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## Sunday, May 22, 2016

### Pre-Conference Workshops (additional fees apply)

Technical Sessions	Potable Reuse Operator Certification Workshop	Decentralized Reuse Workshop
Room	Lawrence A	Lawrence B
Moderator	Steve Garner, CA-NV Section, AWWA	Jay Garland, U.S. Environmental Protection Agency
2:00 p.m. - 5:00 p.m.	<p>Potable Reuse facilities require operators to manage advanced water treatment (AWT) unit processes. Operator certification programs lack AWT/potable reuse (PR) focus. CA-NV Section formed a committee to serve AWT/PR operator certification needs. Attendees will learn about parallel research efforts and the integration of these programs.</p> <p><i>Wendy Broley, CUWA/Brown and Caldwell</i></p> <p><i>Dan Nix, City of Wichita Falls</i></p> <p><i>Toby Roy, San Diego County Water Authority</i></p> <p><i>Al Lau, Padre Dam Municipal Water District</i></p> <p><i>Troy Walker, Hazen and Sawyer</i></p>	<p>This session will present a framework for performance standards and oversight of non-potable use of on-site collected waters (wastewater, graywater, stormwater, roof runoff), including a risk based approach for defining pathogen log-reduction requirements, monitoring approaches, and operational lessons learned.</p> <p><i>Michael Jahne, U.S. Environmental Protection Agency</i></p> <p><i>Mary Schoen, Soller Environmental</i></p> <p><i>Nichole Brinkman, U.S. Environmental Protection Agency</i></p> <p><i>Sybil Sharvelle, Colorado State University</i></p> <p><i>Ed Clerico, Natural Systems Utilities</i></p>

## Monday, May 23, 2016

7:15 a.m. - 3:00 p.m.	Registration Open – Mezzanine Foyer	
7:15 a.m. - 8:00 a.m.	Continental Breakfast – Mezzanine Foyer	
	Microbial Risk & Removal - Part 1	Desalination and Concentrate Management
Room	Confluence C	Platte River
Moderator	Nick Ashbolt, University of Alberta	Kristan Cwalina, Water Environment & Research Foundation
8:00 a.m. - 8:30 a.m.	<p>Determinants Of Microbial Risk In Direct Potable Reuse Treatment</p> <p><i>Rabia Chaudhry, Millennium Challenge Corporation</i></p>	<p>Water Quality Impacts of Integrating Desalinated Seawater from the Carlsbad SWRO Plant into Existing Regional Supplies</p> <p><i>Brent Alspach, ARCADIS</i></p>
8:30 a.m. - 9:00 a.m.	<p>Evaluating the Removal of Pathogenic Viruses, Bacteria and Parasites by Conventional Wastewater Treatment Processes</p> <p><i>Norman Neumann, University of Alberta</i></p>	<p>Selection Criteria for Conventional Versus Membrane Based Pretreatment Processes for Seawater Desalination: Perspectives from Worldwide Full-Scale Operating Plants</p> <p><i>Joe Jacangelo, MWH</i></p>
9:00 a.m. - 9:30 a.m.	<p>Development of a Risk Management Strategy for Legionella in Reclaimed Water Systems</p> <p><i>William Johnson, American Water</i></p>	<p>Potential of Membrane Distillation for Increased Water Recovery in Desalination of Brines with High Mineral Content</p> <p><i>John Bush, Colorado School of Mines</i></p>
9:30 a.m. - 10:00 a.m.	<p>Flow Cytometry and Metagenomics in Pilot-Scale Direct Potable Reuse - Bacterial Persistence and Regrowth</p> <p><i>Kara Nelson, University of California, Berkeley</i></p>	<p>Desalination Concentrate: Ocean vs. Bay</p> <p><i>Val Frenkel, CH2M</i></p>
10:00 a.m. - 10:30 a.m.	Networking Break – Mezzanine Foyer	
10:00 a.m. - 10:30 a.m.	Poster Presentations – Mezzanine Foyer	
	Microbial Risk & Removal - Part 2	Optimizing UV/Advanced Oxidation Processes
Room	Confluence C	Platte River
Moderator	Mark LeChevallier, American Water	Dave MacNevin, Tetra Tech
10:30 a.m. - 11:00 a.m.	<p>Evidence of Naturalized Strains of Environmentally Persistent/Treatment Resistant E. coli in Sewage and Wastewater: Concerns for Pathogen Emergence?</p> <p><i>Norman Neumann, University of Alberta</i></p>	<p>Comparison of Four UV/AOP Systems for Water Reuse: Implications on the Removal of Emerging Contaminants</p> <p><i>Haizhou Liu, University of California, Riverside</i></p>

**Monday, May 23, 2016** (continued)

11:00 a.m. - 11:30 a.m.	Target Pathogens: Aiming low (enteric), Aiming Wide (saprogoic)  <i>Nicholas Ashbolt, University of Alberta</i>	Enhancing Efficiency of UV Advanced Oxidation Processes via Iron Addition  <i>Sydney Ulliman, University of Colorado at Boulder</i>
11:30 a.m. - 12:00 p.m.	Removal of Microbial Indicators and Trace Organics during Ozonation and Biological Media Filtration for Wastewater Reclamation  <i>Guido Carvajal, University of New South Wales</i>	The Impact of Upstream Treatment on the Effectiveness of HOCl/UV and H2O2/UV AOPs for Potable Reuse  <i>Michael Watts, Garver</i>
12:00 p.m. - 1:15 p.m.	<b>Lunch on Your Own</b>	
	<b>Pathogen Log Removal</b>	<b>Maintaining the Highest Water Quality for DPR</b>
<b>Room</b>	<b>Confluence C</b>	<b>Platte River</b>
<b>Moderator</b>	<b>Jeff Mosher, National Water Research Institute</b>	<b>Jim Crook, Environmental Consultant</b>
1:15 p.m. - 1:35 p.m.	Basis for California's 12-10-10 Log Removal Requirements  <i>Bob Hultquist</i>	Source Water Control Options and Their Impact on Direct Potable Reuse  <i>Alan Rimer, EnviroTechNovations</i>
1:35 p.m. - 1:55 p.m.	Maximizing Pathogen Removal Credits for NF and RO in Direct Potable Reuse Schemes Through Continuous Monitoring of a Fluorescent Microbial Surrogate  <i>Jim Logier, CH2M</i>	Impacts of Blending on Water Quality for Direct Potable Reuse  <i>Mandu Inyang, Southern Nevada Water Authority</i>
1:55 p.m. - 2:15 p.m.	Establishing Pathogen Log Removal Credits for Direct Potable Reuse  <i>Joan Oppenheimer, MWH</i>	Quantifying Public Health Protection: Results from the DPR Demonstration Project  <i>Brian Pecson, Trussell Technologies</i>
2:15 p.m. - 2:35 p.m.	How Much Log Removal Do You Really Get? Monte Carlo Analysis of Full Scale Performance Data  <i>Ben Stanford, Hazen and Sawyer</i>	Water Quality Evaluation of the Raw Water Production Facility at Big Spring  <i>Eric Dickenson, Southern Nevada Water Authority</i>
2:35 p.m. - 2:55 p.m.	Assessment of Online Verification of Virus Removal by RO Membranes Employed for Potable Reuse  <i>Eva Steinle-Darling, Carollo Engineers and Joe Jacangelo, MWH</i>	Mind the Gap! Using the Latest Research to Understand How to Negotiate the Gap Between the Clean Water Act and the Safe Drinking Water Act  <i>Andrew Salvesson, Carollo Engineers</i>
2:55 p.m. - 3:30 p.m.	<b>Panel Discussion</b>	<b>Panel Discussion</b>

**Monday, May 23, 2016** (continued)

3:30 p.m. - 4:00 p.m.	<b>Networking Break</b> – Mezzanine Foyer
3:30 p.m. - 4:00 p.m.	<b>Poster Presentations</b> – Mezzanine Foyer
4:00 p.m. - 5:30 p.m.	<b>Plenary Session</b> – Confluence A & B
	<p><b>Introduction and Welcome</b> <i>Doug Owen, ARCADIS, Water Environment &amp; Research Foundation Board Co-Chair</i></p> <p><i>Kevin Shafer, Milwaukee Metropolitan Sewerage District, Water Environment &amp; Research Foundation Board Co-Chair</i></p> <p><b>Florida's Reuse Successes and Challenges</b> <i>Ann B. Shortelle, Executive Director, St. Johns River Water Management District</i></p> <p><b>Advancing Technology for Public Health Protection</b> <i>Peter Grevatt, Director of the Office of Ground Water and Drinking Water, U.S. Environmental Protection Agency</i></p>
5:30 p.m. - 7:00 p.m.	<b>Welcome Reception</b> – Pool Deck (4th Floor)

## Tuesday, May 24, 2016

7:30 a.m. - 2:30 p.m.	Registration Open – Mezzanine Foyer	
7:30 a.m. - 8:15 a.m.	Continental Breakfast – Mezzanine Foyer	
	Ozone/Biofiltration for Potable Reuse	Industrial Reuse
Room	Confluence C	Platte River
Moderator	Kati Bell, MWH	Ed Clerico, Natural Systems Utilities
8:15 a.m. - 8:45 a.m.	Controlling Trace Organic Contaminants Using Ozone-Biofiltration in Potable Reuse  <i>Eric Dickenson, Southern Nevada Water Authority</i>	The Role of UV and Advanced Oxidation Processes in the Treatment of Hydraulic Fracturing Water  <i>Sydney Ulliman, University of Colorado at Boulder</i>
8:45 a.m. - 9:15 a.m.	Demonstration of Multi-Stage Ozone-Biofiltration for Treatment of Direct Potable Reuse Water  <i>Jennifer Hooper, CDM Smith and Denise Funk, Gwinnett County Department of Water Resources</i>	Produced Water Reuse and Resource Recovery  <i>Jonathan Brant, University of Wyoming</i>
9:15 a.m. - 9:45 a.m.	Evaluation of Ozone to Enable Multi-Barrier Treatment for Potable Reuse  <i>Abigail Antolovich, Xylem</i>	Managing Water Inside the Fence: Drivers and Market Opportunities for Industrial Reuse  <i>Erin Bonney Casey, Bluefield Research</i>
9:45 a.m. - 10:15 a.m.	Networking Break – Mezzanine Foyer	
9:45 a.m. - 10:15 a.m.	Poster Presentations – Mezzanine Foyer	
	Novel Treatment for Potable Reuse	Planning & Economics of Potable Reuse
Room	Confluence C	Platte River
Moderator	Reymundo Trejo, Upper San Gabriel Valley Municipal Water District	Ellen McDonald, Alan Plummer Associates, Inc.
10:15 a.m. - 10:45 a.m.	Using Short Term SAT for NF/RO Pretreatment to Reduce the Cost of Potable Reuse  <i>Larry Schimmoller, CH2M</i>	Enhanced Triple Bottom Line Tool for Evaluating Potable Reuse and Other Water Supply Options  <i>Stephanie Ishii, Hazen and Sawyer</i>
10:45 a.m. - 11:15 a.m.	Pasteurized!: Evaluating Membrane Performance at the Ventura Water Pure Potable Reuse Demonstration Facility  <i>Justin Sutherland, Carollo Engineers</i>	The Economics and Opportunities of Direct Potable Reuse, a discussion of Methods and Findings  <i>Bob Raucher, Stratus Consulting/Abt Associates</i>

## Tuesday, May 24, 2016 (continued)

11:15 a.m. - 11:45 a.m.	Design of Energy-Positive Municipal Water Supply Systems: Field Demonstration of a Net-Zero Water System  <i>James Englehardt, University of Miami</i>	New Supply vs. Reuse: Implementation of a Tool for Evaluation of Water Resource Alternatives  <i>Evan Tromble, Garver</i>
11:45 a.m. - 12:15 p.m.	Membrane Concentrate Management Alternatives for Inland Potable Reuse  <i>Viking Edeback, ARCADIS</i>	Where Wastewater Ends and Drinking Water Begins: Evaluating the Technical and Economic Viability of Potable Reuse  <i>Dave MacNevin, Tetra Tech</i>
12:15 p.m. - 1:30 p.m.	Keynote Luncheon Presentation and Recognition Ceremony – Confluence A&B  Chris Impellitteri, U.S. Environmental Protection Agency Chris Rayburn, Water Research Foundation	
	Optimizing Biofiltration	Disinfection Byproducts
Room	Confluence C	Platte River
Moderator	Denise Funk, Gwinnett County Department of Water Resources	Rhodes Trussell, Trussell Technologies, Inc.
1:30 p.m. - 2:00 p.m.	Biofilter Optimization for Water Reuse: Applying a Decade of Drinking Water Biofiltration Research  <i>Chance Lauderdale, HDR</i>	Fate of 1,4 Dioxane in UV/chlorine Advanced Oxidation Systems  <i>Florence Bonvin, University of California, Berkeley</i>
2:00 p.m. - 2:30 p.m.	Creating Guidelines to Inform Biofiltration of Organic Micro-pollutants  <i>Paige Pruisner, University of Colorado Boulder</i>	Formation and Control of Halogenated and Nitrogenous DBPs during Direct Potable Reuse Treatment: El Paso Experience  <i>Caroline Russell, ARCADIS</i>
2:30 p.m. - 3:00 p.m.	What Else is Needed to Make Ozone Biofiltration work for Potable Reuse? Managing Nitrate Concentrations  <i>Allega da Silva and Kati Bell, MWH</i>	Natural and Anthropogenic Nitrosamine Precursors in Potable Reuse Source Waters  <i>Caitlin Glover, Southern Nevada Water Authority</i>
3:00 p.m. - 3:30 p.m.	Networking Break – Mezzanine Foyer	
3:00 p.m. - 3:30 p.m.	Poster Presentations – Mezzanine Foyer	

**Tuesday, May 24, 2016** (continued)

**Closing Plenary Session: Research Needs with Live Polling**  
Room - Confluence A & B

3:30 p.m. - 4:45 p.m.

*Mark LeChevallier, Water Environment & Research Foundation RAC Co-Chair*  
*Raj Bhattarai, Austin Water, Water Environment & Research Foundation RAC Co-Chair*  
*Andrew Salveson, Carollo Engineers*  
*Claire Waggoner, State Water Resources Control Board*  
*Jeff Mosher, National Water Research Institute*

4:45 p.m. - 5:00 p.m.

**Conference Summary and Closing Remarks**  
*Melissa Meeker, Water Environment & Research Foundation CEO*

## POSTER PRESENTATIONS

**Overview of National Research Council's new report: Using Graywater and Stormwater to Enhance Local Water Supplies: An Assessment of Risks, Costs, and Benefits**

Bob Raucher, Stratus Consulting/Abt Associates

**Ozone-Biofiltration or GAC Adsorption for Indirect Potable Reuse: Balancing Risk and Cost**

Patrick Evans, CDM Smith

**Predicting RO Removal of Toxicologically Relevant Unique Organics**

Lauren Breitner, University of New Mexico

**The Influence of Cscale on the Environmental Sustainability of Wastewater Treatment Integrated with Resource Recovery**

Pablo Cornejo, University of Colorado at Boulder

**Chemical Cleaning Strategies for Membrane Distillation in Water Reuse Applications**

Andrea Corral, University of New Mexico

**Modeling a Sustainable Water Infrastructure: Hydrology, Engineering, and Human Interaction**

June Wolfe, Texas A&M

**Software Tool Enabling Integrated and Pragmatic Design of Recycled Water Distribution Networks in Urban Environments**

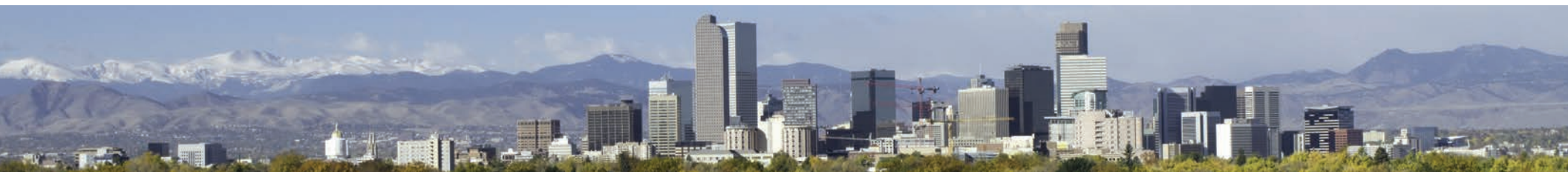
Eun Jung Lee, Stanford University

**Identification and Screening of Organic Contaminants in Impaired Waters using High Resolution Mass Spectrometry**

Tarun Anumol, Agilent Technologies Inc.

**Impacts of Ozone Dose and Empty Bed Contact Time on Trace Organics Removal Through Ozone-Biological Activated Carbon Treatment and Evaluation of Disinfection Byproducts Formation Upon Final Chlorination**

Mayara Aquino, University of Nevada, Las Vegas





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September 11-14, 2016  
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Tampa, FL

### 2016 WATEREUSE POTABLE REUSE SUMMIT

October 16-18, 2016  
The Skirvin Hilton Hotel  
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### 2017 WATEREUSE CALIFORNIA ANNUAL CONFERENCE

March 19-21, 2017  
The Westin San Diego  
San Diego, CA

### 11TH ANNUAL IWA INTERNATIONAL CONFERENCE ON WATER RECLAMATION AND REUSE

July 24-27, 2017  
Long Beach Convention Center  
Long Beach, CA

### 32ND ANNUAL WATEREUSE SYMPOSIUM

September 10-13, 2017  
Renaissance Phoenix Downtown Hotel  
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