



WATERREUSE

SYMPOSIUM

SEPTEMBER 10-13, 2017

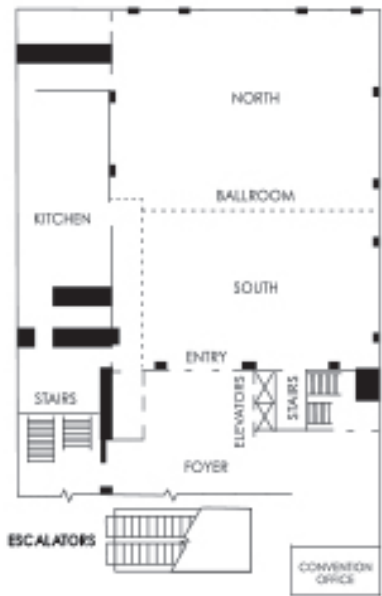
Renaissance Phoenix Downtown
Phoenix, Arizona



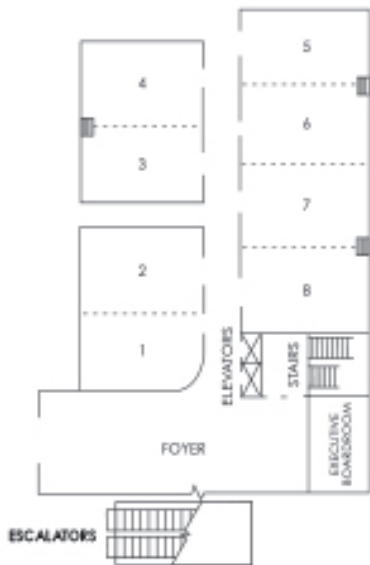
ONSITE PROGRAM BOOK

EXHIBIT HALL FLOOR PLAN

Ballroom Level
3rd Floor



Salon Level
2nd Floor



Street Level



General Information

Exhibit Hall

The Exhibit Hall is the central hub for the WateReuse Symposium and is located in the Grand Ballroom.

The Exhibit Hall will be open during the following times:

Sunday, Setpember 10	3:00 p.m. - 6:30 p.m.
Monday, Setpember 11	7:30 a.m. - 3:30 p.m.
Tuesday, Setpember 12	7:30 a.m. - 3:30 p.m.

Conference Wi-Fi

Stay connected at the Symposium thanks to Arcadis, the official Conference Wi-Fi Sponsor.



Connect your device to: **WateReuseThanksArcadis**
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AZ Pure Water Brew Challenge – Beer Tasting Event

Sunday, September 10	5:00 – 6:30 p.m.
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The AZ Pure Water Challenge is a statewide campaign to better inform Arizonans about water issues, water reuse and technologies to purify recycled water, producing safe, high-quality drinking water.

To help spread the word, brewers throughout the state will produce beer with the Pure Water from our mobile purification system and compete for prizes at the Pure Brew Challenge during the Welcome Reception on Sunday evening at the WateReuse Symposium in Phoenix, AZ.

Find out more at www.azpurewaterbrew.org

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Kids Recycled Water Art & Writing Contest

Winning entries from the 32nd Annual WateReuse Symposium Recycled Water Art and Writing Contest will be on display throughout the conference. The purpose of the art and writing

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contest was for students to promote the importance of water management and the infinite possibilities for conserving, protecting, and advancing technologies and projects that result in greater water reuse, recycling and efficient management of water resources. The winning entries will also be recognized during the Awards Luncheon on Tuesday, September 12th.

Networking Dinner at The Duce

Tuesday, September 12	6:00 – 10:00 p.m.
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Walking Directions can be found in your registration packet

We hope you will join us on Tuesday evening for the final networking event of the conference which will include great food and drinks, live music by The Instant Classics and networking with colleagues in this unique setting.

Where pretty meets gritty and produce meets prohibition. The Duce is a warehouse turned bar, featuring vintage handmade cocktails and dishes reminiscent of Mom's 1960's kitchen...a soda fountain featuring fresh made ice cream...an old-school gym and boxing ring... where you can hang out in the bleachers, hula hoop, play ping pong, shuffleboard, and foosball. This is sure to be a fun evening for all!

Featured on:

- Food Network:** Diners, Drive-Ins & Dives
- CNN Travel:** 10 of America's Wackiest Restaurants
- Arizona Highways Television:** Coolest and hippest place in downtown Phoenix



Symposium Mobile App

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

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TETRA TECH

- Browse the technical program by time, speaker or track and create your own personalized agenda
- View presentation descriptions and learning objectives
- 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 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

To Download the Conference Mobile App:

- Search the App Store for “WateReuse” by DoubleDutch
- Once you download the WateReuse App, choose the “32nd Annual WateReuse Symposium”

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.

PowerPoint Presentations

PowerPoint Presentations can be found on the Symposium Mobile App under each Session and Presentation. ***Following the conference, an email will be sent out with a link where you can access the PowerPoint presentations as well.***



Professional Development Hours (PDHs) and Continuing Education Units (CEUs)

The WateReuse Symposium is pleased to offer Professional Development Hours (PDHs) for **all** states and Continuing Education Units (CEUs) in **California**.

How many educational credits can I earn at the Symposium?

By attending all sessions on Sunday, Monday, Tuesday, and Wednesday, you can earn up to 1.85 Continuing Education Units (CEUs) and 18 Professional Development Hours (PDHs).

How do I earn educational credits at the Symposium?

In order to receive **CEU credit**, you will be required to sign-in and sign-out of every session you attend. If you forget to sign-in or sign-out of a session, you will not receive credit for that session; you must do both at every session you attend.

In order to receive **PDH hours**, you will need to complete the PDH form 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 WateReuse office after the conference.

When will I receive credits for the Symposium?

Certificates and transcripts will be made available to participants electronically within 3-4 weeks after the Symposium. Please keep in mind that, although WateReuse does provide these files, most states will require the individual licensee to report continuing education credits.

General Information

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

CEU and PDH Credit Calculations:

1.0 CEU = 10 Hours of session time

1.0 PDH = 1 Hour of session time

1.0 Contact Hour = 1 Hour of session time

For Example: 1.2 CEU Credits = 12.0 PDH Credits or 17.0 PDH Credits could equate to 1.7 CEU Credits depending on individual state regulations.

Thank you to our Symposium Sponsors and Supporting Organizations for their Support!



Please be sure and check out the Sponsor listings on the Symposium Mobile App where you can view their full contact information, company description, as well as valuable handouts and downloads from each.

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2017 WaterReuse Award Winners

Congratulations to our 2017 WaterReuse Award Winners!



Be sure and view the Award Winners icon on the Symposium Mobile App where you can find the full award description as well as an informational video they have each put together for the attendees to view.

WaterReuse Project of the Year – Large

Liberty Aquifer Replenishment Facility (Goodyear, AZ)

WaterReuse provides guidance and advocacy to support sensible, technically sound and economically efficient uses for reclaimed water. These principles are strongly embodied in the Liberty Aquifer Replenishment Facility (LARF), a joint project of Liberty Utilities and the Central Arizona Groundwater Replenishment District (CAGRD), a division of the Central Arizona Water Conservation District.

The LARF was constructed in 2016 and began operation in early 2017. The LARF, located in the western part of the greater Phoenix metropolitan area, was designed to beneficially reuse over 5 million gallons per day (mgd) of highly-treated reclaimed water to enhance the reliability of potable water supplies for Liberty Utilities customers, while also providing a renewable long-term water supply to support groundwater replenishment in central Arizona. While CAGRD provided much of the funding for the LARF, the facility is wholly owned and operated by Liberty Utilities.

The LARF, built using a first-of-its-kind public-private partnership, represents the highest standards of responsible water resource stewardship with fiscally responsible utility operation. It represents sustainable water resource management in a region that had experienced significant groundwater overdraft and turns a cost into an asset that will provide significant long-term benefits to the customers of Liberty Utilities.

WaterReuse Project of the Year – Small

Vadose Injection Project/City of Goodyear, Arizona (Goodyear, AZ)

The City of Goodyear is generating nearly 4,000 acre-feet per year (3.6 MGD) of reclaimed water at the 157th Ave Water Reclamation Facility. A beneficial disposal solution is recharging the reclaimed water to the aquifer via vadose zone injection wells. The Vadose Injection Project (VIP) allows the City to maximize the benefit of this water supply and ensures more sustainable

water resource management, i.e. droughtproofing. The reclaimed water can be recovered via permitted recovery wells and served within the City's potable water supply system (indirect potable reuse) minimizing the need for purple pipe infrastructure. Additional benefits include improving local water quality, banking long-term groundwater storage credits, and use of the recharged water to meet Arizona groundwater replenishment obligations.

A significant challenge to the VIP is its proximity to two Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites and one State Water Quality Assurance Revolving Fund (WQARF) site. The City partnered with the Environmental Protection Agency (EPA), Arizona Department of Environmental Quality (ADEQ), and responsible parties to ensure that water level rises resulting from the reclaimed water recharge does not cause unreasonable harm to the groundwater remediation activities. The well locations were strategically chosen based on groundwater modeling which indicated the recharge activities may even enhance capture of the constituents of concern. Installation of four of the fifteen planned vadose zone wells was completed in January 2017 and are currently operational. More vadose zone wells are planned to coincide with the ongoing plant expansion activities.

WaterReuse Industrial Project of the Year

Evoqua Water Technologies & Air Products – Brine Recovery Reverse Osmosis (Los Angeles, CA)

Evoqua and Air Products installed Brine Recovery Reverse Osmosis technology to reduce water and wastewater impact by up to 75 million gallons a year.

The solution was implemented near Los Angeles at Air Products' plant to address water scarcity during seasonal drought. This facility produces pure hydrogen for a variety of customers, including zero-emission hydrogen fuel cell vehicles.

The plant uses 1.75 million gallons of water per day to produce steam for the hydrogen production process. To clean this influent water stream, Air Products uses reverse osmosis (RO) membranes installed and operated by Evoqua. This main RO system produces a concentrate which was previously being sent to waste. Air Products, in cooperation with one of their customers, engaged Evoqua to install an additional RO purification system that would recover the brine, clean it, and recycle it back to the main RO system, offsetting the total water used by the plant. As a result of the anticipated water reduction, Air Products was awarded financial incentives from both the Los Angeles Department of

Water & Power and the Metropolitan Water District of Southern California.

Since startup, the system has been saving more than 125,000 gallons of water daily. Once system operation is tuned to maximum efficiency, anticipated savings will be 200,000 gallons of water per day, totaling up to more than 75 million gallons a year, with a corresponding reduction in wastewater flow. Improvements will continue for the lifetime of the plant, and Air Products is currently expanding the solution to a second plant.

WaterReuse Agriculture Project of the Year

Farming Reimagined: Advancing Urban Agriculture with Water Reuse Technology (St. Paul, MN)

In many parts of the world, farmers face a short growing season for highly perishable crops and increasingly long distances to cover getting their products to market. Combined with the world's growing population, increased urbanization, water scarcity concerns and overfished oceans, and it's clear the future will require new ways to produce food sustainably and profitably.

Enter Urban Organics. In 2012, a team of entrepreneurs had a vision to turn an abandoned brewery building in St. Paul, Minn., into an 8,000-square-foot indoor aquaponics farm. Aquaponics combines aquaculture and hydroponics to create a symbiotic relationship that provides clean water for the fish, and organic nutrients for the plants.

Pentair worked with Urban Organics to design and install a Recirculating Aquaculture System, the technical solution that facilitates the reuse and recirculation of water and nutrients from the fish to the plants and back. The initial farm opened in 2014, and resulting benefits include:

- **Reduced Water:** Uses 90 percent less water than traditional methods to grow produce.
- **Reduced Energy:** Incorporates a gravity-fed design and energy-efficient pumping technology.
- **Increased Yield:** Increases of produce cycle time are up to 40 percent faster than conventional farming.

With this success, in 2017 Urban Organics and Pentair opened its second farm location — an 87,000-square-foot indoor aquaponics facility in the former Schmidt's brewery building in St. Paul. This is one of the largest commercial aquaponics facilities in the world with the capacity to annually produce approximately 275,000 lbs. of fish and approximately 475,000 pounds of organic produce annually.

WaterReuse Institution of the Year

Water & Energy Sustainable Technology Center (WEST) (Tucson, AZ)

The University of Arizona WEST Center aspires to be a world-renowned venue for interdisciplinary research, and development of water treatment technologies, contaminant monitoring tools, energy minimization and production, and hands-on educational and training components. The WEST Center is co-located with a full-scale modern water reclamation facility Agua Nueva resulting in a public-private partnership with Pima County Wastewater and City of Tucson Water. This partnership is further endorsed by multiple major private sector companies who provide funding through WEST Memberships. These partnerships result in cutting-edge research within the water: energy nexus, and the ability to rapidly evaluate innovative technologies and solve newly emerging contaminant problems. In addition to research and technology, the development of short courses for utility personnel training programs, and close interaction with UA graduate and undergraduate students provide educational resources. Overall, WEST provides the opportunity to pioneer new research and technology that can assure the community a supply of a sustainable, safe water for the foreseeable future.

The overall objectives of WEST include:

- Develop, evaluate and demonstrate technologies that advance water and energy sustainable solutions
- Provide an holistic view/life cycle analysis of the critical water/energy nexus through state-of-the-art research
- Facilitate technology transfer between UA, public utilities, and the private sector
- Promote jobs and economic stimulus within the community
- Educate and train technicians, utility personnel, and UA students
- Educate the community about the water/energy nexus
- Directly assist the region and the world in demonstrating the safety and reliability of recycled water

WaterReuse Innovative Project of the Year

pureALTA – An Innovative Potable Reuse Demonstration Pilot without RO (Altamonte Springs, FL)

The City of Altamonte Springs has been a pioneer in reuse with the implementation of one of the first reuse projects for residential

irrigation in Florida, project APRICOT (a Prototype Realistic Innovative Community of Today), in the late 1980's and with A-FIRST (Altamonte-FDOT Integrated Reuse and Stormwater Treatment) in 2015. pureALTA is the latest project aimed at developing a high quality and viable alternative water supply for the future with a 28,800 GPD reuse demonstration pilot which produces highly purified potable water without using RO or generating the corresponding waste stream. pureALTA provides treatment of secondary non-disinfected filtered effluent using multiple barriers consisting O3/BAF, ultrafiltration (UF), granular activated carbon filtration (GAC), and ultraviolet light advanced oxidation process (UV AOP). The pilot has been operational for six (6) months and water quality results to date show that an O3/BAF based potable reuse treatment train can provide effective treatment for pathogens, regulated contaminants, contaminants of emerging concern, and other parameters that may pose a risk to human health. The data generated will assist the Florida Department of Environmental Protection in the development of specific regulations and criteria for direct potable reuse, which are currently not in place. A major educational effort includes adding the treatment train and water quality data to the Altamonte Science Incubator (AS2I) modules, which provides ongoing science outreach to over 3,300 middle school and high school students per year (see the Altamonte Science Incubator website at www.AltamonteIncubator.org).

WaterReuse Public Education Program of the Year **Orange County Water District** (Fountain Valley, CA)

The Orange County Water District (OCWD) has pioneered groundwater management for more than 80 years and water reuse for nearly 40 years and provides groundwater for 2.4 million residents in Orange County. In collaboration with the Orange County Sanitation District (OCSd), OCWD created the Groundwater Replenishment Systems (GWRS), the world's largest advanced water purification project of its kind.

Though the GWRS has been online since 2008, this past year OCWD embarked on new outreach initiatives to further solidify its worldwide reputation and garner support for other water reuse projects. New initiatives included leading efforts with WaterReuse California to pass legislation (AB 2022) that allows the bottling of advanced purified water for educational purposes. OCWD was the first to bottle such water in the Western Hemisphere. OCWD also opened its H2O Learning Center, which enhances GWRS facility tours. In addition, OCWD enriched its already robust outreach programs: translated technical brochures into four languages, added social media #H2ODrop signage in the GWRS plant and an electronic water mosaic to post photos, incorporated videos

created by WaterReuse and the Australian Water Recycling Center for Excellence (AWRCE) at its Children's Water Education Festival, created animated water cycle presentations for its tour and speakers bureau programs, and created STEM hands-on activities for middle school tour guests.

OCWD believes that its outreach should not stop just because its project is online. It is committed to continue spreading the word about the many benefits of water reuse in an effort to help bring more GWRS-like projects online.

WaterReuse Public Education Program of the Year **Water Citizen Academy/Scottsdale Water** (Scottsdale, AZ)

As part of the Scottsdale Water's ongoing Effective Utility Management program, a new project was initiated to improve Customer Satisfaction and Stakeholder Understanding and Support. In the fall of 2015, planning began on the development of a Water Citizen Academy. The vision for the Academy was to hold multiple classes for a small group of customers to educate them on operations, finance, regulatory and sustainability issues. Scottsdale Water's award winning Advance Water Treatment Facility and its indirect potable reuse system are an integral part of the Academy. After six months of planning, the first annual Water Citizen Academy was held in the spring of 2016. The classes consisted of presentations, facility tours and demonstrations with the information geared toward showing the quality, safety, security and sustainability of the potable and recycled water systems. Time was allowed in each session for questions, and requests for additional information. Based on feedback and customer requests for enrollment, the Academy is very successful and the goal of having participants gain an understanding of the complexity of the drinking water and reclaimed water systems is being met. Scottsdale's successful reuse of recycled water as irrigation for golf courses and Indirect Potable Reuse through recharge into the vadose zone is being accepted and applauded as a means of sustainability. Recruitment for the Academy is ongoing and there is a lengthy waiting list. Starting in the fall of 2017, the Academy will be held twice a year until the waiting list is exhausted.

WaterReuse Customer of the Year **Lake Mission Viejo Association** (Mission Viejo, CA)

ALake Mission Viejo Association (LMVA) is deserving of recognition as the 2017 WaterReuse Customer of the Year for their commitment to using recycled water for 100% of their irrigation demands and the innovative approach implemented to replacing potable water for lake refill demands. Lake Mission Viejo is a man-made

lake constructed in 1976, and first filled with potable water in 1978. Today, the lake is the first swimming and recreational lake in California to use recycled water instead of drinking water for supplemental lake refill.

The Santa Margarita Water District (SMWD), City of Mission Viejo (City), and LMVA formed a strong private-public partnership to fast-track and build an Advanced Treated Water Facility (ATWF) at an existing recycled water booster pump station located just south of the lake. The ATWF takes traditional tertiary treated recycled water and produces purified effluent for direct discharge and use in Lake Mission Viejo. Switching to Advanced Purified Water (APW) for lake refill ended nearly 40 years of using up to 350 Acre-Feet of potable water every year to maintain water levels in the 125-acre Orange County lake.

Over the past year, LMVA has also worked with SMWD to convert all remaining domestic irrigation services to recycled water. Converting an irrigation system designed and installed in the 1970's required a significant investment in both labor and materials. LMVA hired irrigation specialists to identify and isolate mixed building and irrigation mainlines in addition to upgrading the irrigation system to use recycled water.

WaterReuse Person of the Year

Jeffrey J. Mosher, Chief Research Officer, Water Environment & Reuse Foundation (Alexandria, VA)

The National Water Research Institute, Orange County Water District, and Dr. George Tchobanoglous co-nominated Jeff Mosher as the 2017 WaterReuse Person of the Year for his outstanding leadership in advancing vital research and addressing significant challenges in the field of water reuse, particularly potable reuse. Through his 11 years of service at NWRI and now with the newly formed WE&RF, Jeff has set the bar like no other in our industry when it comes to water reuse. In particular, he has (1) demonstrated an in-depth understanding and national perspective of water reuse issues; (2) participated in water reuse activities that benefit communities in the U.S. and abroad; and (3) worked with the world's most progressive, forward-thinking, trailblazing projects on potable reuse, including in California, Texas, Washington, Virginia, Arizona, Nevada, and New Mexico. Perhaps his most influential work to date was his extraordinary leadership in managing an expert panel (2014-2016) to provide advice to the State of California on (1) developing water recycling criteria for indirect potable reuse using surface water augmentation and (2) determining the feasibility of developing criteria for direct potable reuse. The amount of resources, organizations, and work that went into supporting the

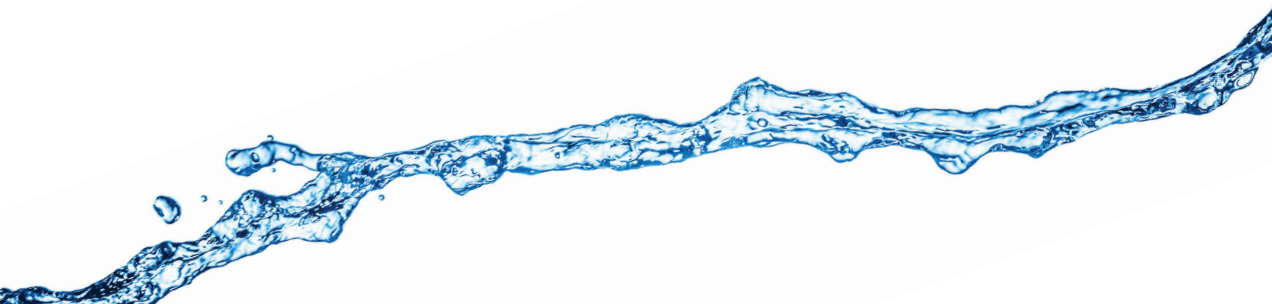
expert panel was astonishing, and Jeff right in the center of it all. Altogether, as a champion of water reuse and potable reuse, Jeff has personally helped regulators in need of information and guidance, helped utilities in need of project support and technical expertise, and helped communities in need of safe, reliable sources of water.

WaterReuse Young Professional of the Year **Germano Salazar-Benites, SWIFT Project Manager, Hampton Roads Sanitation District** (Virginia Beach, VA)

Since joining HRSD in 2011, Germano Salazar-Benites has made significant contributions to the fields of wastewater treatment and water reuse. He has been instrumental in the success of HRSD's Sustainable Water Initiative for Tomorrow (SWIFT): a regionally-beneficial water reuse project in eastern Virginia that plans to replenish shrinking groundwater supplies with up to 120 MGD of purified water. Germano manages technical and operational aspects of the SWIFT Pilot Facility in Seaford, Virginia, and will manage HRSD's \$25M SWIFT Research Center once completed in early 2018.

Originally from Peru, Germano earned a degree in Chemical Engineering from the Polytechnic University of Puerto Rico in 2010. He moved to the US in 2011 and gained a position as a Plant Operator at one of HRSD's 13 wastewater treatment facilities. He quickly proved himself to be a clear technical leader and was approached by administrators to solve complex treatment challenges, including achieving reliable nitrogen removal without costly capital upgrades at a historically underperforming facility. During this time, Germano earned a Class I Wastewater Works Operator License and M.S. in Environmental Engineering.

Germano continues to contributing to the water industry since being chosen to manage HRSD's SWIFT Pilot Facility in 2016. He has tackled numerous issues related to potable reuse and has aided in advancing acceptance of Carbon-Based potable reuse technologies through side-by-side comparison to the California Full Advanced Treatment approach (UF/RO/UVAOP). His success has led to Carbon-Based Advanced Water Treatment being the chosen process for the SWIFT Research Center and future SWIFT facilities.



Sunday, September 10, 2017

1:00 - 6:00 p.m.	Registration Open – Grand Ballroom Foyer (3rd Floor)			
1:30 - 2:30 p.m.	National Legislative & Regulatory Committee Meeting – Maricopa Room (Lower Level)			
Technical Sessions	A1: Reuse Boot Camp Part 1	B1: Salinity Topics	C1: Treatment Topics	D1: Advances in Desalination- Part I
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)	Salon 3-4 (2nd Floor)
Moderator	<i>Tim Thomure, Tucson Water</i>	<i>Kristan VandenHeuvel, Water Environment & Reuse Foundation</i>	<i>Ron Williams, CH2M</i>	<i>Jeff Mosher, Water Environment & Reuse Foundation</i>
1:30 - 2:00 p.m.	Looking for an overview of “all things” reuse? Join your colleagues at the Reuse Boot Camp to explore the many facets of reusing water. Speakers will define water reuse, provide case studies of why and how water is reused, and explore future trends in the industry.	Salinity: Reuse’s Phantom Menace <i>Robert McCandless, Brown and Caldwell</i>	Mainstream Anammox Biofiltration as Part of a Sustainable Water Reuse Approach <i>Sandeep Sathyamoorthy, Black & Veatch</i>	Current Status and Perspectives: RO, FO, PRO <i>Val Frenkel, Greeley and Hansen</i>
2:00 - 2:30 p.m.	Welcome/ Introduction to Reuse <i>Guy Carpenter, WaterReuse Association President</i>	Means to Control Salinity without Desalination Processes in Reuse Projects <i>Vijay Sundaram Stantec</i>	Design-Build of a 1 MGD Advanced Water Treatment Demonstration Facility for Managed Aquifer Recharge <i>Troy Walker, Hazen and Sawyer</i>	Piloting of Thin Film Nanocomposite RO Membranes for Indirect Potable Reuse in Orange County Water District’s GWRS <i>Dian Tanuwidjaja, LG Chem</i>
2:30 - 3:00 p.m.	Types of Reuse <i>Chuck Graf, ADEQ</i> Implementing Reuse <i>Erin Young, City of Flagstaff</i>	Beneficial Reuse of RO Concentrate at the City of Goodyear <i>Michael Hwang, CH2M</i>	Advancing the Knowledge of Ceramic MBR Performance for Municipal Water Reuse <i>Ahmed Hussein, Black & Veatch</i>	Potable Reuse Case Study for Full-scale Predesign of Reverse Osmosis with 95% Recovery <i>Shane Trussell, Trussell Technologies, Inc.</i>
3:00 - 6:30 p.m.	Exhibit Hall Open – Grand Ballroom (3rd Floor)			
3:00 - 3:30 p.m.	Networking Break – Grand Ballroom (3rd Floor) SPONSORED BY: WRD			
3:00 - 3:30 p.m.	Poster Presentations – Grand Ballroom Foyer (3rd Floor)			

Sunday, September 10, 2017 (continued)

Technical Sessions	A2: Reuse Boot Camp Part II	B2: Agricultural Reuse	C2: Risk and Human Health Topics	D2: Advances in Desalination – Part II
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)	Salon 3-4 (2nd Floor)
Moderator	<i>Tim Thomure, Tucson Water</i>	<i>Jean McLain, University of Arizona</i>	<i>Frank Johns, Tetra Tech</i>	<i>Michael Hwang, CH2M</i>
3:30 - 4:00 p.m.	Public Perception <i>Channah Rock, University of Arizona</i> Regulatory Context <i>Steve Camp, City of Flagstaff</i>	Bringing Recycled Water to Thirsty Central Valley Ag Lands: Navigating the Regulatory Framework <i>Penny Carlo, Carollo Engineers</i>	A Good Quantitative Microbial Risk Assessment takes More than a Slick Monte Carlo Simulation <i>Eva Steinle-Darling, Carollo Engineers</i>	Predicting RO Removal of Toxicologically Relevant Unique Organics <i>Daisuke Minakata, Michigan Technological University</i>
4:00 - 4:30 p.m.	Future of Reuse in Arizona <i>John Kmiec, Town of Marana Utilities Department</i>	New (Re)uses in Colorado: Acting Now to Ensure the Future of Colorado's Water <i>Allegra da Silva, Stantec</i> <i>Damian Higham, Denver Water</i>	A Tale of Two Trains: What Have We Learned about Demonstrating Water Safety from a Chemical and Biological Monitoring Program? <i>Jennifer Hooper, CDM Smith</i>	Performance Analysis of 20 Micron Self- Cleaning Disc Filter versus Cartridge Filters for RO Membrane Protection after Media filtration in a SWRO system <i>Peachie Hytowitz, Amiad Water Systems</i>
4:30 - 5:00 p.m.		Increasing the Use of Recycled Water for Irrigation of Agricultural Crops in the U.S. <i>Bahman Sheikh, Water Recycling Consultant</i>	Failure? - Extensive Data and Statistical Tools Demonstrate the Safety of DPR <i>Austa Parker, Carollo Engineers</i>	A Pilot-Scale Continuous Flow Photobioreactor to Improve Water Recovery from Reverse Osmosis- Based Brackish Groundwater Desalination <i>Harshad Kulkarni, Pacific Advanced Civil Engineering, Inc.</i>
5:00 - 6:30 p.m.	Welcome Reception & AZ Pure Water Brew Challenge – Beer Tasting Event – Grand Ballroom (3rd Floor) SPONSORED BY: CDM SMITH			

Monday, September 11, 2017

7:30 a.m. - 3:30 p.m.	Registration Open – Grand Ballroom Foyer (3rd Floor)		
7:30 a.m. - 3:30 p.m.	Exhibit Hall Open – Grand Ballroom (3rd Floor)		
7:30 - 8:30 a.m.	Continental Breakfast – Grand Ballroom (3rd Floor) SPONSORED BY: CAROLLO ENGINEERS		
8:30 - 10:00 a.m.	Opening Session – Pueblo Jr. Ballroom SPONSORED BY: HAZEN & SAWYER The Role of Reclaimed Water in Arizona's Water Resources Portfolio <i>Warren Tenney, Executive Director, Arizona Municipal Water Utilities Association</i> The Science of Communication: Persuading the Public to Accept Embrace Water Reuse <i>Melissa Marshall of Melissa Marshall Consulting LLC and TedTalk alumni</i> Science proves that water reuse is a proven method for providing a safe, reliable and locally-controlled water supply. Yet, public resistance to the water reuse projects is all too common in communities across America. Melissa Marshall may know why. It isn't the substance of the science. It may be the way we talk about the science. Melissa Marshall believes the future depends on the innovations of scientists and engineers like you, and she is passionate about helping you make a clear and compelling case for water reuse. During the opening plenary session, she will provide you with practical strategies to help you communicate successfully. Whether you are advocating for water reuse to elected leaders and policymakers, building a coalition of medical professionals who support water reuse, or talking to busy working moms about the safety of recycled water, Melissa will give you tips, tools and techniques to make the case.		
10:00 - 10:30 a.m.	Networking Break – Grand Ballroom (3rd Floor) SPONSORED BY: TROJAN UV		
10:00 - 10:30 a.m.	Poster Presentations – Grand Ballroom Foyer (3rd Floor)		
10:05 - 10:25 a.m.	Innovation Corner: Presentation by H2O Innovation – Grand Ballroom (3rd Floor) High Recovery Reverse Osmosis in Advanced Treatment Facilities <i>Naomi Jones, H2O Innovation</i>		
Technical Sessions	A3: Big Picture Session: National Perspectives	B3: Non-RO Potable Treatment Studies	C3: Water Quality Monitoring
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)
Moderator	<i>Melissa Meeker, Water Environment & Reuse Foundation</i>	<i>Adam Festger, TrojanUV</i>	<i>Maria Brady, Stantec</i>
10:30 - 11:00 a.m.	Water Infrastructure Finance and Innovation Act (WIFIA) Update <i>Jordan Dorfman, U.S. Environmental Protection Agency</i>	A Robust "Membrane-free" Advanced Treatment Solution for Inland IPR Projects <i>Vijay Sundaram, University of Nevada, Reno</i>	Pure Water Proof: Extensive Testing Leads to Water Quality Confidence <i>Andrew Salveson, Carollo Engineers</i>
11:00 - 11:30 a.m.	Effective Statutes and Regulatory Policies for Water Reuse <i>Karen Raucher, Corona Environmental Consulting</i>	Innovative Potable Water Purification Without RO - Direct Potable Reuse Demonstration Pilot in Central Florida <i>Pranjali Kumar, Carollo Engineers</i> <i>JoAnn Jackson, City of Altamonte Springs</i>	Comprehensive Sampling of MBR Systems and Full-scale Facilities for Pathogen Log Credits to MBR for Potable Reuse <i>Zakir Hirani, Stantec</i>

Monday, September 11, 2017 (continued)

11:30 - 12:00 p.m.	<p>Coast to Coast: Creative Water Reuse Options in the USA</p> <p><i>Rob Morrow, Woodard & Curran</i></p> <p>One Water: EPA Potable Water Reuse</p> <p><i>Ryan Albert, U.S. Environmental Protection Agency</i></p>	<p>Evaluating Human Health Risks Associated with Potable Reuse: Use of System Dynamics Models to Compare Reverse Osmosis and Ozone-biofiltration</p> <p><i>Erfaneh Amoveyan, UNLV</i></p>	<p>Using Adenosine Triphosphate as a Rapid Tool to Assess Microbiological Growth and Removal through a Recycled Water Treatment Plant</p> <p><i>Ashlee Donaher, LuminUltra Technologies</i></p>
12:00 - 1:00 p.m.	Networking Luncheon with Exhibitors – Grand Ballroom (3rd Floor)		
12:00 - 1:00 p.m.	Industrial Reuse Committee Meeting – Pima Room (Lower Level)		
12:00 - 1:00 p.m.	Potable Reuse Committee Meeting – Gila Room (Lower Level)		
12:35 - 12:55 a.m.	Innovation Corner: Presentation by Nanostone Water – Grand Ballroom (3rd Floor) Case Study of Nanostone UltraFilter Membrane <i>Brian Wise, Nanostone Water</i>		
Technical Sessions	A4: Big Picture Session: Industrial Reuse Scorecard	B4: Arizona Potable Reuse Session	C4: Decentralized Reuse
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)
Moderator	<i>Mel Butcher, Arcadis</i>	<i>Channah Rock, University of Arizona</i>	<i>Alan Rimer, EnviroTechNovations</i>
1:00 - 1:30 p.m.	<p>Scorecard for Evaluating Opportunities in Industrial Reuse</p> <p>This panel features investigators of industrial water reuse and their industrial partners. Panelists will cover: obstacles to implementation of water reuse projects in industry; how to understand the true versus perceived cost of water in the industrial setting; and provide an overview of the Scorecard tools under development.</p>	<p>Is there life after SCAPR?</p> <p>Join us for an update and group discussion on the future of potable reuse in Arizona. Stakeholders that are actively developing the regulatory framework will provide their perspectives on the process to date and what the future may hold. This will be your opportunity to weigh-in on the current direction and help shape how potable reuse projects will be developed to meet public health and water management objectives. If you are interested in potable reuse in Arizona - then this is the conversation you want to join!</p>	<p>Demonstration of Decentralized Direct Potable Water Reuse in San Francisco and Beyond</p> <p><i>Manisha Kothari, San Francisco Public Utilities Commission</i></p> <p><i>Andrea Corral, Carollo Engineers</i></p>
1:30 - 2:00 p.m.	<p><i>Mel Butcher, Arcadis</i></p> <p><i>Brian Moore, Arcadis</i></p> <p><i>Neil Kern, Duke Energy</i></p> <p><i>Nicole Krenner, 3M</i></p> <p><i>Todd Williams, GM</i></p>		<p>Performance Evaluation of a Sequencing Batch Membrane Bioreactor Using Principal Component Analysis</p> <p><i>Kathryn Newhart, Colorado School of Mines</i></p>
2:00 - 2:30 p.m.			<p>In-Stream Wetland as a Potential Low Cost Treatment Technology in Rural Areas</p> <p><i>Ashraf Ismail, Drainage Research Institute, National Water Research Center</i></p>
2:30 - 3:00 p.m.			<p>Decentralized Water Reuse Focused on Water-Energy Nexus</p> <p><i>Zach Gallagher, Natural Systems Utilities</i></p>
3:00 - 3:30 p.m.	Networking Break – Grand Ballroom (3rd Floor) SPONSORED BY: TROJAN UV		

Monday, September 11, 2017 (continued)

3:00 - 3:30 p.m.	Poster Presentations – Grand Ballroom Foyer (3rd Floor)		
3:05 - 3:25 p.m.	Innovation Corner: Presentation by Toray Membrane USA – Grand Ballroom (3rd Floor) Higher packing density and improved cleaning efficiency with Toray's New High Performance (NHP) MBR Module <i>Sean Carter, Toray Membrane USA</i>		
Technical Sessions	A5: Big Picture Session – Reuse Challenges and Solutions	B5: DPR Technical Considerations	C5: Industrial Reuse
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)
Moderator	<i>Guy Carpenter, Carollo Engineers</i>	<i>Joe Jacangelo, Stantec</i>	<i>Katharine Dahm, U.S. Bureau of Reclamation</i>
3:30 - 4:00 p.m.	Reuse Pricing: Challenges and Opportunities <i>Robert Raucher, Corona Environmental Consulting</i>	Nitrosamines and Precursors Control Strategies for Potable Reuse <i>Joline Munoz, City of Los Angeles</i>	Multipurpose Use of Municipal Reclaimed Water at Nuclear Power Plant <i>Mohammad Badruzzaman, Stantec</i>
4:00 - 4:30 p.m.	Coming to Terms: Understanding and Resolving Critical Issues in Water Reuse Agreements <i>Eric Rosenblum, Envirosppectives</i> <i>Tracy Clinton, Carollo Engineers</i>	Behind the Trailer Doors: Mobile DPR Technology Powering the AZ Pure Water Brew Challenge <i>George Maseeh, Carollo Engineers</i> <i>Jim Lozer, CH2M</i>	Reuse of High Strength Wastewater in the Dairy Industry <i>Gerard Van Gils, Kemco Systems Co LLC</i>
4:30 - 5:00 p.m.	Successful Water Reuse Communication Techniques Illustrated <i>Patricia Tennyson, Katz & Associates</i>	Development of Blending Guidelines for Water from DPR Facilities <i>Justin Sutherland, Carollo Engineers</i>	Maximizing Water Recycling in Automotive Manufacturing in a Water-Stressed Region <i>Daniel Olson, Arcadis</i>
5:00 - 5:30 p.m.	Seeing is Believing: How to Make the Most of Your Demonstration Facility <i>Brent Eidson, City of San Diego Public Utilities Department</i> <i>Sara Katz, Katz & Associates, Inc.</i>	To Pilot Test or Not to Pilot Test, That is the Question <i>Bruce Chalmers, CDM Smith</i>	Optimizing Water Reuse: An Advanced Water Balance Tool for Innovative Decision Support <i>Charlie He, Carollo Engineers</i>
5:00 - 6:30 p.m.	International Advisory Group Meeting – Maricopa Room (Lower Level)		
6:00 - 10:00 p.m.	Monday Night Optional Event Arizona Diamondbacks Baseball Game (additional fees apply) SPONSORED BY: AMERICAN WATER CHEMICALS		

Tuesday, September 12, 2017

7:30 a.m. - 2:00 p.m.	Registration Open – Grand Ballroom Foyer (3rd Floor)			
7:30 a.m. - 3:30 p.m.	Exhibit Hall Open – Grand Ballroom (3rd Floor)			
7:30 - 8:30 a.m.	Continental Breakfast – Grand Ballroom (3rd Floor) SPONSORED BY: GARVER			
Technical Sessions	A6: Panel Discussion: Going Viral	B6: SAT and Reuse	C6: Direct Potable Case Studies	D6: Reuse in Varied Geographies
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)	Salon 3-4 (2nd Floor)
Moderator	<i>Vijay Sundaram, Stantec</i>	<i>Peter Fox, Arizona State University</i>	<i>Rob McCandless, Brown and Caldwell</i>	<i>Alan Forrest, HDR</i>
8:30 - 9:00 a.m.	A New Paradigm for Assessment of Virus Reduction by Recycled Water Treatment Processes <i>Charles Gerba, University of Arizona</i>	The Removal Potential of Organic Matter for SAT Systems <i>Farzaneh Shabani, University of California, Los Angeles</i>	Evaluating the Sustainability of DPR in Las Vegas, NV <i>Cory Dow, Carollo Engineers</i>	City of Daytona Beach's Bennett Swamp Rehydration Proj- ect <i>Timothy Walsh, CH2M HILL</i>
9:00 - 9:30 a.m.	How Can We Meet Pathogen LRV Requirements in Potable Reuse Projects if MBR Does not Get Any Pathogen Credits? <i>Zeynep Erdal, AECOM</i>	Is My Purified Water Too Pure for Groundwater Replenishment? <i>Sunny Wang, Brown and Caldwell</i>	On-Site Direct Potable Reuse: Putting Ohio on the Water Recycling Map <i>Philip Schmidt, Philip J. Schmidt Technical Consulting Inc.</i>	Expansion of the City of Los Angeles' Terminal Island Advanced Water Purification Facility: Completing the First Design/Build Potable Water Reuse Facility <i>Adam Zacheis, Carollo Engineers</i>
9:30 - 10:00 a.m.	Pepper Mild Mottle Virus (PMMoV) as a Potential Indicator of Enteric Virus Removal during Water Recycling Treatment Processes <i>Walter Betancourt, University of Arizona</i>	Groundwater Recharge with Recycled Water in Fresno <i>Robert Beggs, Brown and Caldwell</i>	Small Scale Direct Potable Recycle Plant for a Remote Community <i>Peter Hillis, AECOM</i>	Statewide Collaboration for a Direct Potable Reuse Regulatory Framework and Outreach in Colorado <i>Austa Parker, Carollo Engineers</i>
10:00 - 10:30 a.m.	Networking Break – Grand Ballroom (3rd Floor) SPONSORED BY: ARCHER WESTERN CONSTRUCTION			
10:00 - 10:30 a.m.	Poster Presentations – Grand Ballroom Foyer (3rd Floor)			

Tuesday, September 12, 2017 (continued)

Technical Sessions	A7: Panel Discussion: Arizona Reuse Perspectives	B7: Groundwater Topics	C7: Advanced Disinfection Topics	D7: Major Reuse Program Updates
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)	Salon 3-4 (2nd Floor)
Moderator	<i>John Kmiec, Town of Marana Utilities Department</i>	<i>Don Hanson, Clear Creek Associates</i>	<i>Jason Assouline, CH2M</i>	<i>Jeff Biggs, Tucson Water</i>
10:30 - 11:00 a.m.	Agua Dulce (Sweet Water) – An Innovative Approach to Reclaimed Water Use Can Deliver Multiple Benefits to a Desert City <i>Tim Thomure, Tucson Water</i>	First Aquifer Injection and Storage in the State of New Mexico of Highly-Treated Reuse <i>Jim Chiasson, City of Rio Rancho</i>	Full-Scale Results of New Advanced Oxidation Process for 12 MGD IPR Plant <i>Keel Robinson, Xylem</i>	One Water Los Angeles 2040 Plan: Big and Bold Water Reuse Planning to Make Los Angeles a More Resilient City <i>Inge Wiersema, Carollo Engineers</i>
11:00 - 11:30 a.m.	A Quarter Century Long Public Private Partnership Supporting Water Reuse in Scottsdale, Arizona <i>Art Nunez, City of Scottsdale</i> Treated Wastewater Recharge and Recovery Efforts in Lake Havasu City, AZ	South Hillsborough Aquifer Recharge Program (SHARP), Hillsborough County <i>Michael Weatherby, HydroGeo Consulting, LLC</i> <i>Michael Condran, GHD</i>	Upgrading Non-potable to Potable Reuse: What Do We Do with UV? <i>Adam Festger, TrojanUV</i>	Update on the Tampa Augmentation Project - Evaluating the Feasibility of a 50-mgd Potable Reuse Aquifer Recharge/ Recovery Project in Southwest Florida <i>Seung Park, City of Tampa Water Department</i>
11:30 - 12:00 p.m.	<i>Doyle Wilson, Lake Havasu City</i>	White Paper on Groundwater Replenishment with Recycled Water on Agricultural Lands (WRRF-16-03) <i>Robert Morrow, Woodard & Curran</i>	Water Re-use in Developing Countries: Utilizing Ozone, UV and AOP for Safe Water Supply in South Africa <i>Lucinda Jooste, Xylem</i>	Oklahoma's 360-Degree Development of IPR Regulations <i>Michael Graves, Garver</i>
12:00 - 1:30 p.m.	Awards Luncheon and Annual Membership Meeting – Pueblo Jr. Ballroom			
Technical Sessions	A8: Panel Discussion: Source Control for Potable Reuse	B8: Seawater Desalination	C8: Aspects of MBR	D8: Advances in Membranes
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)	Salon 3-4 (2nd Floor)
Moderator	<i>Jeff Hansen, HDR</i>	<i>Val Frenkel, Greeley and Hansen</i>	<i>David Russell, American Water Chemicals, Inc.</i>	<i>Andrea Achilli, University of Arizona</i>
1:30 - 2:00 p.m.	Doing DPR? - Don't Forget Source Control! <i>Alan Rimer, Envirotechnovations</i>	Pretreatment for Seawater Desalination by Reverse Osmosis: Synthesis of Findings from Full-Scale Operating Plants <i>Joe Jacangelo, Stantec</i>	Giving Credit Where Credit is Due – MBR Performance Monitoring for Potable Water Applications <i>Stephen Katz, GE Water & Process Technologies</i>	Filtration of Secondary Municipal Wastewater Using a Segmented Ceramic UF Membrane <i>Aditya Kumar, Nanostone Water Inc.</i>

Tuesday, September 12, 2017 (continued)

2:00 - 2:30 p.m.	<p><i>Panel continues:</i></p> <p>IPR and DPR a Marriage Made in Heaven</p> <p><i>Gary Hunter, Black & Veatch</i></p> <p>Source Water Quality Requirements for Conventional Treatment of Stormwater, Graywater, and Treated Wastewater for Potable Reuse</p> <p><i>Chris Hill, Arcadis</i></p>	<p>Characterizing the Impact of Blending Desalinated Seawater with Existing Conventional Supplies</p> <p><i>Brent Alspach, Arcadis</i></p>	<p>MBRs for Potable Water Reuse - Old Membranes, New Membranes, Cut Fibers, and Extensive Pathogen and Surrogate Monitoring</p> <p><i>Andrew Salveson, Carollo Engineers</i></p>	<p>Righting the Ship: Direct Replacement of Polypropylene Modules with PVDF to Recover Declining MF System Performance</p> <p><i>Mariano Bautista, West Basin Municipal Water District</i></p>
2:30 - 3:00 p.m.		<p>Eighteen Months of Operating Experience at the Carlsbad Desal Project; Lessons Learned and Implications for Alternative Delivery Approaches</p> <p><i>Peter MacLaggan, Poseidon Water</i></p>	<p>Assessment of Retrofitting an SBR with MBR technology for Municipal Wastewater Reuse</p> <p><i>Samantha Kendrick, H2O Innovation</i></p>	<p>Maximizing Pathogen Removal Credits for UF and RO In Potable Reuse-Full-scale Experience at the Beenyup Advanced Water Recycling Plant</p> <p><i>Jim Lozier, CH2M</i></p>
3:00 - 3:30 p.m.	<p>Networking Break – Grand Ballroom (3rd Floor)</p> <p>SPONSORED BY: ARCHER WESTERN CONSTRUCTION</p>			
3:00 - 3:30 p.m.	<p>Poster Presentations – Grand Ballroom Foyer (3rd Floor)</p>			
Technical Sessions	A9: Panel Discussion: Applying MBR in Potable Water Reuse	B9: Water Quality	C9: Ozone	D9: Economic Evaluations
Room	Salon 7-8 (2nd Floor)	Salon 5-6 (2nd Floor)	Salon 1-2 (2nd Floor)	Salon 3-4 (2nd Floor)
Moderator	<i>Andy Salveson, Carollo Engineers</i>	<i>Zaid Chowdhury, Garver</i>	<i>Erin Mackey, Brown and Caldwell</i>	<i>Erin Young, City of Flagstaff.</i>
3:30 - 4:00 p.m.	<p>Membrane bioreactor technology is a well-established means of enabling the reuse of wastewater. This moderated session will dive deep into the various opportunities, challenges, and the latest scientific findings associated with the application of MBR in potable water reuse. The session will contain diversified perspectives with participation from end-users, consulting engineers and vendors.</p>	<p>Evaluation of Models and Tracers for Indirect Potable Reuse through Surface Water Augmentation</p> <p><i>Ali Saber Sichani, UNLV</i></p> <p><i>Doug Blatchford, U.S. Bureau of Reclamation</i></p>	<p>Addressing Ozone-BAC Regulatory Barriers Related to DBPs</p> <p><i>Vijay Sundaram, Stantec</i></p>	<p>Assessment of Social and Environmental Criteria to Determine the Benefits of Potable Reuse in Reno, NV</p> <p><i>Laura Haak, University of Nevada, Reno</i></p>
4:00 - 4:30 p.m.		<p>Characterization of Photobiologically -Treated Reverse Osmosis Concentrate from Advanced Water Reclamation Facilities</p> <p><i>Keisuke Ikehata, Pacific Advanced Civil Engineering, Inc.</i></p>	<p>Safe and Sustainable Water Reuse in New Mexico Through Ozone-Based AOP</p> <p><i>Richard Loeffler, Xylem</i></p>	<p>Economic and Environmental Life Cycle Analysis of Natural Gas versus Grid Electricity for Seawater Desalination</p> <p><i>Carla Cherchi, Stantec</i></p>

Tuesday, September 12, 2017 (continued)

4:30 - 5:00 p.m.	<p><i>Panel continues:</i></p> <p><i>Gordon Johnson, Metropolitan Water District of Southern California</i></p> <p><i>Zakir Hirani, Stantec</i></p> <p><i>Steve Katz, GE Water & Process Technologies</i></p>	<p>Are TOC and COD Limits Appropriate for Regulating Potable Reuse? Analyzing Organics through the Domestic Water Cycle - Research Results from WRRF Project 15-04</p> <p><i>Larry Schimmoller, CH2M</i></p>	<p>Potable Reuse - Where We've Been and Where We are Headed</p> <p><i>Wendy Broley, Brown and Caldwell</i></p>	<p>Triple Bottom Line Tool for Water Supply Planning: Case Studies of Potable Reuse and Other Water Supply Options</p> <p><i>Stephanie Ishii, Hazen and Sawyer</i></p>
5:00 - 6:00 p.m.	<p>Women of Water - (Bitter and Twisted 1 W. Jefferson St, Phoenix, AZ 85003)</p> <p>Ladies, we are continuing the tradition of a Ladies Happy Hour. We will be holding it at Bitter and Twisted, which is on the way to our evening event at The Duce. Come join us for a unique cocktail.</p>			
6:00 - 10:00 p.m.	<p>Networking Dinner at The Duce SPONSORED BY: XYLEM</p> <p>525 S Central Ave, Phoenix, AZ 85004 Walking Directions can be found in your registration packet</p> <p>We hope you will join us on Tuesday evening for the final networking event of the conference which will include great food and drinks, live music by The Instant Classics and networking with colleagues in this unique setting. Where pretty meets gritty and produce meets prohibition. The Duce is a warehouse turned bar, featuring vintage handmade cocktails and dishes reminiscent of Mom's 1960's kitchen...a soda fountain featuring fresh made ice cream...an old-school gym and boxing ring...where you can hang out in the bleachers, hula hoop, play ping pong, shuffleboard, and foosball. This is sure to be a fun evening for all!</p> <p>Featured on the Food Network's Diners, Drive-Ins & Dives ; CNN Travel: 10 of America's Wackiest Restaurants; Arizona Highways Television: Coolest and hippest place in downtown Phoenix.</p>			

Wednesday, September 13, 2017

8:30 - 10:00 a.m.	Registration Open – Grand Ballroom Foyer (3rd Floor)
8:30 - 9:30 a.m.	Breakfast Panel Discussion - Conclusion of the Beer Challenge – Grand Ballroom (3rd Floor) Hear from the brewers, the regulators, and the team that tackled public perception one pint at a time, and turned AZ PURE purified water into craft beer. <i>Moderator: Channah Rock, University of Arizona Laurie Vesco, Arizona Community Foundation Danielle McPherson, Water Now Alliance Jeff Prevatt, Pima County Chuck Graf, Arizona Department of Environmental Quality Rob Fullmer, AZ Craft Brewers Guild George Maseeh, Carollo Engineers Jim Lozier, CH2M John Kmiec, Town of Marana Utilities Department Tim Thomure, Tucson Water</i>
9:30 - 10:00 a.m.	Networking Break – Grand Ballroom (3rd Floor) SPONSORED BY: WRD
10:00 - 11:30 a.m.	Medical Community Panel Discussion – Prescription for Public Perception – Grand Ballroom (3rd Floor) According to public opinion polls, people trust scientists, medical professionals and public health officials more than anyone else when it comes to the safety of recycled water. That's why WaterReuse has launched an initiative to build support for water reuse among the research and medical community. Learn what doctors are saying about water reuse, and what you can do to connect with this critical constituency in your community. Representatives from schools of public health and the medical community have been invited to participate in the Symposium, and will serve as panelists during this discussion. We will ask them to share what they learned at the Symposium; what surprised them, what interested them, and ask them to share what they think is the best way to communicate with them about water and water recycling. We will also ask them what they need to know to help answer questions about human health risk to their patients/students, as well as where they think additional research may be needed to address any gaps they identify. Panelists Include: <i>Ricardo Izurieta, University of South Florida Kellogg Schwab, Johns Hopkins University Kayla Iuliano, Arizona Department of Health Services</i>
11:30 a.m. - 12:00 p.m.	Closing Wrap-Up Session and Look Ahead to 2018 Symposium in Austin – Grand Ballroom (3rd Floor)

Technical Poster Presentations

A Decision-Making Framework for Understanding the Desire of a Decentralized Reuse Water Systems in Rural Alaskan Communities

Cara Lucas, University of Alaska, Anchorage

Analysis of AgNPs Stability on RO Membrane by Using a High-Velocity Hydraulic Abrasion System

Bingru Han, Arizona State University

Capture and Removal of Radioactive Cs from Water Using Bacterial Engineered Vesicle

Sepideh Hakim Elahi, Arizona State University

Comparative Inactivation of Viral P22 as a Surrogate of Human Adenovirus and E. coli using UV alone and Advanced Oxidation Processes

Samantha Cooper, Valentine Engineers/Arizona State University

Designing Reuse Ultraviolet Disinfection Systems by the Book!

Bill Sotiropas, Carollo Engineers

Development of Anti-adhesive Spacers to Reduce Fouling and Improve Cleaning of Reverse Osmosis Membrane Modules

Douglas Rice, Arizona State University

Effect of Electropositive Media filtration on Membrane Fouling in Reverse Osmosis Treatment of Tertiary Wastewater

Francois Perreault, Arizona State University

Evaluation of a Sequencing Batch Reactor/Sand Filtration for the Treatment of Produced Water

Emily Nicholas, Colorado School of Mines

Farmer Perceptions and Understanding of Irrigation Water from Nontraditional Sources

Mayhah Suri, University of Maryland

High Recovery RO-Challenges to Meet Stringent Nitrogen Limits in IPR via SWA Projects

Ufuk Erdal, AECOM

Impacts of Ozone Dose and Empty Bed Contact Time on Bulk Organic Removal and Disinfection Byproduct Mitigation in Ozone-biofiltration Systems

Mayara Aquino, UNLV

Plasma Physics for High Throughput Water Reuse

Selman Mujovic, University of Michigan

Predictive Design of Novel Desiccants for Atmospheric Water Capture through Monte Carlo Simulations

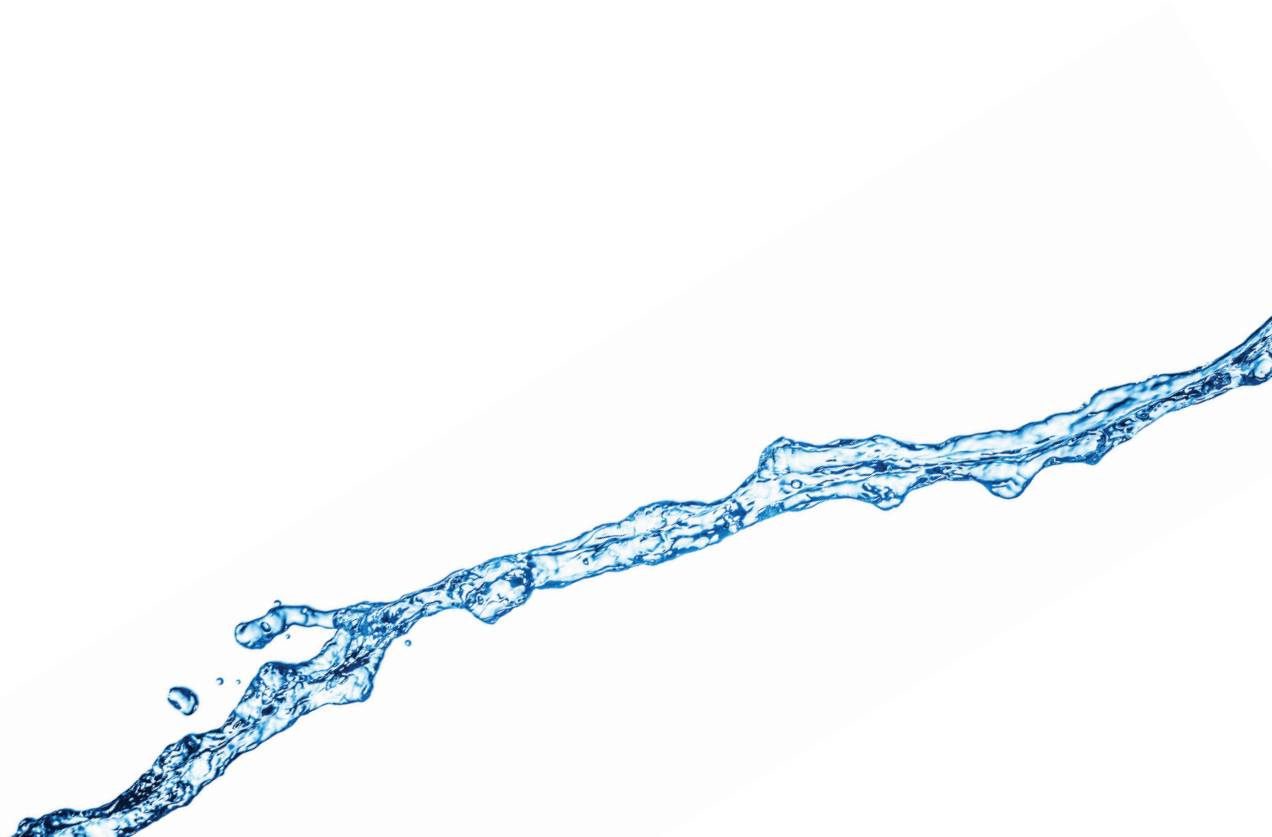
Anjali Mulchandani, Arizona State University

Reestablishing Native Aquatic Communities with Treated Wastewater: Wishful Thinking or Practical Reality

Drew Eppehimer, University of Arizona

Sustainable Water Initiative for Tomorrow: A Look At HRSD's Innovative Approach to Water Reuse

Tyler Nading, CH2M



32nd Annual WaterReuse Symposium Planning Committee

Thank you to our 32nd Annual WaterReuse Planning Committee for your dedication and time in making this conference such a huge success!

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Channah Rock, *University of Arizona*
Eva Steinle-Darling, *Carollo Engineers*

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Amanda Jones, *Town of Marana Utilities Department*
John Kmiec, *Town of Marana Utilities Department*
Channah Rock, *University of Arizona*
Eva Steinle-Darling, *Carollo Engineers*
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Keli Callahan, *Carollo Engineers*
Monica Gasca, *Sanitation Districts of Los Angeles County*
John Kmiec, *Town of Marana Utilities Department*
Richard Leger, *City of Aurora*
Shannon Rodriguez, *City of Houston*
Amy Tracy, *England-Thims & Miller, Inc.*
Gilbert Trejo, *El Paso Water Utilities*
Kristina Westbrook, *King County Department of Natural Resources*

Kids Art/Writing Contest

Amanda Jones, , *Town of Marana Utilities Department (Chair)*
John Kmiec, *Town of Marana Utilities Department*



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Upcoming WaterReuse Events

2018 WaterReuse California Annual Conference

March 25-27, 2018

Portola Hotel & Spa
Monterey, CA

2018 Water Environment & Reuse Foundation Research Conference

May 7-8, 2018

Westin Peachtree Plaza
Atlanta, GA

2018 Pacific Northwest WaterReuse Conference

May 16-18, 2018

Sheraton Portland Airport
Portland, OR

33rd Annual WaterReuse Symposium

September 9-12, 2018

JW Marriott Austin
Austin, TX

