

Conference Program

Endless Water Reuse

2015
WATEREUSE
CALIFORNIA
ANNUAL
CONFERENCE

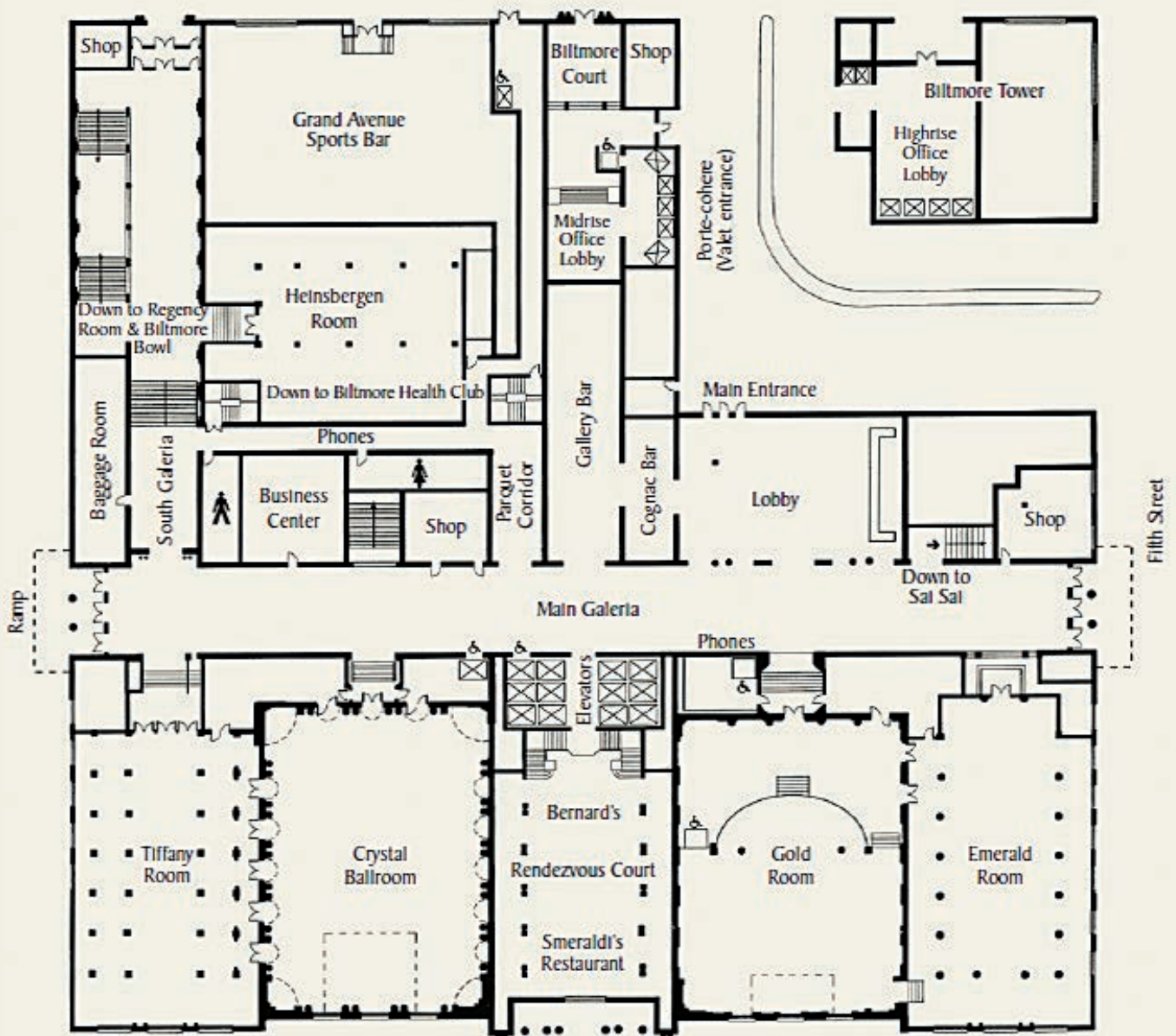
Millennium Biltmore Hotel
Los Angeles, CA

March 15-17, 2015



www.watereuse.org

MILLENNIUM BILTMORE HOTEL



Sunday, March 15, 2015

9:00 a.m. – 12:30 p.m.	Pre-Conference Tour: Griffith Park Tour <i>(departing from the Hotel Lobby)</i>
12:00 p.m. – 5:30 p.m.	Registration Open <i>(Main Galeria Foyer)</i>
1:00 p.m. – 5:30 p.m.	Technical Tour: City of Los Angeles' Environmental Learning Center at Hyperion Treatment Plant and West Basin Municipal Water District's Edward C. Little Water Recycling Facility <i>(departing from the Hotel Lobby)</i>
2:00 p.m. – 5:00 p.m.	Pre-Conference Workshops <i>(additional fees apply)</i> <ul style="list-style-type: none"> • WS1: Recycled Water Site Supervisor Training Program <i>(Roman Room)</i> • WS2: Recycled Water for Cooling Towers <i>(Corinthian Room)</i>
5:30 p.m. – 7:00 p.m.	Exhibit Hall Open <i>(Gold Room)</i>
5:30 p.m. – 7:00 p.m.	Welcome Reception in the Exhibit Hall <i>(Gold Room)</i>

Monday, March 16, 2015

7:30 a.m. – 3:30 p.m.	Registration Open <i>(Main Galeria Foyer)</i>
7:30 a.m. – 3:30 p.m.	Exhibit Hall Open <i>(Gold Room)</i>
7:30 a.m. – 8:30 a.m.	Continental Breakfast <i>(Gold Room)</i>
8:30 a.m. – 9:30 a.m.	Opening Session <i>(Crystal Ballroom)</i>
9:30 a.m. – 10:00 a.m.	Networking Break <i>(Gold Room)</i>
9:30 a.m. – 10:00 a.m.	Student Poster Sessions <i>(Main Galeria Foyer)</i>
10:00 a.m. – 12:00 p.m.	Technical Sessions <ul style="list-style-type: none"> • A1: Case Studies: Potable Reuse <i>(Emerald Room)</i> • B1: Innovative Treatment <i>(Heinsbergen Room)</i> • C1: Public Outreach & Education – Part 1 <i>(Tiffany Room)</i> • D1: Funding <i>(Bernard Room)</i>
12:00 p.m. – 1:30 p.m.	Gordon Cologne Luncheon <i>(Crystal Ballroom)</i>
1:30 p.m. – 3:00 p.m.	Technical Sessions <ul style="list-style-type: none"> • A2: Meeting Potable Reuse Regulations <i>(Emerald Room)</i> • B2: Recycled Water Applications <i>(Heinsbergen Room)</i> • C2: Recycled Water & Alternative Sources <i>(Tiffany Room)</i> • D2: Panel Discussion: Recycled Water & Agriculture <i>(Bernard Room)</i>
3:00 p.m. – 3:30 p.m.	Networking Break <i>(Gold Room)</i>
3:00 p.m. – 3:30 p.m.	Student Poster Sessions <i>(Main Galeria Foyer)</i>
3:30 p.m. – 5:00 p.m.	Town Hall Plenary Session: What Will be the Catalyst that Propels California to Direct Potable Reuse? <i>(Crystal Ballroom)</i>
4:00 p.m. – 5:00 p.m.	Student Engagement Meeting <i>(Tiffany Room)</i>
5:30 p.m. – 7:00 p.m.	President's Reception at Mrs. Fish

Tuesday, March 17, 2015

7:30 a.m. – 12:00 p.m.	Registration Open <i>(Main Galeria Foyer)</i>
8:00 a.m. – 9:30 a.m.	Awards Breakfast and Annual Membership Meeting <i>(Crystal Ballroom)</i>
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9:30 a.m. – 10:00 a.m.	Networking Break <i>(Gold Room)</i>
10:00 a.m. – 12:00 p.m.	Technical Sessions <ul style="list-style-type: none"> • A3: Regulatory <i>(Emerald Room)</i> • B3: Research <i>(Heinsbergen Room)</i> • C3: Case Studies: Out of State <i>(Tiffany Room)</i>
12:00 p.m. – 1:00 p.m.	Networking Lunch <i>(Gold Room)</i>
12:45 p.m. – 4:30 p.m.	Technical Tour: Behind-the-Scenes Studio Warner Bros. Tour <i>(additional fees apply, departing from the Hotel Lobby)</i>
1:00 p.m. – 2:30 p.m.	Technical Sessions <ul style="list-style-type: none"> • A4: Planning & Program Issues – Part 1 <i>(Emerald Room)</i> • B4: Operation & Maintenance <i>(Heinsbergen Room)</i> • C4: Public Outreach & Education – Part 2 <i>(Tiffany Room)</i>
2:30 p.m. – 3:00 p.m.	Networking Break <i>(Gold Room)</i>
3:00 p.m. – 4:30 p.m.	Technical Sessions <ul style="list-style-type: none"> • A5: Planning & Program Issues – Part 2 <i>(Emerald Room)</i> • B5: Reuse & the California Drought <i>(Heinsbergen Room)</i> • C5: Recycled Water Innovations & Sustainability <i>(Tiffany Room)</i>

GENERAL INFORMATION

Exhibit Hall Hours

Sunday, March 15, 2015 • 5:30 p.m. - 7:00 p.m.

Monday, March 16, 2015 • 7:30 a.m. - 3:30 p.m.

Tuesday, March 17, 2015 • 9:30 a.m. - 3:00 p.m.

Student Art Contest - Sponsored by Metropolitan Water District of Southern California

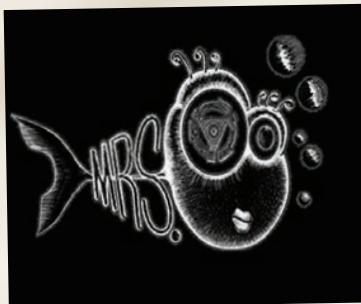
Welcoming the Next Generation - In order to help educate children and communities about recycled water, the conference planning committee developed a Student Art Contest (K-12) for school kids throughout California to submit drawings that illustrate "Endless Water Reuse". We hope this, the Student Poster Contest, and the College/University Student Engagement session will attract the next generation of innovative thinkers to WaterReuse California. Be sure to check out the winning art submissions on display here at the conference and, on Monday, don't miss your opportunity to vote for your favorite student poster!

President's Reception at Mrs. Fish - Sponsored by Irvine Ranch Water District

Monday, March 16, 2015
5:30 p.m. - 7:00 p.m.

Located Just Two Blocks from the Millennium Biltmore Hotel.
Walking Directions can be found in your registration packet

We hope you will join us on Monday evening for some great food and drinks as well as networking amongst your colleagues and friends at the brand-new Mrs. Fish. Located in the basement of the historic Pershing Square Building, Mrs. Fish features an overhead 5,500 gallon aquarium brimming with sea life.



Professional Development Hours

The WaterReuse Association is pleased to offer Professional Development Hours (PDHs) for the 2015 WaterReuse California Annual Conference. More and more certification and licensing authorities, companies, government agencies, and organizations are requiring that professionals earn a certain number of continuing education or professional development hours each year. A Professional Development Hour is generally defined as one clock hour that is spent engaged in an activity that contributes to the advancement or enhancement of professional skills or scientific knowledge of a professional engineer.

Professional Development Hours are available for individuals successfully completing concurrent technical sessions throughout the conference. PDHs are acquired on a contact hour basis with one PDH equaling one hour attended. It is the attendee's responsibility to keep his or her own record of PDHs and submit them to the WaterReuse office. Forms for tracking Professional Development Hours will be available at the conference.

Terminology and education credit requirements and restrictions vary widely. All participants are responsible for checking with their license/certification authority to ensure that the WaterReuse technical concurrent sessions meet specific requirements.

***NOTE:** The form for tracking Professional Development Hours is located in your registration packet. These forms can be dropped off at one of the drop boxes located throughout the conference or mailed to the WaterReuse Association office after the conference.*

Operator Certification Contact Hours

NEW THIS YEAR!! Contact hours available for attendees. Operators seeking contact hours for certificate renewal will be able to do so at the 2015 WaterReuse California Annual Conference. Up to 11.5 continuing education hours are available. Earn 3 hours for either of the Sundays workshops, 3.5 hours for attending the Track B Mondays sessions, and 5 hours for attending the Track B Tuesdays sessions. Verification of attendance is required. See your registration packet for more information.

Session and Presentation Surveys

Your feedback is important to us so please remember to rate each of the sessions and/or presentations that you attend. Surveys for each session and/or presentation can be found on the Conference Mobile App.

Conference Mobile App - Sponsored by Kennedy/Jenks Consultants

The Conference Mobile App provides easy-to-use interactivity that will enhance your conference experience:

- Browse the technical program by time, speaker or track and create your own personalized agenda
- View speaker bios and communicate directly with speakers on the app
- Rate the sessions you attend and comment on them, too
- View and download the technical presentations and papers from the app
- Connect with Sponsors and Exhibitors and view or download their handouts
- Receive important real-time communication during the Conference
- Connect with other attendees based on interests and areas of expertise
- Attendee to Attendee messaging through private messaging within the app
- Interactive Activity Feed where attendees can post, comment on, or "like" other posts
- Share your thoughts about the conference on Facebook, Twitter and LinkedIn right from the app

Technical Papers and PowerPoint Presentations

Technical Papers and PowerPoint Presentations can be found on the Conference Mobile App under each Session and Presentation.

PLENARY EVENTS

Opening Session

Monday, March 16, 2015 • 8:30 a.m. - 9:30 a.m.

ROOM: Crystal Ballroom

Mike Markus, Orange County Water District and WateReuse California President min

Jennifer West, WateReuse California Managing Director

Matt Peterson, Chief Sustainability Officer, City of Los Angeles

John Marler, Senior Director of Energy and Environment, AEG

Jeff Kightlinger, General Manager, Metropolitan Water District of Southern California

Gordon Cologne Luncheon

Monday, March 16, 2015 • 12:00 p.m. - 1:30 p.m.

ROOM: Crystal Ballroom

The Gordon Cologne Luncheon, honoring Judge Gordon Cologne (ret.), author of the Porter-Cologne Act and the first lobbyist for the WateReuse Association, brings together policy makers and conferees for an informal update of the latest issues of the day in Sacramento and Washington DC.

California remains in the grip of one of the worst droughts in its history. Bill Croyle, the Emergency Drought Manager for the Department of Water Resources, will discuss the current state of the drought, the activities of the Governor's drought task force, Proposition 1 implementation and more.

This session will also includes the presentation of the Gordon Cologne Award, which recognizes individuals who have made a significant contribution to the legislative or regulatory advancement of water recycling in California. This year the award goes to Assembly Member Anthony Rendon for his tireless work in ensuring that Proposition 1 contained seven times more funding for recycled water than in any other bond in California's history.

Additionally, Richard Harris, Nossaman LLP, legislative advocate for WateReuse California and Melissa Meeker, Executive Director of the WateReuse Association will provide state and federal legislative and regulatory updates.

Town Hall Plenary Session: What Will be the Catalyst that Propels California to Direct Potable Reuse?

Monday, March 16, 2015 • 3:30 p.m. - 5:00 p.m.

ROOM: Crystal Ballroom

What will it take to kick-start implementing direct potable reuse in California? An all-star panel of water reuse leaders will launch this discussion based on audience live poll responses at this session. Their perspectives will spring from expertise and experience in treatment technologies, operations, public policy, regulations and public perception. This session will rely on your real-time input, so come ready to share your thoughts!

PANELISTS:

Shane Trussell, Trussell Technologies

Nancy Sutley, Los Angeles Department of Water and Power

Felicia Marcus, State Water Resources Control Board

Daniel Nix, Wichita Falls Public Works Department

Ken Murray, MD

Awards Breakfast and Annual Membership Meeting

Tuesday, March 17, 2015 • 8:00 a.m. - 9:30 a.m.

ROOM: Crystal Ballroom

The Awards Breakfast recognizes exceptional water reuse, reclamation, and recycling projects and practitioners. The California Section of the WateReuse Association will present the following Awards of Excellence during the breakfast on Tuesday:

- Recycled Water Agency of the Year (Large, Medium, and Small)
- Recycled Water Community Outreach/Public Education Program of the Year
- Recycled Water Advocate of the Year
- Recycled Water Customer of the Year
- Recycled Water Staff Person of the Year

The California Section of the WateReuse Association will also conduct its annual membership meeting during this breakfast.



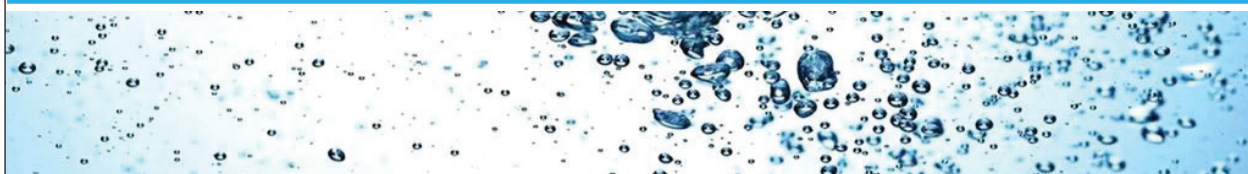


One Water LA is a collaborative approach between LA Sanitation, LADWP, other city departments, and regional agencies to develop an integrated framework for managing the City's watersheds, water resources, and water facilities in an environmentally, economically and socially beneficial manner.



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Congratulations to our 2015 WateReuse California Award Winners. Be sure and view the Award Winners icon on the Conference Mobile App where you can find the full award description as well as an informational video on each of the awardees.

Recycled Water Agency of the Year – Small

City of San Clemente

Recycled Water Agency of the Year – Medium

Rincon del Diablo Municipal Water District

Recycled Water Agency of the Year – Large

Irvine Ranch Water District

**Recycled Water Community Outreach
and Public Education Program of the Year**

Dublin San Ramon Services District's Residential Recycled Water Fill Station

Recycled Water Customers of the Year

City of Lake Forest

San Diego Gas & Electric

Citizens Business Bank Arena

Recycled Water Staff Person of the Year

Reza (Ray) Mokhtari, Metropolitan Water District of Southern California

Recycled Water Advocate of the Year

Kimberly Thorner, Olivenhain Municipal Water District

Thank You to our Conference Sponsors

Please be sure and check out the Sponsor and Exhibitor listings on the Conference Mobile App where you can view their contact information, their company description, along with valuable downloads and information about each one.

Conference Sponsors

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Nova Water Technologies
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Sustainable Water
Tetra Tech
TrojanUV
Water Replenishment District of Southern California
Water Systems Consulting, Inc.
Xylem



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9:30 a.m. – 9:40 a.m.	Biofouling and Cleaning Effectiveness of Surface Nanostructured Reverse Osmosis Membranes Kari Moses, UCLA
9:40 a.m. – 9:50 a.m.	Persistence and Fate of Emerging Contaminants, Disinfectants, and Disinfection Byproducts in Recycled Water Stored or Discharged Miguel Garcia, University of California, Riverside
9:50 a.m. – 10:00 a.m.	Drought Solutions through Green Treatment Technology: A Photovoltaic Electro-Dialysis Unit Michael Lepore, California State Polytechnic University, Pomona

	A1: Case Studies: Potable Reuse	B1: Innovative Treatment	C1: Public Outreach & Education - Part 1	D1: Funding
	Moderator: Paul Jones , <i>Eastern Municipal Water District</i> Room: Emerald	Moderator: Fred Gerringer , <i>Trussell Technologies</i> Room: Heinsbergen	Moderator: Toby Roy , <i>San Diego County Water Authority</i> Room: Tiffany	Moderator: Martha Davis , <i>Inland Empire Utilities Agency</i> Room: Bernard
10:00 a.m. – 10:30 a.m.	Potable Reuse Efforts - Silicon Valley Advanced Water Purification Center Pam John , <i>Santa Clara Valley Water District</i> Andrew Salveson , <i>Carollo Engineers</i>	Pilot-Scale Evaluation of the Closed-Circuit Desalination Process for Minimizing RO Concentrate Disposal Volume Bruce Mansell , <i>Sanitation Districts of Los Angeles County</i>	The Ways of Water – Communicating about IPR and DPR without the Acronyms Linda Macpherson , <i>CH2M HILL</i>	Panel Discussion: Recycled Water Funding and Drought Relief 2014 was a banner year for recycled water funding. This panel will explore how this funding can accelerate water supply projects during one of the worst droughts in the state's history and beyond. Dan Newton , <i>State Water Resources Control Board</i> Tracie Billington , <i>Department of Water Resources</i> David White , <i>Bureau of Reclamation</i>
10:30 a.m. – 11:00 a.m.	Breaking IPR Boundaries at Padre Dam's Advanced Water Purification Demonstration Project Brian Pecson , <i>Trussell Technologies</i>	Potable Reuse for Inland Applications: Pilot Testing Results from a New Potable Reuse Treatment Scheme Jim Lozier , <i>CH2M HILL</i>	Advancing DPR Public Acceptance: WRRF 13-02 Update & Research Findings Mark Millan , <i>Data Instincts, Public Outreach Consultants</i>	 James Bodnar , <i>Metropolitan Water District of Southern California</i> Maria Mariscal , <i>San Diego County Water Authority</i>
11:00 a.m. – 11:30 a.m.	Full-Scale Testing of Alternative UV Advanced Oxidation Processes for the Vander Lans Water Treatment Facility Greg Wetterau , <i>CDM Smith</i>	Use of T-MBR for Producing Ammonia Free Recycled Water for Industrial Reuse Ufuk Erdal , <i>CH2M HILL</i>	Enhancing the Pure Water San Diego Community Outreach Program: A Partnership with the University of San Diego Brent Eidson , <i>City of San Diego Public Utilities Department</i>	

11:30 a.m. – 12:00 p.m.	Scaling-up Advanced Oxidation Process (AOP) from Pilot to Full Scale - an Investment Decision Roshanak Aflaki, <i>City of Los Angeles</i>	Maximizing Water Use and Minimizing Sewer Discharge Patrick Stahl, <i>MWH</i>	Advocacy is in the Eye of the Stakeholder Serge Haddad, <i>Los Angeles Department of Water and Power</i>	Update on Metropolitan's Local Resources Program Ray Mokhtari, <i>Metropolitan Water District of Southern California</i>
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12:00 p.m. – 1:30 p.m. Gordon Cologne Luncheon (*Crystal Ballroom*)

	A2: Meeting Potable Reuse Regulations	B2: Recycled Water Applications	G2: Recycled Water & Alternative Funding	D2: Panel Discussion: Opportunities and Challenges for Agricultural Water Reuse
	Moderator: Seval Sen, <i>RMC Water and Environment</i> Room: Emerald	Moderator: John Robinson, <i>John Robinson Consulting</i> Room: Heinsbergen	Moderator: Steven Friedman, <i>HDR</i> Room: Tiffany	Moderator: AG Kawamura, <i>Orange County Produce</i> Room: Bernard
1:30 p.m. – 2:00 p.m.	Permitting IPR Under the New 2014 CDPH (DDW) Regulations - Measured Steps for Rapid Regulatory Approval Dan Rydberg, <i>Oxnard</i> Andrew Salveson, <i>Carollo Engineers</i>	FILL 'ER UP! Drought Relief Through Recycled Water Fill Station Cheryl Muñoz, <i>San Francisco Public Utilities Commission</i> Stefanie Olson, <i>Dublin San Ramon Services District</i>	One Water LA: Building on the Success of the Water Integrated Resources Plan Doug Walters, <i>City of Los Angeles, Bureau of Sanitation</i>	Growers in California are increasingly looking to recycled water as a way to consistently meet their irrigation demands in the face of growing water scarcity and pollution concerns.
2:00 p.m. – 2:30 p.m.	Demonstrating the Compliance of Direct Potable Reuse Treatment Trains with Public Health Criteria Fredrick Gerringer, <i>Trussell Technologies</i>	Using Recycled Water for Ice Hockey at the Citizens Business Bank Arena, Ontario, CA Thomas Holliman, <i>East Valley Water District</i>	Recycled Water as Part of a Larger Solution Paul Friedlander, <i>Carollo Engineers</i>	AG Kawamura, <i>Orange County Produce and Former California Secretary of Agriculture</i>
2:30 p.m. – 3:00 p.m.	Using Real-time Online Operational Monitoring Data to Validate Ongoing Pathogen Control for an Indirect Potable Reuse Project Cathy Chang, <i>Water Replenishment District of Southern California</i>	Using recycled Water for Landscape Irrigation: Planning for Success Nelda Matheny, <i>HortScience, Inc.</i> Eric Hansen, <i>City of San Jose, South Bay Water Recycling</i>	Field Demonstration of a Low-Cost Graywater Treatment System for Aboveground Nonpotable Water Reuse in the City of Los Angeles Zita L.T. Yu, <i>UCLA</i>	Dave Puglia, <i>Sr. Vice President, Western Growers Association</i> Tess Dunham, <i>Attorney, Somach, Simmons & Dunn</i>
3:00 p.m. – 3:30 p.m.	Networking Break (<i>Gold Room</i>)			
3:00 p.m. – 3:30 p.m.	Student Poster Sessions (<i>Main Galeria Foyer</i>)			
3:00 p.m. - 3:10 p.m.	Surface Nanostructuring with Polymer Brush Layers for Fouling Resistant Ultrafiltration (UF) Membranes Soomin Kim, <i>UCLA</i>			
3:10 p.m. - 3:20 p.m.	Treatment Methods and Regulations for Contaminants of Emerging Concern in RO Brine Concentrate Travis Romeyn, <i>California State Polytechnic University, Pomona</i>			
3:20 p.m. - 3:30 p.m.	Field Deployment of Smart Integrated Membrane Systems Technology For Cooling Tower Water Treatment and Reuse Han Gu, <i>UCLA</i>			
3:30 p.m. – 5:00 p.m.	Town Hall Plenary Session: What Will Be the Catalyst that Propels California to Direct Potable Reuse? (<i>Crystal Ballroom</i>)			
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	A3: Regulatory Moderator: Evelyn Cortez-Davis , <i>Los Angeles Department of Water and Power</i> Room: Emerald	B3: Research Moderator: Ufuk Erdal , <i>CH2M HILL</i> Room: Heinsbergen	C3: Case Studies: Out of State Moderator: Rob Morrow , <i>RMC Water and Environment</i> Room: Tiffany
10:00 a.m. – 10:30 a.m.	Department of Drinking Water Updates Cindy Forbes , <i>State Water Resources Control Board</i>	Effects of Ozone and Biofiltration on Membrane Performance of IMGD Potable Reuse Demonstration Facility Aleks Pisarenko , <i>Trussell Technologies</i>	Beenyup Advanced Water Recycling Plant: The Perth, Australia Groundwater Replenishment Scheme Jim Lozier , <i>CH2M HILL</i>
10:30 a.m. – 11:00 a.m.	The Who, What, Where, When and Why of the State Water Board General Order for Recycled Water Use Annalisa Kihara , <i>State Water Resources Control Board</i>	Required CT Value for 5-log Virus Inactivation in a Full-Scale Chlorine Contactor Michael Adelman , <i>MWH</i>	The Advent of True Direct Potable Reuse Brent Alspach , <i>ARCADIS</i>
11:00 a.m. – 11:30 a.m.	Salt and Nutrient Management Plans - Where are We and What Have We Learned? Sally McCraven , <i>Todd Groundwater</i>	Comparison of Two Disinfection Strategies Prior to Soil Aquifer Treatment for Potable Reuse Shane Trussell , <i>Trussell Technologies</i>	The WaterHub at Emory University - Extending the Lifecycle of our Water Jonathan Lanciani , <i>Sustainable Water</i>
11:30 a.m. – 12:00 p.m.	Recycled Water Reporting in the 2015 Urban Water Management Plans and Linkage to the 2015 Recycled Water Survey Toni Pezzetti , <i>Department of Water Resources</i>	Real-Time Detection and Characterization of Reverse Osmosis Membrane Integrity Sirikarn Surawanvijit , <i>UCLA</i>	Water Quality Testing at the Raw Water Production Facility in Big Spring, Texas Paves the Road for Future Direct Potable Reuse Projects Eva Steinle-Darling , <i>Carollo Engineers</i>
12:00 p.m. – 1:00 p.m.	Networking Lunch (<i>Gold Room</i>)		
12:45 p.m. – 4:30 p.m.	Technical Tour: Behind-the-Scenes Warner Bros Studio Tour (<i>additional fees apply, departing from the Hotel Lobby</i>)		
	A4: Planning & Program Issues - Part 1 Moderator: Reymundo Trejo , <i>Upper San Gabriel Valley Water District</i> Room: Emerald	B4: Operation & Maintenance Moderator: Marc Serna , <i>Moulton Nigel Water District</i> Room: Heinsbergen	C4: Public Outreach & Education - Part 2 Moderator: Patsy Tennyson , <i>Katz & Associates</i> Room: Tiffany
1:00 p.m. – 1:30 p.m.	California's Drought: How Can the Sanitation Districts Help? Earle Hartling and Lysa Gaboudian , <i>Sanitation Districts of Los Angeles County</i>	Application of Control Chart Theory for Online Critical Control Point Monitoring Raul Gonzalez , <i>Orange County Water District</i>	Engaging Future Ratepayers in Los Angeles Jennifer Valdez , <i>Los Angeles Department of Water and Power</i>
1:30 p.m. – 2:00 p.m.	The Far, Near, and Here of LA's Water Recycling Program George Zordilla , <i>Los Angeles Department of Water and Power</i>	Identifying Effective Control Strategies through Operational Modeling, South Bay Water Recycling, CA Case Study Kevin Trott , <i>IDModeling, Inc.</i>	Can Education Eliminate the Ick Factor?: Measuring Acceptance Levels of Reclaimed Water Use Through Education Elizabeth Moody and Stephanie Hunting , <i>Cannon</i> Rebekah Oulton , <i>California Polytechnic University, San Luis Obispo</i>

2:00 p.m. – 2:30 p.m.	<p>Twenty Years of Purple Pipe: What will the Next Twenty Years Bring for West Basin?</p> <p>Joe Walters, <i>West Basin Municipal Water District</i></p>	<p>AOP for Control of Biofouling of RO Membranes</p> <p>Jason Wert and Michele Braas, <i>RETTEW Associates, Inc.</i></p>	<p>Dilemma of Watter Quandary</p> <p>Linda Macpherson, <i>New Water Resources</i></p>
2:30 p.m. – 3:00 p.m.	Networking Break (<i>Gold Room</i>)		
	<p>A5: Planning & Program Issues - Part 2</p> <p>Moderator: Kim Wilson, <i>CH2M HILL</i></p> <p>Room: Emerald</p>	<p>B5: Reuse & the California Drought</p> <p>Moderator: Mir Fattahi, <i>NCE</i></p> <p>Room: Heinsbergen</p>	<p>C5: Recycled Water Innovations & Sustainability</p> <p>Moderator: Jean Debroux, <i>Kennedy/Jenks Consultants</i></p> <p>Room: Tiffany</p>
3:00 p.m. – 3:30 p.m.	<p>South Bay Water Recycling: Expanding Role in Stabilizing the Water Supply of Silicon Valley - Part 1 Strategic Planning</p> <p>Kerrie Romanow, <i>City of San Jose, South Bay Water Recycling</i></p>	<p>Advancing Water Reuse to Help Meet California's Water Needs</p> <p>Wendy Broley, <i>California Urban Water Agencies</i></p>	<p>You Can Have it Both Ways: Maximizing Recycled Water Use, Protecting Fish and Wildlife</p> <p>Ben Giudice, <i>Robertson-Bryan, Inc.</i></p>
3:30 p.m. – 4:00 p.m.	<p>Regulatory Incentives and Disincentives to Recycled Water Production</p> <p>Logan Olds, <i>Victor Valley Wastewater Reclamation Authority</i></p> <p>Denise Connors and Betsy Elzufon, <i>Larry Walker Associates</i></p>	<p>Understanding the Potential Impacts of Climate Change on Water Resources in Southern California</p> <p>Brianna Rita Pagan, <i>Loyola Marymount University</i></p>	<p>City of Escondido's Future Advanced Reuse Facilities: Expanding Recycled Water Use to Support the Local Economy</p> <p>James DeCarolus, <i>Black & Veatch</i></p>
4:00 p.m. – 4:30 p.m.	<p>Protection of Highly Valued Water Resources Impacted by Groundwater-Surface Water Interconnections through Maximized Recycled Water</p> <p>Steve Clary, <i>RMC Water and Environment</i></p>	<p>Maximizing Reclamation Potential by Local Optimization of Resources</p> <p>Kartiki Naik, <i>UCLA</i></p>	<p>Accelerating New Technologies to Solve Water Challenges</p> <p>Wigs Mendoza, <i>Metropolitan Water District of Southern California</i></p>





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Irvine Ranch Water District Water Recycling. Innovative Approach. Reliable Source.



Membrane Bioreactor at the IRWD Michelson Water Recycling Plant.



Google's new office building in Irvine is dual-plumbed and has an outside balcony irrigated with recycled water.



The dual-plumbed City of Lake Forest Sports Park is one of the largest sports parks in Orange County.

IRWD Michelson Plant Expansion

In 2014, IRWD expanded its Michelson Water Recycling Plant treatment capacity from 18 million gallons per day to 28 million gallons per day to meet the growing recycled water needs of its customers. The plant's new technology includes membrane filtration and ultraviolet disinfection.

Dual-Plumbed Buildings

Since 1991, IRWD has served recycled water in dual-plumbed commercial buildings for toilets, urinals, trap primers and make-up water to cooling towers. In 2014, six more dual-plumbed commercial buildings were connected to recycled water. There are currently 62 dual-plumbed commercial buildings with an additional nine dual-plumbed commercial buildings under construction.

City of Lake Forest Sports Park

The City of Lake Forest completed construction in 2014 of an 86-acre sports complex irrigated with recycled water. Park amenities include: A dual-plumbed recreational center building and two dual-plumbed club-houses, four baseball fields, two soccer fields, two tot lots, one soft ball field, outside basketball courts, a grass area amphitheater designed for large community events, a multi-use turf field, picnic areas, a bio-retention area and walking trails. In total, it is estimated that the park will use 40 million gallons of recycled water annually. The City of Lake Forest has been nominated by IRWD for the 2015 WaterReuse Recycled Water Customer of the Year Award.

Dual-Plumbed Single Family Lots

IRWD has served recycled water to dual-plumbed single family lots since 1993. There are more than 600 dual-plumbed single family lots with front and backyard irrigation in IRWD and an additional 30 lots currently under construction. These single family lots range from 10,000 square feet to 100,000 square feet.

Overall: In 2014, IRWD connected 106 additional sites to recycled water. This brings the total number of recycled water sites to more than 5,200 which saved more than 7 billion gallons of potable water in 2014.



IRWD continues to add to the number of single family lots, like this one, with front and backyard dual-plumbed irrigation.



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Participants of the RWAG



RWAG tours at Tillman
Water Reclamation Plant

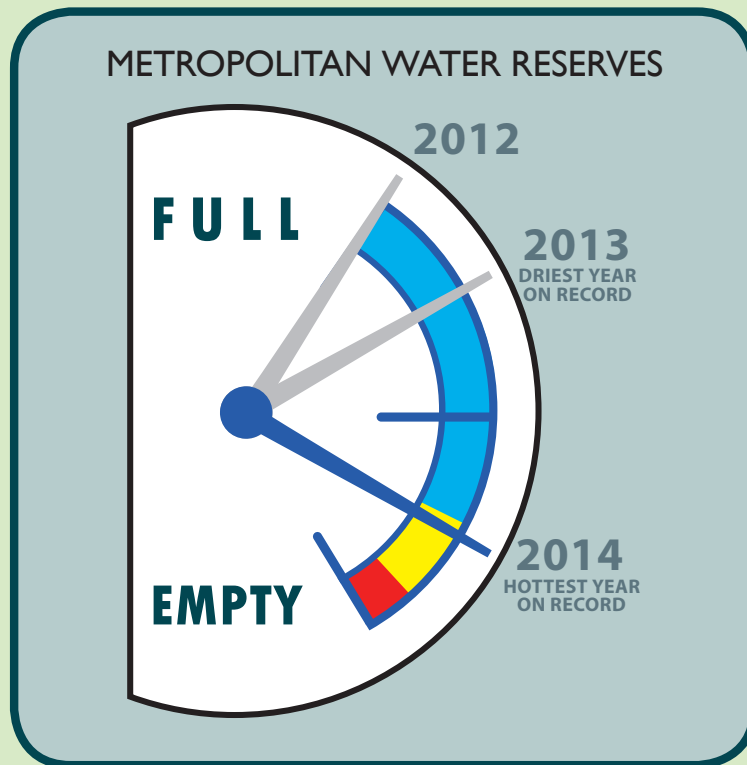


RWAG Workshops

The City's RWAG is a group of approximately 60 key stakeholder organizations, formed in 2009 to provide input and ideas related to increasing the amount of recycled water beneficially used in Los Angeles. The group has provided significant feedback in the development and implementation of the City's Recycled Water Master Planning documents. RWAG participants reflect a wide diversity of interests, including neighborhood councils, environmental groups, business organizations, and recycled water customers.



RESPONDING TO DROUGHT



The Metropolitan Water District of Southern California and its 26 member public agencies have spent the past 25 years preparing for drought by investing in diverse water sources, becoming a leader in conservation, wastewater recycling and groundwater recovery. These investments to date exceed \$1 billion with cumulative savings of nearly 18 million acre-feet of water and include:

- \$352 million for conservation programs
- \$356 million for recycled water projects
- \$125 million for groundwater recovery projects



*THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA*

REGIONAL PROGRESS REPORT

An Annual Report to the California State Legislature
on Achievements in Conservation, Recycling and
Groundwater Recharge



GWRS

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The Orange County Water District's Groundwater Replenishment System is the world's largest advanced water purification system for potable reuse. It takes treated wastewater that would otherwise be sent to the Pacific Ocean, and purifies it using an advanced three-step process consisting of microfiltration, reverse osmosis and ultra violet light with hydrogen peroxide.



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AS SEEN ON



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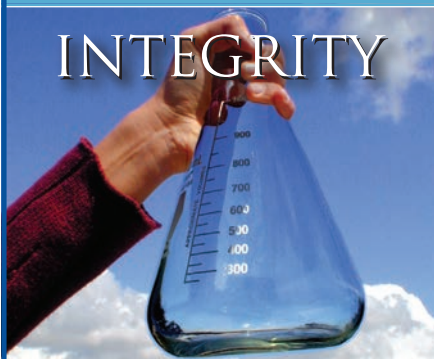


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- Permitting
- Construction Management
- Design-Build



Carlsbad Seawater Desalination Plant, KSD Joint Venture



Irvine Desalter Project, Irvine Ranch Water District



Groundwater Replenishment System Program, OCWD & OCSD



Brackish Groundwater Desalination Plant, San Antonio Water System



As-Needed Engineering Services Projects, West Basin Municipal Water District



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To see how Xylem is making water reuse a reality visit booth #18 at the WaterReuse California Annual Conference March 15-17 in Los Angeles, CA.



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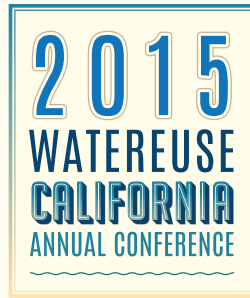


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