

VIRTUAL

WaterReuse SYMPOSIUM 2021



RESILIENCE
REDEFINED

health
economy
environment

36TH ANNUAL SYMPOSIUM • MARCH 1- APRIL 23, 2021



In Collaboration with The Water Research Foundation

Welcome to the 36th Annual WateReuse Symposium

Dear Symposium Attendee:

The WateReuse Association and The Water Research Foundation are pleased to welcome you to the 2021 WateReuse Symposium in its new March timeslot! Organized around the theme, *Resilience Redefined*, this year's program focuses on the important role that water recycling plays in ensuring resilient and safe water supplies.

We have created a virtual event that offers a unique interactive experience, including the education and training that you receive at an in-person event, the convenience of attending from your own office and on your schedule, and the ability to engage in live roundtable discussions with colleagues. Since attendees do not typically take days away from work to participate in a virtual conference, we have spaced out the event over several weeks so that you can attend around your busy work schedule.

The excitement begins March 1! The opening day includes a live opening general session at 1 pm ET featuring a panel discussion on the *Challenges and Opportunities of Integrating Public Health*, as well as the release of dozens of on-demand technical sessions that you can view at your convenience. A second live panel, *A Hypothetical – Potable Reuse Moves Towards Artificial Intelligence*, will be presented at 4 pm ET.

The Symposium culminates with two weeks of daily live roundtable discussions March 15-25 that will allow you to turn on your camera and participate in breakout discussions on public health, resiliency, potable reuse, research, policy, regional approaches to reuse, and more. The full program, including recordings of live sessions, will be available through April 23, 2021. WateReuse and WRF have combined our strengths once again to bring you a comprehensive program that offers both practical approaches and theoretical considerations that form a vision for the future of water recycling.

The Symposium is an extension of the initiatives our organizations partner on throughout the year, including the Water Reuse Action Plan, the National Blue Ribbon Commission for Onsite Non-Potable Water Systems, and reuse-related research—all of which you can learn more about during the Symposium experience.

Thank you again for your participation. Please do not hesitate to contact the Symposium staff if you need any assistance throughout your Symposium experience. We look forward to seeing you again next March—in San Antonio, Texas!



PATRICIA SINICROPI
Executive Director
WateReuse Association



PETER GREVATT
Chief Executive Officer
The Water Research Foundation

Creating a better tomorrow by reusing resources today.

As the need grows for creative ways of transforming treated water into reusable resources, we're partnering with communities worldwide to develop and deliver cost-effective solutions while building a sustainable and resilient water portfolio for future generations.

We're proud to support the 36th Annual WaterReuse Symposium

Please visit our Virtual Exhibit Booth to meet our Team and learn more about how we're delivering a better world through innovative water reuse strategies.

VIRTUAL SYMPOSIUM AT A GLANCE

MONDAY, MARCH 1

LIVE ▶

- Opening General Session: Challenges and Opportunities of Integrating Public Health (10:00 am PT | 1:00 pm ET)
- Panel Discussion: A Hypothetical – Potable Reuse Moves Towards Artificial Intelligence (1:00 pm PT | 4:00 pm ET)

MONDAY, MARCH 1-
FRIDAY, APRIL 23

On-Demand Technical Sessions Available

MONDAY, MARCH 15 -
WEDNESDAY, MARCH 24

LIVE ▶

Daily Roundtable Discussions

MONDAY, MARCH 22

LIVE ▶

2021 WateReuse Awards for Excellence and Annual Business Meeting (8:30 am PT | 11:30 am ET)

THURSDAY, MARCH 25

LIVE ▶

Closing Session: Making Water Recycling Accessible for All Communities (11:00 am PT | 2:00 pm ET)

GET STARTED...



The Symposium can be accessed at:

<https://watereuseassociation.6connex.com/event/Virtual/36thwatereusesymposium/login>

All sessions will be available until April 23, 2021.
Live sessions will be recorded and recordings will be available the following business day.

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THANK YOU TO OUR SPONSORS

The WaterReuse Symposium would not be possible without the generous support of our sponsors.

CHAMPIONS

AECOM

Vijay Sundaram, National Water Reuse Technical Practice Leader, Water Business Line
vijay.sundaram@aecom.com



Black & Veatch

Zeynep Erdal, Integrated One Water Solutions Leader, Water Business
erdalz@bv.com



Brown and Caldwell

Melanie Holmer, Water Reuse Leader
mholmer@brwncald.com



Carollo

Eva Steinle-Darling, Reuse Innovation Manager
esd@carollo.com



Eastern Municipal Water District

Paul Jones, General Manager
jonesp@emwd.org



El Paso Water

Gilbert Trejo, Chief Technical Officer, Technical Services Division
gtrejo@epwater.org



Stantec

Zakir Hirani, Southern California Wastewater/Recycled Water Lead
zakir.hirani@stantec.com



Suez

Renee Twardzik, Senior Marketing Communications Leader
renee.twardzik@suez.com



Tetra Tech

Gary ReVoir, Vice President
gary.revoir@tetrattech.com



Xylem

Michele Braas, Business Development Manager – Water Utilities
michele.braas@xylem.com



VISIONARIES

CDM Smith

Greta Zornes, Practice Leader – Water Reuse
zornesgl@cdmsmith.com

HDR

Chance Lauderdale, Drinking Water Director
chance.lauderdale@hdrinc.com

Irvine Ranch Water District

Mark Tettermer, Recycled Water Development Manager
tettermer@irwd.com



INNOVATORS

Arcadis

Ufuk Erdal, Water Reuse Practice Director
ufuk.erdal@arcadis.com

GoAigua US

Pablo Calabuig, Chief Executive Officer
pablo.calabuig@go-aigua.com

Hazen & Sawyer

Troy Walker, Water Reuse Practice Leader
twalker@hazenandsawyer.com

Jacobs

Larry Schimmoller, Global Technology Leader for Water Reuse
larry.schimmoller@jacobs.com

West Basin Water District

Patrick Sheilds, General Manager
patrick@westbasin.org

Water Replenishment District

Jenn Swart, Public Affairs Representative
jswart@ wrd.org



ADVOCATES

Clean Water Services

Diane Taniguchi-Dennis, Chief Executive Officer
dennisd@cleanwaterservices.org



Eurofins

Rick Zimmer, Senior Account Manager
RickZimmer@EurofinsUS.com

Kennedy Jenks

Dawn Taffler, Vice President, One Water Practice
dawntaffler@kennedyjenks.com

Ketos

Steve Shaffer, Vice President Marketing
steve.shaffer@ketos.co

Kiewit

Guy Voss, Vice President, Sales
guy.voss@kiewit.com

Natural Systems Utilities

Zach Gallagher, Executive Vice President
zgallagher@nsuwater.com

Plummer

Ellen McDonald, Principal, Water Planning Practice Leader
emcdonald@plummer.com




Join the WateReuse Community

The WateReuse Association is the nation's only trade association solely dedicated to advancing laws, policy, funding, and public acceptance of recycled water. Our membership includes utilities that recycle water, businesses that support the development of recycled water projects, and customers that use recycled water for operations.

Why Join?

- Impact national and state policymaking
- Engage with your peers
- Connect everyone in your organization with one membership
- Access education and professional development
- Build your network and expand your business

 Learn more and join: www.watereuse.org/join



advancing* water reuse

We connect the tried-and-true with the best new ideas to deliver innovative water reuse solutions that enhance our communities.



Non-Potable Reuse



Industrial Reuse



Advanced Treatment and Potable Reuse



Emerging Constituents



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OUR BUSINESS
OUR PASSION

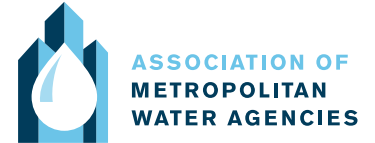
Change is happening at a pace we've never seen before. Climate change, sea level rise, cyber threats, aging infrastructure...and now an unprecedented health crisis from a global pandemic. Anticipating change and managing our most precious resources through these conditions has become a daunting task. For more than 85 years Carollo has delivered innovative solutions to meet today's challenges while being adaptive to an unknown future. By never wavering from our singular, passionate focus on water, we can meet the challenge of change head on, and help build a better world for generations to come.

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THANK YOU TO OUR PARTNERING ORGANIZATIONS

The WateReuse Association thanks our partnering organizations for marketing and communications support of the 36th Annual WateReuse Symposium.

PARTNERS



 mark your
CALENDAR

WateReuse Symposia

2022 | San Antonio

37th Annual WateReuse Symposium
Marriott San Antonio Rivercenter
San Antonio, Texas
March 5-9, 2022

2023 | Atlanta

38th Annual WateReuse Symposium
Marriott Marquis Atlanta
Atlanta, Georgia
March 4-8, 2023

2024 | Denver

39th Annual WateReuse Symposium
Hilton City Center
Denver, Colorado
March 10-14, 2024

2025 | Tampa

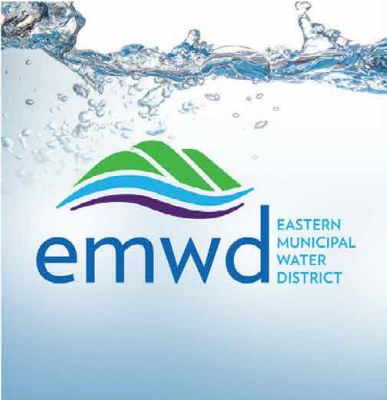
40th Annual WateReuse Symposium
JW Marriott Tampa Water Street
Tampa, Florida
March 16-19, 2025



GROUNDWATER RELIABILITY PLUS

Securing Our Water Future

Groundwater Reliability Plus – Encompasses EMWD’s actions and investments to improve the quality and quantity of the water in local groundwater basins, also called aquifers. Programs that are part of GWR Plus:



Groundwater Reliability Plus



Groundwater

The supply of fresh water found beneath the Earth’s surface, which in EMWD’s case is stored in aquifers. EMWD manages its groundwater supplies through the other programs that are part of Groundwater Reliability Plus.



Recycled Water

Wastewater that has been cleaned to be reused for irrigation and industrial purposes. EMWD consistently uses 100 percent of its recycled water supply for beneficial purposes within its 555-square mile service area.



Desalination

EMWD’s groundwater supplies are often brackish, which means that while the water is not as salty as ocean water, it is too salty for a water filtration plant. This program removes the salt and makes the water usable for drinking.



Water Use Efficiency

Efficient water use means using water wisely whenever possible. This program encourages all customers to save water in all parts of their lives.



Healthy Sewers

This program helps reduce the number of products that are harmful to wastewater collection systems (such as fats, oils and grease, personal hygiene products and medications) by educating the community of the ways to be “sewer smart.”



Water Banking

This program puts water into local groundwater basins when water is plentiful, in the same way you might put money in the bank to save for times when you need it. Basins will be replenished with water during wet or average years for use during that same year or to store for the future.



Purified Water Replenishment

This program is under development to blend advanced treated recycled water (purified water) with tertiary treated recycled water. After an additional natural filtration and blending process, it would eventually become part of our local drinking water supply.

LIVE OPENING DAY

The 36th Annual WaterReuse Symposium launches on March 1 with a live opening general session. Following the opening general session, attendees have access to dozens of on-demand technical sessions on all aspects of water recycling to view at their convenience.

MARCH 1, 2021

10:00 am PT | 1:00 pm ET (1.5 Hours)

OPENING GENERAL SESSION: Challenges and Opportunities of Integrating Public Health

Sponsored by:



FACILITATOR

Gilbert Trejo, Chief Technical Officer, El Paso Water, Texas

PANELISTS

- Peter Grevatt, CEO, The Water Research Foundation
- Joan Oppenheimer, Vice President, Principal Scientist, Stantec
- Dr. Donna Petersen, Senior Associate Vice President, USF Health Dean, College of Public Health
- Rupam Soni, Principal Public Affairs Representative, Metropolitan Water District of Southern California
- Greta Zornes, Practice Leader – Water Reuse, CDM Smith

1:00 pm PT | 4:00 pm ET (1.5 Hours)

LIVE PANEL DISCUSSION: A Hypothetical – Potable Reuse Moves Towards Artificial Intelligence

Sponsored by:



In this hypothetical panel discussion, we will discuss the controls and automation of a potable reuse plant of the (near) future as it relates to safety, reliability, and redundancy. What skills and capability will designers require? How will operators adapt and learn to trust the technology? What technical and maintenance skills will operators need? How will the system provide transparency and accountability for regulators, and will it build trust for the broader community?

FACILITATORS

Troy Walker, Water Reuse Practice Leader, Hazen and Sawyer
Ben Stanford, Associate Vice President, Hazen and Sawyer

PANELISTS

- Pablo Calabuig, CEO North America, GoAigua
- Bob Hultquist, Consultant, California Department of Public Health
- Kathryn Newhart, Engineer, Metro Wastewater Reclamation District, Colorado
- Ricardo Valderi, Professor of Systems and Industrial Engineering, University of Arizona

Building a Sustainable Water Future

El Paso's Water Reuse Journey



1963 Water Reclamation Started

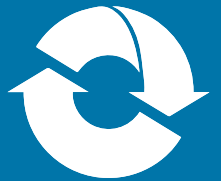
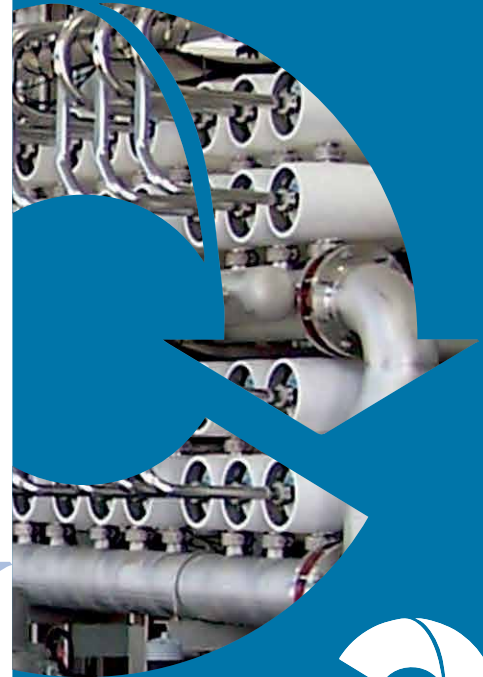
EPWater supplies golf courses, city parks, school grounds, apartment landscapes, construction, and industrial sites with over 5.83 mgd of reclaimed water.

1985 Aquifer Recharge Began

The Fred Hervey Water Reclamation Plant treats wastewater to drinking water standards and injects up to 3 mgd back into the aquifer.

2007 Desalination Plant Opened

The Kay Bailey Hutchison Desalination Plant treats brackish water and can produce up to 27.5 mgd for the water supply.



2024 Expanded Aquifer Recharge

El Paso will expand aquifer recharge by 4-13 mgd by using a combination of reclaimed water, treated river water and stormwater to replenish the aquifer and support groundwater sustainability.

2028 Advanced Purification

A multi-step treatment process will transform treated wastewater into safe, reliable drinking water and deliver directly to customers. The Advanced Water Purification Facility will produce up to 10 mgd.



ON-DEMAND TECHNICAL SESSIONS

On-demand technical sessions can be viewed at your convenience. Each 60- or 90-minute session is a panel discussion or group of presentations that will prepare you to fully engage in the live roundtables.



AVAILABLE ON-DEMAND MARCH 1 – APRIL 23

WATER REUSE 101

• INTRODUCTION TO WATER REUSE

MODERATOR

Brooke Wright, Professional Environmental Engineer, Brown and Caldwell

PRESENTERS

Melanie Holmer, Water Reuse Leader, Brown and Caldwell
Shannon Spurlock, Founder and Principal, Ochotona Consulting
Jill Vandegrift, Environmental Engineer, CDM Smith
Don Vandertulip, Engineer, Texas Commission on Environmental Quality

• KEY ELEMENTS OF WATER REUSE PROGRAMS & PUBLIC OUTREACH, COMMUNICATIONS, & ENGAGEMENT

PRESENTERS

Kati Bell, Managing Director of Water Strategy, Brown and Caldwell
Mark Millan, Principal, Data Instincts

• WATER REUSE CASE STUDIES

PRESENTERS

Thomas Dziura, Research Intern, Hampton Roads Sanitation District
Kelsey Lyons, Start-up, Commissioning, and Optimization (SCO), Denver Water
Mike Markus, General Manager, Orange County Water District
Daniel Nix, Utilities Operations Manager, City of Wichita Falls
Sarah Young, Deputy Director – Planning and Engineering, Aurora Water



COMPANION ROUNDTABLE DISCUSSION: Water Reuse 101 (Page 22)

WATER RECYCLING & PUBLIC HEALTH

• CHALLENGES & APPLICATIONS FOR RECYCLED WATER IRRIGATION OF EDIBLE CROPS

PRESENTERS

Jason Assouline, Project Manager, Carollo Engineering
Randolph Brown, Utilities Director, City of Pompano Beach
Steve Burgos, Director, Public Works, City of Boise

Mike McCullough, Director of External Affairs, Monterey One Water
Hadas Raanan Kiperwas, Researcher, Mekorot
Andrew Salvesson, Vice President, Carollo Engineering
Amy Sapkota, Professor, University of Maryland

• ENGAGING WATER REUSE YOUNG PROFESSIONALS IN THE CLASSROOM

PRESENTERS

Pranjali Kumar, Engineer, Carollo Engineering
Melissa Meeker, Chief Executive Officer, The Water Tower
Donna Petersen, Dean, College of Public Health, University of South Florida
Bart Weiss, Chief Officer, Hillsborough County Public Utilities

• FLORIDA ONE WATER PARADIGM SHIFT

PRESENTERS

Robert Beltran, President, Hydro Solutions Consulting, WateReuse Florida
Robyn Felix, Communications and Board Services Bureau Chief, Southwest Florida Water Management District
Kerry Kates, Director - Water and Natural Resources, Florida Fruit & Vegetable Association
Amanda Rice, Assistant Executive Director, Southwest Florida Water Management District
Lynn Spivey, Director of Utilities, City of Plant City
John Truitt, Deputy Secretary for Regulatory Programs, Florida Department of Environmental Protection
Garrett Wallace, The Nature Conservancy

• PARTNERSHIPS BRING ALBERTA'S FIRST BEER MADE WITH RECYCLED WATER

PRESENTERS

Kevin Flis, Client Solutions Manager, Xylem
Lee Jackson, Scientific Director, University of Calgary
Christine O'Grady, Program Coordinator, Advancing Canadian Wastewater Assets, University of Calgary
Jessica Popadynetz, Coordinator, Alberta Health Services

• WATER REPLENISHMENT DISTRICT ALBERT ROBLES CENTER VIRTUAL TOUR

(Sponsored by the Water Replenishment District)

PRESENTER

Jenn Swart, Public Affairs Representative, Water Replenishment District



COMPANION ROUNDTABLE DISCUSSION: Water Recycling & Public Health (Page 23)

RECYCLED WATER AS DRINKING WATER

• DEMONSTRATION TESTING ON THE PATH TO POTABLE REUSE WITH MBRS

PRESENTERS

George Di Giovanni, Team Manager, Source Water Microbiology, Metropolitan Water District of Southern California
Joyce Lehman, Senior Engineer, Metropolitan Water District of Southern California
Sun Liang, Manager, Water Reuse Development, Metropolitan Water District of Southern California
Shawn Thompson, Laboratory Supervisor, Los Angeles County Sanitation Districts

• INNOVATIONS & CHALLENGES IN WASTEWATER SOURCE CONTROL FOR POTABLE WATER REUSE

PRESENTERS

Scott Mansell, Senior Engineer, Clean Water Services
Tyler Nading, Water Engineer, Jacobs
Andrew Salvesson, Vice President, Carollo Engineering
Ken Thompson, Project Lead, Jacobs
Kyle Thompson, Postdoctoral Fellow, Southern Nevada Water Authority

• POTABLE REUSE ECONOMICS: HOW CAN WE IMPROVE IT

(Sponsored by Arcadis)

PRESENTERS

Ufuk Erdal, Senior Vice President, Water Reuse National Technology Director, Arcadis
Chris Repp, Engineer, Los Angeles Department of Water & Power
Germano Salazar-Benites, SWIFT Project Manager, Hampton Roads Sanitation District
Ifetayo Venner, Wastewater Treatment Service Line Leader, Arcadis
Rafael Villegas, Program Manager, Operation NEXT- Water Supply Program, Los Angeles Department of Water & Power

• THIS OR THAT? SELECTING ADVANCED TREATMENT PROCESSES FOR ADAPTABLE TRAINS

PRESENTERS

Adam Festger, Business Development Manager – Potable Reuse, Trojan Technologies
Fernando Gonzalez, TIWRP Plant Manager, LA Sanitation & Environment
Scott Miller, Process Specialist, Black & Veatch



COMPANION ROUNDTABLE DISCUSSION: Recycled Water as Drinking Water (Page 24)

RECYCLED WATER AS A RESILIENCY TOOL

• LIONS, GAZELLES, & HIPPOS: LESSONS IN COOPERATION FROM THE WATERHOLE

PRESENTERS

Ryder Bunce, Technical Services Engineer, Virginia Department of Health
Kathy Chavez, Water Policy Manager, Pima County
Marcia Degen, Environmental Technical Services Manager, Virginia Department of Health
Brian Frus, Water, Waste and Energy Manager, City of Salinas
Ted Henifin, General Manager, Hampton Roads Sanitation District
John Kmiec, Interim Director, City of Tucson Water Department
Felicia Marcus, Landreth Visiting Fellow, Stanford University Water in the West Program
Ellen McDonald, Chief Technology Officer, Plummer Associates, Inc.
Wayne Owen, Director of Planning and Water Sales, Tarrant Regional Water District
Doug Powell, General Manager, James City Service Authority
Denis Qualls, Planning Division Manager, Dallas Water Utilities
Robert Raucher, Director of Water Economics and Planning, Raucher LLC
Eric Rosenblum, Water Resource Consultant
Paul Sciuto, General Manager, Monterey One Water
Dave Smith, Assistant Director for Water, US Environmental Protection Agency Region 9
Shannon Spulock, Principal, Ochotona Consulting
Dave Stoldt, General Manager, Monterey Peninsula Water Management District



• POCKETS FULL OF LIFE: URBAN COMMUNITY RESILIENCY FOR STORM WATER REUSE

PRESENTERS

Luis Casado, Director of Water, SVP, Gannett Fleming
Deanna Cope, Senior Marketing Manager, Gannett Fleming
Ashwini Karanth, Architectural and Urban Designer, Gannett Fleming

• TAILORING STORMWATER CAPTURE: BUILDING REGIONAL CAPACITY TO HARVEST STORMWATER

PRESENTERS

Seth Brown, Executive Director of Operations, National Municipal Stormwater Alliance
Jim Rasmus, Associate Vice President, Carollo Engineering
Dr. Richard Luthy, Professor and Chair, Stanford University
Sybil Sharvelle, Assistant Professor, Colorado State University
David Smith, Assistant Water Director, US Environmental Protection Agency, Region 9



• THE HARD FACTS ABOUT REMINERALIZATION TREATMENT ALTERNATIVES

PRESENTERS

James Christopher, Vice President, Engineering, Tetra Tech Inc.
Jarrett Kinslow, Senior Project Manager, Tetra Tech
Ray Page, Utilities Superintendent, City of Tarpon Springs, FL



COMPANION ROUNDTABLE DISCUSSION: Recycled Water as a Resiliency Tool (Page 26)

REGIONAL APPROACHES TO WATER RECYCLING

• COMPLETION OF NEVADA'S FIRST ADVANCED PURIFIED WATER DEMONSTRATION PROJECT

PRESENTERS

John Enloe, Director of Natural Resources & Planning, Truckee Meadows Water Authority
Krishna Pagilla, Professor, University of Nevada, Reno
Lydia Peri, Emerging Resources Program Administrator, Truckee Meadows Water Authority
Vijay Sundaram, National Water Reuse Technical Practice Leader, Water Business Line, AECOM
Rick Warner, President, Warner and Associates

• FACING OBSTACLES TO MAXIMIZING WATER REUSE: CALIFORNIA PERSPECTIVES

PRESENTERS

Lesley Dobalian, Principal Water Resources Specialist, San Diego County Water Authority & Southern California Salinity Coalition
Hannah Ford, One Water Project Manager, Brown and Caldwell
Raymond Jay, Senior Water Resource Specialist, Metropolitan Water District of Southern California
Paula Kehoe, Director of Water Resources, San Francisco Public Utilities Commission
Paul Liu, Manager of Water Recycling Policy, Groundwater Rights, and Resource Management, Los Angeles Department of Water and Power
Shauna Lorange, Public Utilities Director, City of San Diego
Wendy Ridderbusch, Executive Director, CalDesal
Claire Waggoner, Sustainable Water Plans and Policies Section Lead, State Water Resources Control Board
Jennifer West, Managing Director, WateReuse California

• FIVE YEARS POST-LEGALIZATION: COLORADO'S GRAYWATER IMPLEMENTATION LESSONS LEARNED

PRESENTERS

John Bell, Co-founder and Chief Commercial Officer, Greyter Water Systems
Avery Ellis, Owner, Colorado Greywater
Lindsay Rogers, Colorado Basin Program Manager, WaterNow Alliance
Jeff Tejral, Manager of Water Conservation, Denver Water
Theresa Worsham, Sustainability Manager, City of Golden

• WATER REUSE PRACTICES IN A GLOBAL SUSTAINABILITY PERSPECTIVE

PRESENTERS

Rafael Mujeriego, Professor Emeritus of Environmental Engineering, Technical University of Cataluña
Colin Newbery, Technical Director, Jacobs
Alexandros Stefanakis, Assistant Professor, Technical University of Crete
Ryujiro Tsuchihashi, Senior Technologist, Jacobs



COMPANION ROUNDTABLE DISCUSSION: Regional Approaches to Water Recycling (Page 27)

IMPLEMENTATION & OPERATION OF WATER RECYCLING SYSTEMS

• IMPLEMENTING & SCALING UP ONSITE NON-POTABLE WATER SYSTEMS

PRESENTERS

Brian Bernados, Technical Specialist, California Division of Drinking Water
Taylor Chang, Water Resources Analyst, San Francisco Public Utilities Commission
Paula Kehoe, Director of Water Resources, San Francisco Public Utilities
Michael Jahne, Engineer, US Environmental Protection Agency, Office of Research and Development

• RESEARCH AND FULL-SCALE OPERATION OF NON-RO-BASED ADVANCED TREATMENT

(Sponsored by Jacobs)

PRESENTERS

Dana Gonzalez, Treatment Process Engineer, Hampton Roads Sanitation District
Ann Malinaro, Water Treatment Process Specialist, Aurora Water
Tyler Nading, Water Engineer, Jacobs
Mack Pearce, SWIFT Research Center Intern, Hampton Roads Sanitation District
Lydia Peri, Emerging Resources Program Administrator, Truckee Meadows Water Authority
Eric Peterson, PhD Candidate, University of Colorado

• THE POTENTIAL OF ONSITE NON-POTABLE WATER SYSTEMS IN SILICON VALLEY AND BEYOND

PRESENTERS

Melissa Gunter, Water Resource Control Engineer, San Francisco Bay Regional Water Quality Control Board
Cora Kammeyer, Senior Research Associate, Pacific Institute
Amelia Luna, Senior Project Manager, Sherwood Design Engineers
Drew Wenzel, Real Estate Development Executive, Google

• TRANSFORMING UTILITIES, SUSTAINING OUR ASSETS: ADVANCED ANALYTICS = BETTER O&M

PRESENTERS

Steven Dutschke, Data Intelligence and Reliability Engineer, Kennedy Jenks

Jeff Foushee, Reliability Engineer, LyondellBasell

Stacy Jones, Senior Project Manager, Aspen Technology

Andrew Marlatt, Senior Data Scientist, NuWave Solutions

Mike McCollough, Director of External Affairs, Monterey One Water

Mehul Patel, Executive Director of Operations, Orange County Water District



COMPANION ROUNDTABLE DISCUSSION: Implementation & Operation of Water Recycling Systems (Page 29)

WATER RECYCLING RESEARCH & INNOVATION

• EXTENDING CALIFORNIA'S WATER RESOURCES SYNERGISTICALLY

PRESENTERS

Brent Alspach, Director of Applied Research, Arcadis

Isaya Kisekka, Associate Professor, University of California Davis

Harold Leverenz, Research Engineer, University of California Davis

Erin Partlan, Innovation Program Manager, The Water Research Foundation

• IMPACTS OF WASTEWATER TREATMENT PERFORMANCE ON ADVANCED WATER TREATMENT

PRESENTERS

Eric Dickenson, Project Manager for Water Quality and Research and Development, Southern Nevada Water Authority

Dan Gerrity, Principal Research Scientist in Water Quality and Research and Development, Southern Nevada Water Authority

Stephen Katz, Water Reuse Chief Technologist, SUEZ

Wendell Khunjar, Director of Applied Wastewater Research, Hazen and Sawyer

Sun Liang, Water Reuse Development Manager, Metropolitan Water District of Southern California

Eva Steinle-Darling, Water Reuse Practice Director, Carollo Engineers

Troy Walker, Water Reuse Practice Leader and Membrane Technology Leader, Hazen and Sawyer

• INNOVATING TOWARDS REAL-TIME MONITORING OF PATHOGENS

PRESENTERS

Michael Besmer, Founder & CEO, onCyt Microbiology

Jason Carter, Vice President, Strategy, Innovation & Business Transformation, Arcadis

Bruce Chalmers, Recycled Water Program Manager, Metropolitan Water District of Southern California

Annette Davison, Principal Risk Analyst/Software R&D Manager, RiskEdge/D2K Information

Christobel Ferguson, Chief Innovation Officer, The Water Research Foundation

Mark LeChevallier, Principal Research Scientist in Water Quality and Research and Development, Dr. Water Consulting

Erin Partlan, Innovation Program Manager, The Water Research Foundation

Gayathri Ram Mohan, Research Scientist, Gwinnett County Department of Water Resources



COMPANION ROUNDTABLE DISCUSSION: Water Recycling Research & Innovation (Page 30)

WATER RECYCLING & POLICY

- FRAMEWORKS TO ADDRESS PRODUCED WATER REGULATORY CHALLENGES

PRESENTERS

Cloelle Danforth, High Meadows Postdoctoral Science Fellow, Environmental Defense Fund

Ellen Gilinsky, President, Ellen Gilinsky, LLC

Nichole Saunders, Senior Attorney, Energy Environmental Defense Fund

- STATE EFFORTS: IDENTIFYING TECHNICAL, REGULATORY, & INFORMATION NEEDS

PRESENTERS

Brandi Honeycutt, Colorado Department of Public Health & Environment

Stephen Roy, New Hampshire Department of Environmental Services, Drinking Water & Groundwater Bureau

Karen Steele, Engineering Manager, Oklahoma Department of Environmental Quality

Dan Yates, Associate Executive Director, The Ground Water Protection Council

- WATER REUSE APPLICATIONS WITHIN INTEGRATED WATER RESOURCES MANAGEMENT FRAMEWORK

PRESENTERS

Rob Beste, Assistant General Manager, Water Replenishment District

Katherine Jashinski, Supervising Engineer, Austin Water

Chris Mattingly, Utilities Director, City of Norman

Nicole Silk, President and CEO, River Network

Rick Warner, President, Warner and Associates

Greg Woodside, Executive Director, Planning and Natural Resources, Orange County Water District



COMPANION ROUNDTABLE DISCUSSION: Water Recycling & Policy (Page 31)

Building solutions for water reuse



Your water reuse journey starts with decisions made today. SUEZ is able to support programs from early stage development through to full scale implementation. Our team can take you through planning, regulatory requirements, design, and deployment of all sizes of equipment, including pilots and demonstration units, and offers ongoing services for operating facilities.

[Visit our website to learn more](#) →

<https://www.suezwatertechnologies.com/emerging-trends/creating-sustainability-through-water-reuse>



LIVE ROUNDTABLE DISCUSSIONS

Daily live roundtables discussions March 15-24 will allow you to turn on your camera and participate in breakout discussions on critical water recycling topics. Recordings of live roundtables will be available through April 23, 2021.

MONDAY, MARCH 15

11:00 am PT | 2:00 pm ET (2.5 Hours)

WATER REUSE 101

This roundtable explores drivers, financing, technology adoption, research, public acceptance, and the biggest challenges of adopting water reuse projects.

Sponsored by:



FACILITATOR

Tracy Lewis, Global Practice Leader Wastewater, Tetra Tech

PANELISTS

Hubertus Cox, Division Manager, Water Recycling Implementation, LA Sanitation & Environment, California

Terry Lauritsen, Engineering and Water Utilities Director, City of Bartlesville, Oklahoma

Melissa Meeker, CEO, The Water Tower

Krishna Pagilla, Chair, Environmental and Civil Engineering Department, University of Nevada, Reno

Bart Weiss, Hillsborough County Public Utilities, Florida

Lauren Zuravnsky, Chief of Design and Construction – SWIFT, Hampton Roads Sanitation District, Virginia

BREAKOUT ROOM TOPICS

Indirect Potable Reuse (IPR) and Direct Potable Reuse (DPR) Regulations

Public Education

Funding Opportunities

Operator Training Certification

Enhanced Recovery

Innovative Technologies

COMPANION ON-DEMAND TECHNICAL SESSIONS

- Introduction to Water Reuse
- Key Elements of Water Reuse Programs & Public Outreach, Communications, & Engagement
- Water Reuse Case Studies

TUESDAY, MARCH 16

9:00 am PT | 12:00 pm ET (2.5 Hours)

WATER RECYCLING & PUBLIC HEALTH

Sponsored by:



In this session we will explore the importance of incorporating public health protection into recycled water planning, education, and outreach.

FACILITATOR

Melanie Holmer, Water Reuse Practice Leader, Brown and Caldwell

PANELISTS

Rabia Chaudhry, National Water Reuse Expert, US 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

Daniel Nix, Utilities Operations Manager, City of Wichita Falls, Texas

Channah Rock, Professor, University of Arizona

Patricia Tennyson, Executive Vice President, Katz & Associates

BREAKOUT ROOM TOPICS

Medical Community Engagement

The Role of Pilot Projects to Demonstrate Health Protection

The Role of Research to Demonstrate Health Protection

State and Federal Governments' Roles in Health Risk Communication

Communicating Public Health Protection through Media and Public Outreach

Protecting Public Health in Light of Emerging Issues (PFAS/COVID)

COMPANION ON-DEMAND TECHNICAL SESSIONS

- Challenges and Applications for Recycled Water Irrigation of Edible Crops
- Engaging Water Reuse Young Professionals in the Classroom
- Florida One Water Paradigm Shift
- Partnerships Bring Alberta's First Beer Made with Recycled Water
- WRD Albert Robles Center Virtual Tour (Sponsored by the Water Replenishment District)

WEDNESDAY, MARCH 17

9:00 am PT | 12:00 pm ET (2.5 Hours)

RECYCLED WATER AS DRINKING WATER

Sponsored by:



In this roundtable, experts and attendees will share challenges and solutions to potable reuse implementation from enhanced source control programs to artificial intelligence in water reuse.

FACILITATOR

Eva Steinle-Darling, Water Reuse Technical Practice Leader, Carollo Engineers

PANELISTS

David Ammerman, Division Director of Water, Wastewater, and Reuse, City of Altamonte Springs, Florida

Manisha Kothari, Senior Planner, Innovations, Water Resources Division, San Francisco Public Utilities Commission, California

Andy Salvesson, VP, Water Reuse Practice Director, Carollo Engineers

Scott Summers, Director of Environmental Engineering Program, University of Colorado Boulder

Nick Turner, Senior Principal for Strategic Projects, Water Corporation of Western Australia

BREAKOUT ROOM TOPICS

Enhanced Source Control Programs

Regulatory Guidelines Development

Incorporation of MBR into Advanced Treatment Trains

Carbon-Based Advanced Treatment

Artificial Intelligence and Water Reuse

Potable Reuse: The East Coast Perspective

COMPANION ON-DEMAND TECHNICAL SESSIONS

- Demonstration Testing on the Path to Potable Reuse with MBRs
- Innovations & Challenges in Wastewater Source Control for Potable Water Reuse
- Potable Reuse Economics: How Can We Improve It (Sponsored by Arcadis)
- This or That? Selecting Advanced Treatment Processes for Adaptable Trains



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THURSDAY, MARCH 18

9:00 am PT | 12:00 pm ET (2.5 Hours)

RECYCLED WATER AS A RESILIENCY TOOL

Sponsored by:

Join us for a discussion of using water reuse to strengthen the resiliency of water systems.



FACILITATOR

Zeynep Erdal, Water Business Leader, Black & Veatch

PANELISTS

Bruce Chalmers, Program Manager, Metropolitan Water District of Southern California

Glen Daigger, Professor of Engineering Practice, University of Michigan

Ted Henifin, General Manager, Hampton Roads Sanitation District, Virginia

Felicia Marcus, William C. Landreth Visiting Fellow, Stanford University

Francesca McCann, Director – InfraManagement Group, Black & Veatch

BREAKOUT ROOM TOPICS

Early Planning as a Key Tool

Utility Resilience and Risk Management

Innovation and Technology

Opportunities to Implement Change at Utilities: Case Studies

Definition of Success: What Are the Right Metrics?

Use of Sustainable Groundwater Management and Agricultural Strategies

COMPANION ON-DEMAND TECHNICAL SESSIONS

- Lions, Gazelles, and Hippos: Lessons in Cooperation from the Waterhole
- Pockets Full of Life: Urban Community Resiliency for Storm Water Reuse
- Tailoring Stormwater Capture: Building Regional Capacity to Harvest Stormwater
- The Hard Facts About Remineralization Treatment Alternatives



FRIDAY, MARCH 19

10:00 am PT | 1:00 pm ET (2.5 Hours)

REGIONAL APPROACHES TO WATER RECYCLING

Roundtable panelists will discuss water reuse in their communities, specific challenges with each project, and strategies for expanding water recycling in the region.

Sponsored by:



FACILITATOR

Joe Vesey, Senior Vice President and Chief Marketing Officer, Xylem

PANELISTS

David Ammerman, Division Director of Water, Wastewater, and Reuse, City of Altamonte Springs, Florida

Robert Angelotti, Executive Director, Upper Occoquan Service Authority, Virginia

Doug Bode, Utilities Supervisor, City of Waconia, Minnesota

Allison Esvelt, Partner/Principal, Esvelt Environmental Engineering, Pacific Northwest

Cory Miller, Executive Director, University Area Joint Authority, Pennsylvania

Lydia Peri, Emerging Resources Program Administrator, Truckee Meadows Water Authority, Nevada

BREAKOUT ROOM TOPICS

Southeastern US

Northeast US

Midwest US

Northwestern US

South Central US

Southwestern US

COMPANION ON-DEMAND TECHNICAL SESSIONS

- Completion of Nevada's First Advanced Purified Water Demonstration Project
- Facing Obstacles to Maximizing Water Reuse: California Perspectives
- Five Years Post-Legalization: Colorado's Graywater Implementation Lessons Learned
- Water Reuse Practices in a Global Sustainability Perspective



OPPORTUNITY OF A LIFETIME

Water challenges are escalating around the globe, placing people and communities, our environment, and our very future at risk. By 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity. We are a Fortune 1000 global water technology provider with one mission: to help our customers solve water through the power of technology and expertise. Together, we can make water more accessible and affordable, and communities more resilient. Let's create a world that is more water-secure and sustainable for all. We have the opportunity of a lifetime to solve water. Let's work together and lead the way. Come meet with Xylem personnel at the WaterReuse Symposium to learn more about Xylem's solutions to water scarcity or visit our website to learn more. #LetsSolveWater



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Let's Solve Water

MONDAY, MARCH 22

8:30 am PT | 11:30 am ET (1.5 Hours)

2021 WATEREUSE AWARDS FOR EXCELLENCE & ANNUAL BUSINESS MEETING

Join us to celebrate accomplishments in water recycling! The WateReuse Awards for Excellence recognizes WateReuse members, their projects, and their partnerships that have made significant contributions in support of greater adoption of water reuse. This session begins with the live WateReuse Annual Business meeting featuring the State of the Association and bylaws vote.

PRESENTERS

Gilbert Trejo, President, WateReuse Association and Chief Technical Officer, El Paso Water, Texas

Patricia Sinicropi, Executive Director, WateReuse Association

Pam Kenel, Chair, WateReuse Awards Committee and Director of Water Resources, Loudoun Water, Virginia

10:00 am PT | 1:00 pm ET (2.5 Hours)

IMPLEMENTATION AND OPERATION OF WATER RECYCLING SYSTEMS

Sponsored by:

Join us for a discussion of the largest implementation and operational challenges of a water recycling project, as well as insight into how the federal government could assist in overcoming those challenges.



FACILITATORS



Diane Taniguchi-Dennis, CEO, Clean Water Services, Oregon

Jim Horne, Sustainability Program Manager, Office of Wastewater Management, US Environmental Protection Agency

PANELISTS

Kevin Flis, Client Solutions Manager, Xylem

Mark Jockers, Government & Public Affairs Manager, Clean Water Services, Oregon

Thomas Mong, Operations Supervisor, City of Jerome, ID

Christina Montoya, Communications and Marketing Manager, El Paso Water, Texas

Tressa Nicholas, Wastewater Analyst, Idaho Department of Environmental Quality's State Water Quality Division Wastewater Program

BREAKOUT ROOM TOPICS

Employee and Operator Development and Training

Implementing and Operating Natural Systems

Public Partnerships and Acceptance

Pilot Project Development

Funding and Pricing for Continued Operation

Recruitment of the Right Team Members from Traditional and Non-Traditional Communities

COMPANION ON-DEMAND TECHNICAL SESSIONS

- Implementing and Scaling Up Onsite Non-Potable Water Systems
- Research and Full-Scale Operation of Non-RO-Based Advanced Treatment
- The Potential of Onsite Non-Potable Water Systems in Silicon Valley and Beyond
- Transforming Utilities, Sustaining our Assets: Advanced Analytics = Better O&M (Sponsored by Jacobs)

TUESDAY, MARCH 23

10:00 am PT | 1:00 pm ET (2.5 Hours)

WATER RECYCLING RESEARCH & INNOVATION

This roundtable will present compelling results from the latest water reuse-related research and discuss how the research can be used to advance reuse broadly.

FACILITATORS

Julie Minton, Research Unit Leader, The Water Research Foundation
Adam Olivieri, Principal/Founder, EAO

PANELISTS

John Albert, Chief Research Officer, The Water Research Foundation
Brian Bernados, Senior Engineer and Technical Specialist, California State Water Resources Control Board
Jean Debroux, Chief Technical Officer, Kennedy Jenks
Chris Impellitteri, Associate National Program Director for EPA's Safe and Sustainable Water Resources Program, EPA Office of Research and Development
Brian Pecson, Principal Engineer, Trussell Technologies
Krista Wigginton, Associate Professor of Civil and Environmental Engineering, University of Michigan

BREAKOUT ROOM TOPICS

Pathogens: Monitoring, QMRA, Removals through Advanced Treatment
Potable Reuse Regulations and Implementation Outside of California
Regional Drivers for Reuse
Regulatory Considerations for Emerging Chemicals, Plant Operations, and Source Control
Role of Water Reuse to Support the Environment
Water Reuse Action Plan Driving Reuse Research



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COMPANION ON-DEMAND TECHNICAL SESSIONS

- Extending California's Water Resources Synergistically
- Impacts of Wastewater Treatment Performance on Advanced Water Treatment
- Innovating Towards Real-Time Monitoring of Pathogens

WEDNESDAY, MARCH 24

11:00 am PT | 2:00 pm ET (2.5 Hours)

WATER RECYCLING & POLICY

Sponsored by:



This roundtable will examine how policies and regulations can support water recycling as a resiliency tool. Panelists will discuss where and how polices and regulations are succeeding and where there are gaps and shortcomings. Specific examples will be given at the federal, state, and local levels.

FACILITATOR

Jon Freedman, Senior Vice President, Global Government Affairs, SUEZ Water Technologies & Solutions

PANELISTS

Elizabeth Anderson, Chief Planning Officer, Albuquerque Bernalillo County Water Utility Authority, New Mexico

Marilyn Hall, Former Senior Water Resources Planner, Athens-Clarke County, Georgia

Karen Mogus, Deputy Director, California Water Resources Control Board

Sharon Nappier, National Program Leader for Water Reuse, US Environmental Protection Agency

John Truitt, Deputy Secretary, Regulatory Programs, Florida Department of Environmental Protection

BREAKOUT ROOM TOPICS

Developing State Regulatory Frameworks and Regulations

Overcoming Policy Barriers

Policy and Industry

The Role of Coordination and Partnerships

The Role of the Federal Government



Using Policy to Support Stormwater Harvesting and Onsite Reuse

COMPANION ON-DEMAND TECHNICAL SESSIONS

- Frameworks to Address Produced Water Regulatory Challenges
- State Efforts: Identifying Technical, Regulatory, & Information Needs
- Water Reuse Applications within Integrated Water Resources Management Framework





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Practice Leader – Water Reuse
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THURSDAY, MARCH 25

11:00 am PT | 2:00 pm ET (1.5 Hours)

CLOSING SESSION

The live portions of the WaterReuse Symposium will close with a panel presentation focusing on water recycling in the future. The panel will examine expanding applications of water recycling across the globe and national involvement in those expansions.

FACILITATOR

Vijay Sundaram, National Water Reuse Technical Practice Leader, AECOM

PANELISTS

John Enloe, Director, Natural Resources, Truckee Meadows Water Authority

Dr. Donna Petersen, Senior Associate Vice President, USF Health Dean, College of Public Health

Hugh Sealy, Special Envoy, Government of Barbados

Beverly Stinson, Executive Vice President, Global Water Business Line Leader, AECOM

Trent Stober, Director, Utility Management Services, HDR

Kyle Swanson, Director of Advanced Water Purification, Padre Dam Municipal Water District

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NATIONAL WATER REUSE ACTION PLAN

The National Water Reuse Action Plan (WRAP) leverages the expertise of the private and public sectors to develop bold actions that accelerate the adoption of water recycling through integrated and collaborative water resources planning. WRAP identifies 37 specific actions, across 11 strategic themes, to be implemented by a variety of federal, state, local and private sector partners.

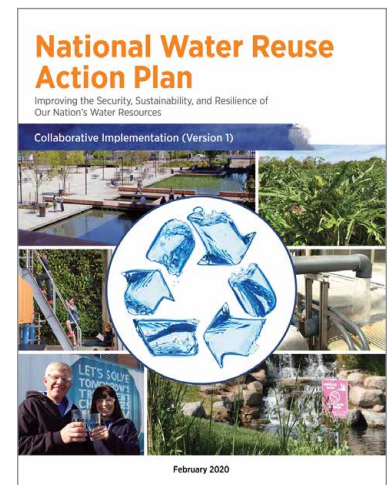
WaterReuse Is...

LEADING OR CO-LEADING

8 WRAP
ACTION ITEMS

PARTNERING ON

11 WRAP
ACTION ITEMS



Look for this symbol throughout this program to identify Symposium sessions related to the implementation of the Water Reuse Action Plan.

To learn more about WaterReuse's work in this area, contact:

Aliza Furneaux, Policy and Program Manager, WaterReuse Association, afurneaux@watereuse.org

<https://watereuse.org/advocacy/national-water-reuse-action-plan/>

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Great Park Ice: Irvine's new Great Park Ice & FivePoint Arena uses IRWD recycled water to make the ice for its four rinks – saving 4.3 million gallons of drinking water that would otherwise be used each year for that purpose.



UCI cooling towers

UC Irvine's campus landscaping is almost completely irrigated with recycled water. Recently, UCI converted its Central Plant cooling towers to recycled water. Approximately 3,500 feet of new pipe as well as improvements at the Central Plant were constructed to complete this conversion. The entire project will save an estimated 84 million gallons (260 acre-feet) of drinking water annually.



Hyatt House Irvine

Hyatt House Irvine became the first hotel in the United States to use recycled water to flush every toilet and urinal in its lobby, pool area, offices – and 149 guest rooms. In 2019, the project saved almost 1.3 million gallons of drinking water. Recycled water for irrigation saved an additional 440,000 gallons.

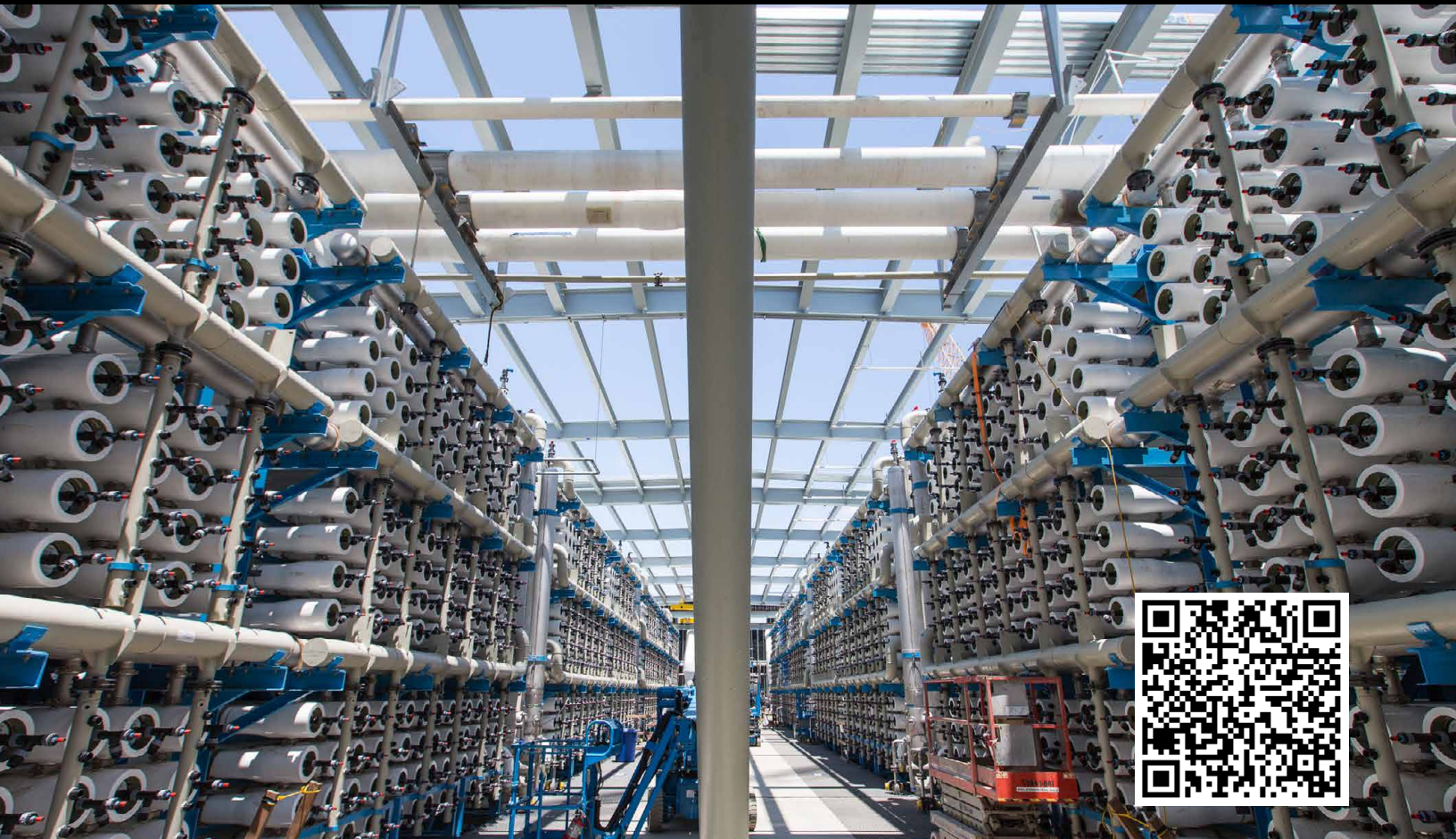
For more information visit
IRWD.com/RecycledWater

Making water reuse a cornerstone of water resilience management.

By assessing water based on its quality, not its origin, water portfolios can be sustainably diversified. Incorporating alternative water supply sources such as recycled water, stormwater, gray water and sea water is part of the One Water vision, which we have coupled with our Intelligent Water vision to amplify water reuse as a cornerstone of water management driving toward a long-term strategy that is “Fit for Future”.

Learn how Intelligent Water can advance Water Reuse and the One Water movement:
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*Claude “Bud” Lewis Carlsbad Desalination Plant
Carlsbad, California*



UTILITY OF THE FUTURE TODAY

The Utility of the Future Today Recognition Program honors forward-thinking, innovative water utilities that are providing resilient value-added service to communities, particularly in community engagement, watershed stewardship, and recovery of resources such as water, energy, and nutrients.



WATEREUSE MEMBERS RECOGNIZED IN 2020 IN THE AREA OF WATER REUSE

City of Oceanside | California

City of Tucson Water | Arizona

Clean Water Services | Oregon

Eastern Municipal Water District | California

Global Water Resources | Arizona

Hampton Roads Sanitation District | Virginia

Irvine Ranch Water District | California

Los Angeles Department of Water and Power (LADWP) | California

Padre Dam Municipal Water District | California

Pima County Regional Wastewater Reclamation Department | Arizona

Water Replenishment District | California

West Basin Municipal Water District | California

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- Water quality monitoring and predictive modeling
- Simulation of present, past, and future scenarios for any given condition
- Proactive pressure control

Wastewater Collection

- Early detection of SSOs and CSOs (reduce events by 50%)
- Predictive floods modeling in real time
- Reduced cleaning and maintenance costs
- Remote monitoring of all wastewater and storm water facilities

Water Reuse & WRRFs

- Centralized monitoring, operation and maintenance
- Predictive microbiological and cryptosporidium risk, and risk management protocols in real time
- Nutrient control and advanced scenario analysis
- Operational optimization, energy management, and maintenance improvement in real time

March 1st | 4pm ET / 1pm PT

Don't miss the discussion on potable reuse and the detection of microbiological risks featuring a panel of industry experts including Pablo Calabuig, CEO of GoAigua North America. Facilitated by Hazen and Sawyer.

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At Clean Water Services, we work with our partners to protect public health and the environment through One Water solutions.



2021 SYMPOSIUM COMMITTEES

Thank you to the following 36th Annual WaterReuse Symposium committee members.

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Marilyn Hall, Athens-Clarke County Public Utilities (formerly)
Sara Katz, Katz & Associates
Julie Minton, The Water Research Foundation
Christine Owen, Hazen and Sawyer
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- Disinfection By-Products (DBPs)
- PFAS in water, sludge and concentrate

Contact: Rick Zimmer or Brian Queen

Rick.Zimmer@EurofinsET.com

Brian.Queen@EurofinsET.com



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| Energy Management | Nutrient Removal | Program Management |
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Photo courtesy of Poseidon Water



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