

WATER ENVIRONMENT & REUSE FOUNDATION 2018 RESEARCH CONFERENCE



WATER ENVIRONMENT & REUSE FOUNDATION
2018 RESEARCH CONFERENCE
MAY 7-8, 2018 • ATLANTA, GA

SAVE THE DATE: MAY 7-8, 2018
WESTIN PEACHTREE PLAZA • ATLANTA, GA

ABSTRACT SUBMITTAL BEGINS: AUGUST 2017
ABSTRACTS DUE: OCTOBER 23, 2017

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SATURDAY, JULY 22, 2017

8:30 - 15:00

Technical Tour - San Diego Area Tours

(Lunch is included. Tour is not included with registration, additional fees apply)

SUNDAY, JULY 23, 2017

7:30 - 17:30

Registration Open

Room: Promenade Ballroom Foyer

Pre-Conference Workshops (additional fees apply)

8:30 - 10:00

Workshop #1: Moving Towards Safe Water Reuse for Food Crop Irrigation: a Sustainable Solution in an Era of Climate Variability

Room: Promenade Room 101 A

10:30 - 12:00

Workshop #2: Antibiotic Resistance: What Every Water Professional Needs to Know

Room: Promenade Room 101 A

9:00 - 12:00

Workshop #3: Successful Strategies for Sustainable Industrial Water Reuse

Room: Promenade Room 102 A

8:00 - 12:00

Workshop #4: DPR Risk Reduction and Critical Control Point Monitoring for Public Health

Room: Promenade Room 101 B

9:00 - 12:00

Workshop #5: Acceptance of Potable Reuse Projects - What We've Learned So Far

Room: Promenade Room 103 A

12:00 - 13:30

Lunch on Your Own

12:30 - 17:30

Technical Tour - The Water Replenishment District of Southern California - The Use of Recycled Water for Recharge in Urban Los Angeles County

(Lunch not included. Tour is not included with registration, additional fees apply)

Technical Sessions	A1: Potable Reuse Treatment Studies by Utilities	B1: Distributed Treatment and Energy Topics	C1: Groundwater Recharge Operations and Planning	D1: Sources, Formation, and Control of Nitrosamines
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	Wendy Broley, Brown and Caldwell (USA)	Guy Carpenter, Carollo Engineers (USA)	John Morris, Morris Water Resources Consultants (USA)	Grace Jang, Water Research Foundation (USA)
13:30 - 13:50	Development of a Cartridge Filter Management Procedure to Reduce Replacement Frequency and RO Fouling Jana Safarik, Orange County Water District (USA)	Pilot-Scale Tests of a Novel Filtration Approach with Low Energy Demand for Tertiary Treatment in Wastewater Reclamation Applications Thomas Vistisen Bugge, Grundfos (Singapore)	Optimizing Recycled Water and Stormwater Networks to Augment Urban Groundwater Recharge Jonathan Bradshaw, Stanford University (USA) Richard Luthy, Stanford University (USA)	Formation and Sources of N-Nitrosamines in Potable Reuse Eric Dickenson, Southern Nevada Water Authority (USA)
13:50 - 14:10	Innovative Potable Water Purification Without RO - Direct Potable Reuse Demonstration Pilot in Central Florida David Ammerman, Carollo Engineers (USA)	Pilot Studies of Advanced Water Treatment and Waste Heat Recovery Technologies for Distributed Potable and Near-Potable Reuse Applications Martin Page, U.S. Army Engineer Research and Development Center (USA)	Experiences of Reuse Associated with Managed Aquifer Recharge Philippe Gislette, Suez (France)	Rejection of NDMA and NDMA Precursors: The Role of Reverse Osmosis Membrane Age Shannon Roback, Orange County Water District (USA)

SUNDAY, JULY 23, 2017 (CONTINUED)

14:10 - 14:30	Phased Retrofit of Singapore's Changi WRP with MBR Technology to Meet NEWater Feedstock Demand <i>James DeCarolis, Black & Veatch (USA)</i>	Permutations and Combinations for Designing the Largest Water Reuse Ultraviolet Disinfection System in North America <i>Bill Sotirakos, Carollo Engineers (USA)</i>	Water Quality Benefits of the Groundwater Replenishment System <i>Tim Sovich, Orange County Water District (USA)</i>	RO-Induced Shifts in Chloramine Chemistry Cause Nitrosamine Regrowth at Potable Reuse Plants <i>Daniel McCurry, University of Southern California (USA)</i>
14:30 - 14:50	Pesticide Removal through Wastewater and Advanced Treatment: Full-Scale and Bench-Scale Testing for the Pure Water Monterey Project <i>Robert Holden, Monterey Regional Water Pollution Control Agency (USA)</i> <i>John Kenny, Trussell Technologies, Inc. (USA)</i>	Holistic Evaluation of Decentralized Water Reuse: Life Cycle Assessment and Cost Analysis of Membrane Bioreactor Systems in Water Reuse Implementation <i>Jay Garland, U.S. Environmental Protection Agency (USA)</i>	Fiber Optic Distributed Temperature Sensing as a Tool for Measuring Recharge Rate in a Potable Reuse Spreading Basin <i>Christine Pham, Orange County Water District (USA)</i>	Trade-offs in Disinfection Byproduct Formation in Potable Water Reuse Using Various Oxidant Combinations <i>Erica Marti, Southern Nevada Water Authority (USA)</i>
14:50 - 15:00	Panel Discussion	Panel Discussion	Panel Discussion	Panel Discussion
15:00 - 19:00	Exhibit Hall Open Room: Promenade Ballroom 104 C and Foyer			
15:00 - 15:30	Networking Break Room: Promenade Ballroom 104 C and Foyer			
15:00 - 15:30	Poster Presentations Room: Promenade Ballroom Foyer			
Technical Sessions	A2: Potable Reuse - Design and Operations	B2: Wastewater Treatment for Water Reuse	C2: Environmental and Groundwater Topics	D2: Topics on Antibiotic Resistant Bacteria and Antibiotic Resistance Genes
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	<i>Troy Walker, Hazen and Sawyer (USA)</i>	<i>Jiangyong Hu, National University of Singapore (Singapore)</i>	<i>Shivaji Deshmukh, West Basin Municipal Water District</i>	<i>Channah Rock, University of Arizona (USA)</i>
15:30 - 15:50	Orange County's Ground Water Replenishment System Expansion – Operating Results <i>Srinivas Veerapaneni, Black & Veatch (USA)</i>	Integration of Aerobic Granular Sludge and Membrane Filtration for Sustainable Wastewater Reclamation <i>Oliver Iorhemen, University of Calgary (Canada)</i>	Identifying Markers of Reuse Effluent Loading to Impaired Water Bodies <i>Joan Oppenheimer, Stantec (USA)</i>	Disinfection Strategies for Controlling Occurrence of Antibiotic Resistance Genes in Reclaimed Water Distribution Systems <i>Ni Zhu, Virginia Tech (USA)</i>

SUNDAY, JULY 23, 2017 (CONTINUED)

15:50 - 16:10	Configuring a Robust, State-Of-The Art Advanced Treatment Facility on a Limited Site: an Engineering Case Study from Pure Water San Diego <i>Steven Winfree, Stantec (USA)</i>	Evaluating Organic Carbon Removal in a Decentralized, Anaerobic Treatment System for Water Reuse in South Africa <i>Natalie Mladenov, San Diego State University (USA)</i>	Maximizing Reuse and Maintaining Environmental Stewardship of Receiving Waters <i>Evan Geer, Brown and Caldwell (USA)</i>	Occurrence of Antibiotics and Antibiotic Resistance in Recycled Water Applications <i>Daniel Gerrity, University of Nevada, Las Vegas (USA)</i>
16:10 - 16:30	Evaluation and Bench Testing to Retrofit a Conventional WTP for Potable Reuse <i>Jason Assouline, CH2M (USA)</i>	Field Testing of a Solar-Powered Anaerobic Membrane Bioreactor (Anmbr) for Decentralized Wastewater Recycling <i>Robert Bair, University of South Florida (USA)</i>	Potable Reuse Groundwater Recharge in Southern California: Soil Column and Infiltration Performance Tests <i>Paul Chau, Kennedy/Jenks Consultants (USA)</i> <i>Dennis LaMoreaux, Palmdale Recycled Water Authority (USA)</i>	Environmental Antibiotic Resistance is Due to Natural Phenomena, Not Anthropogenic Activities <i>Ian Pepper, University of Arizona (USA)</i>
16:30 - 16:50	Expansion of the City of Los Angeles' Terminal Island Advanced Water Purification Facility: How to Translate an IPR Design into a Constructed Facility <i>Hannah Ford, Carollo Engineers (USA)</i>	Integrated Solutions for Water Reuse and Recovery Resources: Comparing and Identifying Sustainable Water Reuse Treatment Options <i>Pranoti Kikale, University of Colorado, Boulder (USA)</i>	Virus Removal from Wastewater at a Managed Aquifer Recharged Facility <i>Walter Betancourt, University of Arizona (USA)</i>	Panel Discussion
16:50 - 17:00	Panel Discussion	Panel Discussion	Panel Discussion	
17:30 - 19:00	<p>Welcome Reception and Beer Tasting with Padre Dam Pilsner featuring Ballast Point Room: Promenade Ballroom 104 C and Foyer SPONSORED BY: Stantec</p> <p>Water is the elixir of life and the starting point for all living things...even beer! Join Padre Dam as they commemorate the Padre Dam Pilsner featuring Ballast Point! Conference guests are invited to sample the cold brew using water from the Advanced Water Purification Program's demonstration facility in Santee, California. The facility uses a four-step purification process of free chlorine disinfection, membrane filtration, reverse osmosis and advanced oxidation. The program will create a new, local, and sustainable and drought proof drinking water supply using state-of-the-art technology to purify East County's recycled water. If the program moves forward, it will meet up to 30 percent of East County's current drinking water demands. Learn more about the program at www.EastCountyAWP.com and make sure to join us for Padre Pilsner and celebrate the value of water... and a good beer! Join us on Sunday evening during the Welcome Reception, you will have the opportunity to taste Padre Dam Pilsner featuring Ballast Point.</p>			



Beer brewed by



Celebrate Water Reuse!

PADRE DAM
Invites You

BREW
{ RECEPTION }

SUNDAY, 7/23

Between 5:30 p.m. and 7:00 p.m.

Long Beach Convention & Entertainment Center
in the Promenade Ballroom Foyer

The main ingredient of the beer, **WATER**, is from
the East County Advanced Water Purification Program
in East San Diego County.



**Advanced Water
Purification**
East County



PADRE DAM
Municipal Water District



Helix Water District



ABOUT THE MAIN INGREDIENT

Water is the elixir of life and the starting point for all living things, and food and drink!

The water used to create the reception's featured beer is from the Advanced Water Purification Program's demonstration facility in Santee, California which uses a four-step purification process of free chlorine disinfection, membrane filtration, reverse osmosis and advanced oxidation.

LEARN MORE

www.EastCountyAWP.com

MONDAY, JULY 24, 2017

7:30 - 17:30	Registration Open Room: Promenade Ballroom Foyer			
7:30 - 15:30	Exhibit Hall Open Room: Promenade Ballroom 104 C and Foyer			
7:30 - 8:15	Continental Breakfast SPONSORED BY: Arcadis Room: Promenade Ballroom 104 C and Foyer			
8:15 - 10:00	Opening Keynote Session Room: Promenade Ballroom 104 A & B <i>Diane D'arras, Suez; IWA President (France)</i> <i>Jörg Drewes, Technical University of Munich; Chair, IWA Water Reuse Specialist Group (Germany)</i> <i>Jeff Kightlinger, Metropolitan Water District of Southern California (USA)</i> <i>Peter Joo Hee Ng, PUB, Singapore's National Water Agency (Singapore)</i> <i>Takashi Asano, University of California, Davis (USA)</i>			
10:00 - 10:30	Networking Break SPONSORED BY: Trussell Technologies Room: Promenade Ballroom 104 C and Foyer			
10:00 - 10:30	Poster Presentations Room: Promenade Ballroom Foyer			
Technical Sessions	A3: Potable Reuse Utility Demonstration Studies	B3: Advanced Treatment Technologies for Control of Chemicals	C3: Water Reuse as Sustainable Supply	D3: Pathogen Removal and Control
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	<i>Gary Hunter, Black & Veatch (USA)</i>	<i>Joe Jacangelo, Stantec (USA)</i>	<i>Chris Hill, Arcadis (USA)</i>	<i>Mehul Patel, Orange County Water District (USA)</i>
10:30 - 10:50	Comparing the Performance of Pilot-Scale Carbon-Based and Membrane-Based Potable Reuse Treatment Systems <i>Ramola Vaidya, Virginia Tech (USA)</i>	Micropollutant Removal by Membrane Separation: Prediction, Optimization, and Emerging Processes <i>Long Nghiem, University of Wollongong (Australia)</i>	Water Meta-Cycle as a Sustainable Water Reuse System at Regional Level: A Case Study at Gaotang County, Shandong, China <i>Zhuo Chen, Shenzhen Tsinghua University (China)</i>	Converting Operational Monitoring Data to Probabilistic Log Reduction Values <i>Stuart Khan, University of New South Wales (Australia)</i>
10:50 - 11:10	LA's Transition from Non-Potable Reuse to Potable Reuse through Ozone, Biological Activated Carbon, and Soil Aquifer Treatment <i>Roshanak Aflaki, City of Los Angeles, LA Sanitation (USA)</i> <i>Keel Robinson, Xylem (USA)</i> <i>Shane Trussell, Trussell Technologies, Inc. (USA)</i>	NF Rejection of CECs from Municipal WRRF Secondary Effluents for DPR Application <i>Michael Watts, Garver (USA)</i>	Assessment of Water-Energy (WE) Nexus in Urban Water Reuse System Using a Metabolic Approach: a Mexican Case Study <i>Oriana Landa-Cansigno, University College London (United Kingdom)</i>	Achieving Maximum Pathogen Removal Credit for UF and RO in Potable Reuse Schemes – Full Scale Experience at the Beenyup Advanced Water Recycling Facility <i>Jim Lozier, CH2M (USA)</i>

MONDAY, JULY 24, 2017 (CONTINUED)

11:10 - 11:30		Moving Towards Potable Water Reuse: Fate and Transformation of Persistent Priority Contaminants with Microfiltration, Reverse Osmosis, Advanced Oxidation Processes and Chlorine Disinfection <i>Susana Kimura Hara, University of South Carolina (USA)</i> <i>Kristin Cochran, University of South Carolina (USA)</i>	Nitrogen Removal in Wetland Systems by Anammox Bacteria for Water Reuse in Subtropical Humid Climates <i>Pongsak (Lek) Noophan, Kasetsart University (Thailand)</i>	Modifying Existing Infrastructure to Maximize Pathogen Control for Both Potable and Non-Potable Reuse <i>Al Lau, Padre Dam Municipal Water District (USA)</i> <i>Brian Pecson, Trussell Technologies, Inc. (USA)</i>
11:30 - 11:50	Pure Water Monterey: Successful Fast-Track Design of Northern California's First IPR Project <i>Todd Reynolds, Kennedy/Jenks Consultants (USA)</i>	Impact of Pre-Oxidation on The Removal of Regulated and Emerging Disinfection Byproducts by Granular Activated Carbon: A Potable Reuse Pilot-Scale Evaluation <i>Edgard Verdugo, Southern Nevada Water Authority (USA)</i>	Sustainability Assessment for Indirect Potable Reuse Demonstration in Reno, NV <i>Laura Haak, University of Nevada, Reno (USA)</i>	Realizing Reverse Osmosis Potential for Potable Reuse: Demonstrating Enhanced Pathogen Removal <i>Rodrigo Tackaert, Trussell Technologies, Inc. (USA)</i>
11:50 - 12:00	Panel Discussion	Panel Discussion	Panel Discussion	Panel Discussion
12:00 - 13:30	Lunch on Your Own			
Technical Sessions	A4: Key Questions in Implementing Reuse	B4: Removal of Trace Organic Compounds by Advanced Treatment Technologies for Potable Reuse	C4: Guidance and Assessment of Water Reuse Programs	D4: Assessment of Pathogens and Removal in Wastewater and Water Reuse
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	<i>Brian Dietrick, Woodard & Curran (USA)</i>	<i>Valentina Lazarova, Suez Environment (France)</i>	<i>Gary Revoir, Tetra Tech (USA)</i>	<i>Allegra da Silva, Stantec (USA)</i>
13:30 - 13:50	Source Control and Wastewater Treatment in Advanced Reuse Operations <i>Ian Law, IBL Solutions (Australia)</i>	From Modernized To Advanced Treatment, Micropollutant and Disinfection in a Fully Integrated Indirect Water Potable Reuse Scheme: Lausanne WWTP <i>Sylvain Donnaz, Suez Treatment Infrastructure (France)</i> <i>Jeromine Albertini, Suez Treatment Infrastructure (France)</i>	WaterVal, a Framework to Validate Treatment Technologies for the Safe Implementation of Water Reuse <i>Cedric Robillot, Australian WaterSecure Innovations Ltd (Australia)</i>	How Much Reduction of Viruses Do We Need for Recycled Water; A Continuous Need for Assessment? <i>Charles Gerba, University of Arizona (USA)</i>
13:50 - 14:10	Water Reuse: A Key Initiative of Water sustainability in Singapore <i>Lim Mong-Hoo, PUB Singapore (Singapore)</i>	Predicting RO Removal of Toxicologically Relevant Unique Organics <i>Daisuke Minakata, Michigan Technological University (USA)</i> <i>Muxue Zhang, Michigan Technological University (USA)</i>	Good Practice Guidance for the Governance of Water Reuse Schemes <i>Jos Frijns, KWR Water cycle Research Institute (Netherlands)</i>	Monitoring Pathogen Concentrations through the City of Oceanside's San Luis Rey Wastewater Treatment Plant <i>Shane Trussell, Trussell Technologies, Inc. (USA)</i>

MONDAY, JULY 24, 2017 (CONTINUED)

14:10 - 14:30	Evaluation of Surface Water Augmentation at Lake Jennings <i>Seval Sen, Padre Dam Municipal Water District (USA)</i>	Predicting the Attenuation of Trace Organic Compounds (Torcs) by Advanced Treatment Technologies in Water Reuse using Spectroscopic Surrogates <i>Minkyu Park, University of Arizona (USA)</i>	Assessing Feasibility of a Large-Scale IPR Program for Southern California <i>John Bednarski, Metropolitan Water District of Southern California (USA)</i> <i>Bob Harding, Metropolitan Water District of Southern California (USA)</i>	Norovirus Measurements in Locally-Collected Greywater and Wastewater: Implications for Risk Management of Decentralized Water Reuse <i>Michael Jahne, U.S. Environmental Protection Agency (USA)</i>
14:30 - 14:50	Investigating Fertilizer Drawn Forward Osmosis Process for Groundwater Desalination for Irrigation in Egypt <i>Peter Nasr, The American University in Cairo (Egypt)</i>	Treatment of Poly- and Perfluoroalkyl Substances (PFAS) in Potable Reuse Systems <i>Eric Dickenson, Southern Nevada Water Authority (USA)</i>	Oklahoma's Development of the Three R's: A Reuse Regulation Rulebook <i>Michael Graves, Garver (USA)</i>	Understanding Pathogen Variability and Reduction in Wastewater to Establish Log Credits for Direct Potable Reuse <i>Carla Cherchi, Stantec (USA)</i>
14:50 - 15:00	Panel Discussion	Panel Discussion	Panel Discussion	Panel Discussion
15:00 - 15:30	Networking Break SPONSORED BY: Trussell Technologies Room: Promenade Ballroom 104 C and Foyer			
15:00 - 15:30	Poster Presentations Room: Promenade Ballroom Foyer			
Technical Sessions	A5: Public Engagement Topics for Recycled Water	B5: Concentrate Management: Treatment and Planning	C5: Utility Planning for Reuse	D5: Bioassays and Other Innovative Monitoring
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	<i>Michael Muston, Muston and Associates (Australia)</i>	<i>Josef Lahnsteiner, VA TECH WABAG (Austria)</i>	<i>Steve Tedesco, Tetra Tech (USA)</i>	<i>Claire Waggoner, California State Water Resources Control Board (USA)</i>
15:30 - 15:50	Customer Engagement in the Australian Water Utility Industry <i>Catherine Ferrari, Water Corporation (Australia)</i>	A Novel Photobiological Process for Reverse Osmosis Concentrate Treatment Using Brackish Water Diatoms <i>Keisuke Ikehata, Pacific Advanced Civil Engineering, Inc. (USA)</i>	Water Independence Now - The Road to Locally Sustainable Water Resources in a Growing Urban Region <i>Robb Whitaker, Water Replenishment District of Southern California (USA)</i>	A Framework for the Application of Bioassays to Water Reclamation and Reuse <i>Richard Bull, Washington State University (USA)</i>
15:50 - 16:10	Momentum and a Few Bumps in the Road – Acceptance of Potable Reuse <i>Mark Millan, Data Instincts, Public Outreach Consultants (USA)</i>	Assessment of Open Water Unit Process Treatment Wetlands for Management of Reverse Osmosis Concentrate from Municipal Water Reuse <i>Rachel Scholes, University of California, Berkeley (USA)</i>	<i>It Takes A Village: Ensuring Success in Advancing Large-Scale Water Reuse Programs in Our Communities</i> <i>Brent Eidson, City of San Diego Public Utilities Department (USA)</i> <i>Sara Katz, Katz & Associates, Inc. (USA)</i>	WE&RF Research Efforts on Bioassays <i>Stefani McGregor, Water Environment & Reuse Foundation (USA)</i> <i>Jeff Mosher, Water Environment & Reuse Foundation (USA)</i>

MONDAY, JULY 24, 2017 (CONTINUED)

16:10 - 16:30	Potable Reuse Terminology - Less Jargon/More Understanding <i>Ian Law, IBL Solutions (Australia)</i>	RO Brine Minimization for Potable Reuse at Padre Dam <i>Seval Sen, Padre Dam Municipal Water District (USA)</i> <i>Eileen Idica, Trussell Technologies, Inc. (USA)</i>	Meeting Water Supply Needs through Potable Reuse in California's Silicon Valley <i>Hossein Ashktorab, Santa Clara Valley Water District (USA)</i>	Occurrence and Fate of Low Molecular Weight Compounds in Potable Water Reuse Systems <i>Emily Marron, University of California, Berkeley (USA)</i>
16:30 - 16:50	From Yuck to Yes -- Enabling Change <i>Melissa Meeker, Water Environment & Reuse Foundation (USA)</i>	Inland Reuse Planning and Brine Management Options <i>Gary Hunter, Black & Veatch (USA)</i>	An Innovative Approach to Large-Scale Potable Reuse in Virginia <i>Tyler Nading, CH2M (USA)</i>	Nitrogen Management Strategies for Potable Reuse <i>Zakir Hirani, Stantec (USA)</i>
16:50 - 17:00	Panel Discussion	Panel Discussion	Panel Discussion	Panel Discussion
17:00 - 18:00	Water Reuse Specialist Group - Proposal presentations for 2019 IWA Reuse Conference Room: Promenade Ballroom 102 C			
18:00 - 19:30	WRSG Management Committee Meeting (by invitation only) Room: Promenade Ballroom 102 C			

TUESDAY, JULY 25, 2017

7:30 - 15:30	Registration Open Room: Promenade Ballroom Foyer			
7:30 - 15:30	Exhibit Hall Open Room: Promenade Ballroom 104 C and Foyer			
7:30 - 8:15	Continental Breakfast SPONSORED BY: Suez Room: Promenade Ballroom 104 C and Foyer			
8:30 - 9:30	Plenary Session – Potable Reuse: Health and Safety Room: Promenade Ballroom 104 A & B <i>David Cunliffe, South Australia Health Department (Australia)</i> <i>Joan Rose, Michigan State University (USA)</i> Drs. David Cunliffe and Joan Rose will address the audience on the public health aspects of reusing water for drinking. Dr. Cunliffe's presentation will be shaped by his 35 years of experience in dealing with public health aspects of recycled water systems and drinking water in Australia and around the globe. Dr Rose, a recent winner of the Stockholm Water Prize, will share expertise in the safety of potable reuse, monitoring, and pathogen risk assessment.			
9:30 - 10:00	IWA Young Water Professionals Meeting Room: Promenade Ballroom 102 C			
9:30 - 10:00	Networking Break SPONSORED BY: Woodard & Curran Room: Promenade Ballroom 104 C and Foyer			
9:30 - 10:00	Poster Presentations Room: Promenade Ballroom Foyer			
Technical Sessions	A6: DPR Performance and Operation	B6: Ozone and Biofiltration for Water Reuse Applications	C6: Integrate Planning - Utility Experience	D6: Onsite Nonpotable Water Systems
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	<i>Philippe Gislette, Suez (France)</i>	<i>Shane Snyder, University of Arizona (USA)</i>	<i>Akissa Bahri, National Agricultural Institute (Tunisia)</i>	<i>Karl Linden, University of Colorado, Boulder (USA)</i>

TUESDAY, JULY 25, 2017 (CONTINUED)

10:00 - 10:20	Ultraviolet Treatment for Simultaneous Disinfection and Contaminant Destruction in a DPR Train <i>Siva Sarathy, TrojanUV (Canada)</i>	Biofiltration – an Emerging Process for Water Reuse <i>Peter Huck, University of Waterloo (Canada)</i>	Keeping San Clemente Green & Clean: Impact of Capturing Urban Runoff on Municipal Recycled Water Flows <i>Nathan Chase, Woodard & Curran (USA)</i>	National Blue Ribbon Commission to Advance Innovation in Decentralized Non-Potable Water Systems <i>Paula Kehoe, San Francisco Public Utilities Commission (USA)</i>
10:20 - 10:40	Direct Potable Reuse – Development of a Proactive Framework for Reliable Operations <i>Troy Walker, Hazen and Sawyer (USA)</i>	Evaluating and Optimizing the use of Ozone, Bio-filtration and Activated Carbon at the UOSA Potable Reuse Facility <i>Bob Angelotti, Upper Occoquan Service Authority (USA)</i>	LADWP's Transition to Local Supplies, Recycled Water Reuse from NPR to IPR to DPR <i>Yoshiko Tsunehara, Los Angeles Department of Water and Power (USA)</i> <i>Brian Dietrick, Woodard & Curran (USA)</i>	A Risk-Based Framework for the Development of Public Health Guidance for Decentralized Non-Potable Water Systems <i>Sybil Sharvelle, Colorado State University (USA)</i>
10:40 - 11:00	Microbiological stability in Direct Potable Reuse (DPR) Distributions Systems: Insights from Pilot-Scale Research using Flow Cytometry and High-throughput Sequencing <i>Scott Miller, University of California, Berkeley (USA)</i>	Holistically Optimizing Biofiltration Systems in Reuse Applications for Improved Reliability and Performance <i>Chance Lauderdale, HDR (USA)</i>	Potable Reuse Implementation in the Silicon Valley: Risk Identification, Assessment and Management <i>Phillippe Daniel, HDR (USA)</i>	Endogenous System Microbes as Treatment Process Indicators for Decentralized Non-potable Water Reuse <i>Nichole Brinkman, U.S. Environmental Protection Agency (USA)</i>
11:00 - 11:20	New Training Materials for DPR Operator Certification <i>Troy Walker, Hazen and Sawyer (USA)</i>	Robust "Membrane-free" Advanced Treatment Solutions for Inland IPR Projects <i>Vijay Sundaram, University of Nevada, Reno (USA)</i>	Reclaimed Water Expansion - An Approach That Makes Sense <i>Andrew Burnham, Stantec (USA)</i>	Novel Demonstration of Decentralized Direct Potable Water Reuse <i>Manisha Kothari, San Francisco Public Utilities Commission (USA)</i>
11:20 - 11:40	Observations from Over Two Years Studying the DPR Project in Big Spring, TX <i>Eva Steinle-Darling, Carollo Engineers (USA)</i>	Safe and Sustainable Reuse in New Mexico Through Ozone-Based AOP <i>Keel Robinson, Xylem (USA)</i>	Salt/Nutrient Challenges in the San Fernando Valley <i>Anthony Hicke, ULARA Watermaster (USA)</i> <i>Brian Dietrick, Woodard & Curran (USA)</i>	Panel Discussion
11:40 - 12:00	Panel Discussion	Panel Discussion	Panel Discussion	
12:00 - 13:30	Keynote Luncheon – International Perspectives: Role of Water Reuse for Sustainable Development and Circular Economy SPONSORED BY: Black & Veatch Room: Promenade Ballroom 104 A & B <i>Lim Mong Hoo, PUB, Singapore's National Water Agency (Singapore)</i> <i>Rafael Mujeriego, Ph.D., Universitat Politècnica de Catalunya (Spain)</i> <i>Akissa Bahri, National Agricultural Institute of Tunisia (Tunisia)</i> <i>Hong-Ying Hu, Ph.D., Tsinghua University, Beijing (China)</i> We are pleased to have four international officials share their perspective on how water reuse has helped achieve sustainability and integration of industry in their region. Each delegate will share their experience for 10 minutes, followed by a stimulating panel discussion facilitated by Jeff Mosher, Water Environment & Reuse Foundation (USA). The audience is encouraged to participate.			

TUESDAY, JULY 25, 2017 (CONTINUED)				
Technical Sessions	A7: DPR Criteria and Reliability	B7: Ozone and Biofiltration for Potable Reuse and Trace Organics Removal	C7: Integrated Planning for Water Reuse	D7: Agriculture Irrigation with Recycled Water
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	<i>Jim Crook, Environmental Engineering Consultant (USA)</i>	<i>Keel Robinson, Xylem (USA)</i>	<i>Jonathan Loveland, Black & Veatch (USA)</i>	<i>Rafael Mujeriego, Universitat Politècnica de Catalunya (Spain)</i>
13:30 - 13:50	California Expert Panel on Developing Criteria for Direct Potable Reuse <i>Brian Bernados, California State Water Resources Control Board (USA)</i>	Introducing Sequential Biofiltration Hybrid Systems for Enhanced Removal of Trace Organic Compounds and Pathogens during Water Reclamation <i>Johann Müller, Technical University of Munich (Germany)</i>	A Proven Model for Urban Water Reuse <i>Andrzej Listowski, University of Wollongong, Australia (Australia)</i>	State of use of Recycled Water in Agricultural Irrigation--Impediments and Incentives <i>Bahman Sheikh, Water Reuse Consulting (USA)</i>
13:50 - 14:10	Feasibility Analysis for Developing Uniform Water Recycling Criteria for Direct Potable Reuse in California – Quantifying the Reliability of Multiple Barriers <i>Adam Olivieri, EOA, Inc. (USA)</i>	Demonstrating Simultaneous Removal of Multiple Contaminants for Potable Reuse using Ozone, Biofiltration, and Activated Carbon <i>Edgard Verdugo, Southern Nevada Water Authority (USA)</i>	An Exploration of Various Water Reuse Pathways: Whole Plant Implications and the Criticality of Integrated Water Supply Planning <i>Stephanie Ishii, Hazen and Sawyer (USA)</i>	A Global Assessment of the De Facto Reuse of Untreated Wastewater in Irrigated Agriculture <i>Anne Thebo, University of California, Berkeley (USA)</i>
14:10 - 14:30	Assessing the Reliability of Public Health Protection in DPR: QMRA Results from a One-year Demonstration Project <i>Brian Pecson, Trussell Technologies, Inc. (USA)</i>	O3 Squared: Ozone- Biofiltration-Ozone in Melbourne Australia <i>Nick Burns, Black & Veatch (USA)</i>	Direct Potable Reuse Plays and Integral Role in Meeting Water Demands in the Lower Rio Grande Valley <i>Phillip Cook, Black & Veatch (USA)</i>	Tertiary Free Chlorine Disinfection Demonstration at the City of Brentwood Wastewater Treatment Plant <i>John Kenny, Trussell Technologies, Inc. (USA)</i>
14:30 - 14:50	Design Considerations for Direct Potable Reuse Projects <i>Larry Schimmoller, CH2M (USA)</i>	Optimization of Ozone-BAC Treatment Processes for Potable Reuse Applications <i>Ruth Marfil-Vega, American Water (USA)</i>	Exploring Wastewater Storage to Meet Water Demands in the Columbia Basin Project <i>Charity Davidson & Jennifer McConnell, U.S. Bureau of Reclamation (USA)</i>	Treatment of Oilfield Produced Water for Agricultural Reuse – Lessons Learned from Water Planet's Pilot at Bakersfield California <i>Anna Jawor, Water Planet (USA)</i>
14:50 - 15:00	Panel Discussion	Panel Discussion	Panel Discussion	Panel Discussion
15:00 - 15:30	Networking Break SPONSORED BY: Woodard & Curran Room: Promenade Ballroom 104 C and Foyer			
15:00 - 15:30	Poster Presentations Room: Promenade Ballroom Foyer			

TUESDAY, JULY 25, 2017 (CONTINUED)				
Technical Sessions	A8: DPR Monitoring and Water Quality for Microbial and Chemical Safety	B8: Evaluation of Advanced Oxidation and Water Quality	C8: Water Reuse Planning - Costs and Economics	D8: Managed Aquifer Recharge and Soil Aquifer Treatment
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	<i>Zakir Hirani, Stantec (USA)</i>	<i>Graham Juby, Carollo Engineers (USA)</i>	<i>Nils Horstmeyer, Technical University of Munich (Germany)</i>	<i>Brian Partington, Water Replenishment District of Southern California (USA)</i>
15:30 - 15:50	Assessment of Techniques to Evaluate and Demonstrate the Safety of Water from Direct Potable Reuse Treatment Facilities: Perception versus Reality <i>Channah Rock, University of Arizona (USA)</i>	Does UVAOP Deserves Better Pathogen Credits in Potable Reuse Applications <i>Ufuk Erdal, AECOM (USA)</i>	Identifying and Enhancing the Economic Pathways for Water Reuse and Stormwater Harvesting <i>Lars Hanson, CNA (USA)</i>	Sequential Managed Aquifer Recharge Technology (SMART) – Principles, Performance and Optimization Strategies <i>Karin Hellauer, Technical University of Munich (Germany)</i>
15:50 - 16:10	Ensuring the Microbial Safety of Direct Potable Reuse: Recommendations and Research Needs Identified by the California Expert Panel <i>Kara Nelson, University of California, Berkeley (USA)</i>	Evaluation of Surrogates for Iodinated Contrast Media Treated by LP-UV/ H2O2 AOP <i>Israel Lopez, University of Arizona (USA)</i>	Implementing the Sewer Mining Toolbox: Developing Conceptual Cost Curves for Fit-for- Purpose Recycled Water <i>Jonathan Loveland, Black & Veatch (USA)</i>	Sequential Managed Aquifer Recharge (SMART): Results of Demonstration-scale Operation in Berlin, Germany <i>Alexander Sperlich, Berliner Wasserbetriebe (Germany)</i>
16:10 - 16:30	Evaluation of Microbiological Risks Associated with Direct Potable Reuse <i>Jeffrey Soller, Soller Environmental, LLC (USA)</i>	Predicting the Fate of Organic Compounds Degradation in UV/H2O2 and UV/Chlorine Advanced Oxidation Processes <i>Daisuke Minakata, Michigan Technological University (USA)</i>	Reclaimed Water Cost of Service Studies – An Advanced Example <i>Andrew Burnham, Stantec (USA)</i>	Analysis of Select Transformation Products as Intrinsic Tracers to Characterize Redox Conditions during the Initial Phase of Soil- Aquifer Treatment <i>Uwe Hübner, Technical University of Munich (Germany)</i>
16:30 - 16:50	Resilient DPR Design from Collection System to Tap, WE&RF Project 14-13 <i>Sharon Waller, Sustainable Systems LLC – Consulting (USA)</i>	UV/Hypochlorite Advanced Oxidation Process for 12 MGD IPR Project <i>Richard Loeffler, Xylem/Wedeco (USA)</i>	Potable Reuse vs Seawater Desalination: Comparing Costs of Alternative Water Supplies <i>Greg Wetterau, CDM Smith (USA)</i>	Removal of N-Nitrosodimethylamine (NDMA) Precursors in the Environmental Buffer during De Facto Potable Reuse <i>Gwen Woods-Chabane, HDR (USA)</i>
16:50 - 17:00	Panel Discussion	Panel Discussion	Panel Discussion	Panel Discussion
17:00 - 18:00	IWA Water Reuse Specialist Group Meeting Room: Promenade Room 102 C			
19:00 - 23:00	Networking Dinner, Dancing and Discovery at The Aquarium of the Pacific SPONSORED BY: The Water Replenishment District of Southern California Address: 100 Aquarium Way, Long Beach, CA We hope you will join us on Tuesday evening for the final networking event of the conference and a chance explore the Aquarium of the Pacific, home to more than 11,000 ocean animals, representing nearly 500 species, the Aquarium celebrates the planet's largest and most diverse body of water: the Pacific Ocean. Conference attendees will experience a great dinner, a live band and networking with colleagues in this unique setting.			



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WEDNESDAY, JULY 26, 2017				
7:30 - 15:30	Registration Open Room: Promenade Ballroom Foyer			
7:30 - 15:30	Exhibit Hall Open Room: Promenade Ballroom 104 C and Foyer			
7:30 - 8:30	Continental Breakfast Room: Promenade Ballroom 104 C and Foyer			
8:30 - 9:30	Plenary Session - Challenges and Opportunities for Non-potable Reuse SPONSORED BY: Water Replenishment District Room: Promenade Ballroom 104 A & B <i>Laura Alcalde-Sanz, Ph.D. Joint Research Centre, European Commission</i> <i>Josef Lahnsteiner, Ph.D., VA TECH WABAG (Austria)</i> Presenters Dr. Laura Alcalde-Sanz and Dr. Josef Lahnsteiner will share information on the reuse of water for non-potable purposes in Europe and India, focusing on opportunities and challenges to ensure sustainable supplies. Kevin M. Hardy of the National Water Research Institute will serve as moderator, facilitating discussion and audience participation during the session.			
9:30 - 10:00	Networking Break SPONSORED BY: Nanostone Water Inc. Room: Promenade Ballroom 104 C and Foyer			
9:30 - 10:00	Poster Presentations Room: Promenade Ballroom Foyer			
Technical Sessions	A9: Risk Assessment and QMRA for Water Reuse	B9: Evaluation of Novel Advanced Treatment Technologies	C9: Topics in Advancing Water Reuse	D9: Industrial Reuse: Pilots and Studies
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	Stuart Khan, University of New South Wales (Australia)	Miguel Angel Sanz, Suez (France)	Shahla Farahnak, California State Water Resources Control Board (USA)	Abbey Antolovich, Xylem (USA)
10:00 - 10:20	Making the Case for Indirect Potable Reuse in France: Risk Management and Environmental Benefits of a Prospective IPR System at Vendee <i>Ulf Miehe, Kompetenzzentrum Wasser Berlin gGmbH (Germany)</i>	A Novel Concept to Integrate Energy-Recovery into Potable Water Reuse Treatment Schemes <i>Nils Horstmeyer, Technical University of Munich (Germany)</i>	A Roadmap to Water Reuse as an Element of a Diverse and Resilient Water Management Strategy <i>Vijay Sundaram, Stantec (USA)</i>	Economic Drivers of Industrial and Produced Water Reuse <i>Justin Mattingly, Water Environment & Reuse Foundation</i>
10:20 - 10:40	Risk Management and Life-Cycle Assessment of Indirect Potable Reuse in El Port de la Selva/Spain – An Operational IPR Site Using Managed Aquifer Recharge <i>Ulf Miehe, Kompetenzzentrum Wasser Berlin gGmbH (Germany)</i>	A Low Cost, Low Maintenance Method of Wastewater Desalination Using Physical Online Membrane Cleaning instead of Periodic Chemical Cleaning <i>Boris Liberman, IDE Technologies (Israel)</i>	Moving Water Reuse to the Center of the Water-food-energy Trilemma: a Case Study of the Urban/ Agricultural Interface <i>Brent Haddad, University of California, Santa Cruz (USA)</i>	Scaling-up Electro-Fenton for Industrial Wastewater Treatment Reuse <i>Olivier Lefebvre, National University of Singapore (Singapore)</i>
10:40 - 11:00	Quantitative Microbial Risk Assessment of Potable Reuse Treatment with Ozone and Biological Filtration <i>Erfaneh Amoueyan, University of Nevada Las Vegas (USA)</i>	Optimization of Forward Osmosis in Challenging Environmental Applications for Water Reuse and Zero Liquid Discharge <i>Kirsten Remmen, University of Applied Sciences and Arts Northwestern Switzerland (FHNW) (Switzerland)</i>	Getting Ahead of DPR: Collaborative Approach to Direct Potable Reuse Implementation in Colorado <i>John Rehring, Carollo Engineers (USA)</i> <i>Austa Parker, Carollo Engineers (USA)</i>	Case Study: Impact of Industrial Water Reuse at Lagunitas Brewing Company <i>William Dean, Cambrian Innovation (USA)</i>

WEDNESDAY, JULY 26, 2017 (CONTINUED)

11:00 - 11:20	Comparative Microbial Assessment of Recycled Water from Urban Runoff and Recycled Water from Treated Wastewater Sources in Southern California <i>Ryan Sinclair, Loma Linda University School of Public Health(USA)</i>	A Novel Forward Osmosis Membrane Bioreactor – Membrane Distillation System for High-Strength Wastewater Treatment Applications <i>Nicki Furtaw, University of Nevada, Reno (USA)</i>	Updating California's Recycled Water Policy <i>Laura McLellan, California State Water Resources Control Board (USA)</i>	Evaluation of Innovative Technologies for Multipurpose Use of Municipal Reclaimed Water at Nuclear Power Plants <i>Mohammad Badruzzaman, Stantec (USA)</i>
11:20 - 11:40	Evaluating the Health Risks from Exposure to Legionella in Reclaimed Water Aerosols <i>Robert Holden, Monterey Regional Water Pollution Control Agency (USA)</i> <i>Kerry Hamilton, Drexel University (USA)</i>	Waste-heat-driven Membrane Distillation: Experimental analysis of System Configurations and Impact Of Waste-heat Source Variability on Water Production and Heat Transfer <i>Ryan Gustafson, University of Southern California (USA)</i>	California Recycled Water Use in 2015 <i>Tonianne Pezzetti, California Department of Water Resources (USA)</i>	Integrated UF and RO Application in Challenging Coal to Chemical Wastewater Reuse <i>Andrea Lima, Dow Water and Process Solutions (USA)</i>
11:40 - 12:00	Panel Discussion	Panel Discussion	Panel Discussion	Panel Discussion
12:00 - 13:30	Lunch on Your Own			
Technical Sessions	A10: Potable Reuse in Texas: Beyond Big Spring and Wichita Falls	B10: Membrane Bioreactors (MBRs) and Pathogen Removal and Credits	C10: Economic, Environmental, and Social Assessments for Water Reuse	D10: Industrial Reuse: Planning and Approaches
Room	Promenade Room 103 A & B	Promenade Room 102 A & B	Promenade Room 101 B	Promenade Room 101 A
Moderator	<i>Caroline Russell, Carollo Engineers (USA)</i>	<i>Hong-Ying Hu, Tsinghua University (China)</i>	<i>Val Frenkel, Greeley and Hansen</i>	<i>Peter Cornel, Technical University Darmstadt (Germany)</i>
13:30 - 13:50	This panel will provide participants with a background on the potable reuse regulatory framework in Texas and an overview of the range of potable reuse projects currently operating or under consideration for implementation in the state. Case studies will be used to illustrate the value of the case-by-case approach that the Texas Commission on Environmental Quality has taken to facilitate implementation of potable reuse projects in Texas. Participants will gain an understanding of the treatment and monitoring approach implemented to protect public health across the case studies.	Giving Credit Where Credit is Due – MBR for Potable Water Reuse <i>Stephen Katz, GE Water & Process Technologies (Canada)</i>	Sustainable Indirect Water Reuse in Mexico City: Advanced Treatment using Membranes <i>Sylvain Donnaz, Suez Treatment Infrastructure (France)</i>	A Systematic Approach for Quality Control to Minimize Risk of Water Quality Failure in Industrial Water Reuse Schemes <i>Henrik Grüttner, University of Southern Denmark (Denmark)</i>
13:50 - 14:10		Can MBR Replace MF/UF in a Potable Reuse Train? Concerns and Limitations <i>Ufuk Erdal, AECOM (USA)</i>	Case Studies of the Economic, Environmental, and Social Impacts of Direct Potable Reuse <i>Stephanie Ishii, Hazen and Sawyer (USA)</i>	Integrated Industrial Water Management in the Chemical Industry <i>Thomas Track, DECHEMA e.V. (Germany)</i>

WEDNESDAY, JULY 26, 2017 (CONTINUED)

14:10 - 14:30	<i>Caroline Russell, Carollo Engineers (USA)</i> <i>Eva Steinle-Darling, Carollo Engineers (USA)</i> <i>Ellen McDonald, Alan Plummer Associates, Inc. (USA)</i>	Granting Pathogen Credits to MBR for Full Advanced Treatment Train for Potable Reuse <i>Zakir Hirani, Stantec (USA)</i>	Improving the Reliability of the Indirect Potable Reuse System using a Real-Time Decision Support System Based on an Integrated Modeling Approach <i>Adnan Lodhi, Virginia Tech (USA)</i>	Is Produced Water the New "Toilet-to-Tap" for California? <i>Lee Portillo, Black & Veatch (USA)</i>
14:30 - 14:50	<i>Tom Taggart, City of San Marcos, TX (USA)</i> <i>Marlo Berg, Texas Commission on Environmental Quality (USA)</i> <i>Gilbert Trejo, El Paso Water Utilities (USA)</i>	Demonstration Study to Evaluate Pathogen Removal Performance Of Membrane Bioreactors (MBR) for Water Reuse in California <i>Luisa Sangines, Santa Clara Valley Water District (USA)</i>	Triple Bottom Line Analysis of a Wastewater Treatment Plant to Augment Water Supply through Reuse – Lessons Learned at Livermore, California <i>Colin Chung, Kayuga Solution (USA)</i>	Types of Agreements to Provide Recycled Water for Industrial and Commercial Customers <i>Bahman Sheikh, Water Reuse Consulting (USA)</i>
14:50 - 15:00		Panel Discussion	Panel Discussion	Panel Discussion
15:00 - 15:30	Networking Break SPONSORED BY: Nanostone Water Inc. Room: Promenade Ballroom 104 C and Foyer			
15:00 - 15:30	Poster Presentations Room: Promenade Ballroom Foyer			
15:30 - 17:00	Closing Plenary Session – The Future of Water Reuse Room: Promenade Ballroom 104 A & B <i>Jörg Drewes, Ph.D., Technical University Munich, IWA Water Reuse Specialist Group (Germany)</i> <i>Stuart Khan, Ph.D., University of New South Wales (Australia)</i> <i>Ben Stanford, American Water (USA)</i> <i>Akissa Bahri, National Agricultural Institute of Tunisia (Tunisia)</i> <i>Olivier Lefebvre, Ph.D., National University of Singapore (Singapore)</i> This session will provide an international view on future issues and opportunities for water reuse. George Tchobanoglous will facilitate the panel discussion of several key established reuse experts and up-and-comers. The audience is sure to hear diverse outlooks for the future from various countries, generations, and professional perspectives. Closing Remarks: <i>Jörg Drewes, Ph.D., Technical University Munich, IWA Water Reuse Specialist Group (Germany)</i> <i>Melissa Meeker, Water Environment & Reuse Foundation (USA)</i>			
THURSDAY, JULY 27, 2017				
8:30 - 15:30	Technical Tour - Los Angeles Area Tours (Lunch is included. Tour is not included with registration, additional fees apply)			
8:30 - 16:00	Technical Tour - Orange County Area Tours (Lunch is included. Tour is not included with registration, additional fees apply)			