through pilot projects, outreach campaigns, and research. Building trust, connections, and an understanding of water treatment process supports the water industry far beyond potable reuse.

The WateReuse Association thanks Brown and Caldwell for sponsoring this live roundtable at the 36th Annual WateReuse Symposium.



Wichita Falls, Texas, public outreach video with medical professional attestation to safety of recycled water.