AZ Water Association

Professionals Dedicated To Arizona's Water

American Water Works Association Arizona Section

Water Environment Federation
the water quality people

89th annual conference & exhibition

may 11-13
2016

renaissance glendale
hotel & spa
glendale, az

WELCOME

Patti Kennedy
Conference
Committee Chair

Welcome! I want to extend an invitation to join us for the 89th Annual Conference and Exhibition. I look forward to the annual conference every year. It gives me a chance attend technical presentations and network with others from around the state.

The 2016 Conference & Exhibition is May 11-13 at the Renaissance Glendale Hotel & Spa. This year's Conference Program is better than ever. We received a record number of abstract submittals and have expanded the program to include additional technical tracks to accommodate the 178 accepted papers. Each day there will be eight full tracks: six technical presentation tracks, an operator certification training track, and a track dedicated to AZ Water committee meetings. Don't forget to also check out some of our other exciting events:

- Golf on Tuesday at Coldwater Golf Club in Avondale, AZ. This is a new venue for us this year. All proceeds go to the AZ Water Scholarship Fund.
- Manufacturer's Happy Hour on Wednesday at 5pm
- Student Poster Competition on display in front of the Exhibition Hall all day Wednesday
- BBQ at Saddle Ranch Chop House on Wednesday at 6pm
- 107th Arizona Town Hall Panel Discussion on Thursday at 1pm
- Job Fair on Thursday

I am also looking forward to our keynote speakers. This year, our keynote address will focus on our water history, specifically the Groundwater Management Act. Kathy Ferris will give us her firsthand knowledge of the events that led up to the signing of the Groundwater Management Act. Michael Schiffer, a prominent writer and producer, will describe his journey in documenting this important historical water event. The keynote will conclude with a viewing of the Groundwater Management Act Documentary. I know that you will be amazed and captivated by the documentary. I have seen the film and was impressed by the way Michael and Kathy were able to tie everything together. The documentary conveys important historic water facts, tells a realistic story, and incorporates some lighthearted humor. I give it 5 stars.

To our conference program volunteers and Program Chair, Mike Worlton - THANK YOU! These individuals spent numerous hours putting together an awesome program. I would also like to thank each of the sponsors that are helping to make this the best water conference in Arizona.

2016 CONFERENCE PROGRAM TASK FORCE MEMBERS

ANNUAL CONFERENCE CHAIR

PATTI KENNEDY, *City of Phoenix*

MIKE AMBROZIAK, *CPM*
LARRY AYERS, *MGC Contractors*
ROBIN BAIN, *City of Peoria*
AMY BAKER, *City of Peoria*
GRETCHEN, BAUMGARDNER, *City of Mesa*
DOUG BERSCHAUER, *CH2M HILL*
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BRANDEN WITKOWSKI, *Wilson Engineers*
MIKE WORLTON, *GHD*
JIM WRIGHT, *Statewide Disinfection Services*

Statements of fact and opinion expressed are those of the presenters and AZ Water, AZAWWA, and AZWEA assume no responsibility for the content, nor do they represent official policy of the Association.
The Conference Brochure is the preliminary conference program as of 2/18/2016.

May 11-13, 2016

Tuesday, MAY 10

7:30am ..... Golf Tournament, Coldwater Golf Club, Avondale ..... Page 8

WEDNESDAY, May 11

10:30am – 6:30pm ..... Exhibit Hall Hours ..... Page 3
7:00am – 5:00pm ..... Conference Registration Hours ..... Page 2
7:00am – 8:30am ..... Coffee and Tea Service
8:00am – 8:30am ..... Welcome / Awards Presentations ..... Pages 3
8:30am – 5:00pm ..... Technical Sessions and Operator Training Sessions ..... Pages 18-22
10:30am – 11:30am ..... Grand Opening Exhibit Hall ..... Page 3
11:30am – 1:00pm ..... Luncheon Program, Keynote, Award Presentations ..... Page 3-4
1:00pm – 2:30pm ..... Desalination Panel Session ..... Page 4
5:00pm – 6:30pm ..... Exhibition Happy Hour ..... Page 3
6:00pm – 10:00pm ..... BBQ Party at Saddle Ranch Chop House ..... Page 9

THURSDAY, May 12

7:00am – 8:30am ..... Coffee and Tea Service
8:00am – 3:00pm ..... Exhibit Hall Hours ..... Page 2
7:00am – 5:00pm ..... Conference Registration Hours ..... Page 3
8:00am – 5:00pm ..... Technical Sessions and Operator Training Sessions ..... Pages 22-27
9:30am – 10:00am ..... Break in Exhibit Hall
11:30am – 1:00pm ..... Luncheon Program with AWWA National Speaker ..... Page 6
12:45pm – 1:00pm ..... AZ Water Annual Business Meeting ..... Page 3
1:00pm – 2:30pm ..... 107th Arizona Town Hall Panel Discussion ..... Page 5
1:00pm – 5:00pm ..... Job Fair and Career Day ..... Page 6
2:30pm – 3:00pm ..... Break with the Exhibitors

FRIDAY, May 13

7:00am – 8:30am ..... Coffee and Tea Service
7:00am – 12:00pm ..... Conference Registration Hours ..... Page 2
8:00am – 3:00pm ..... Technical Sessions and Operator Training Sessions ..... Pages 27–32
10:00am – 10:30am ..... Break in Meeting Room Lobby
12:00pm – 1:30pm ..... Luncheon Program with WEF National Speaker ..... Page 6

NEW LOCATION!

MARK YOUR CALENDARS FOR 2017

90th Annual AZ Water Conference & Exhibition
May 3-5, 2017
Phoenix Convention Center
Phoenix, Arizona

AZ Water Association
Professionals Dedicated To Arizona's Water

18521 E. Queen Creek Rd.,
Ste. 105-611
Queen Creek, AZ 85142
Phone 480-987-4888
Fax 480-816-7039
www.azwater.org

CONTACT INFORMATION

General Information:	Debbie Muse	480-987-4888	**Golf Tournament:**	Dave Iwanski	623-693-9304
Registration:	Cindy Martinez	520-575-8100	**AZ Water Web Site:**		www.azwater.org
Exhibits:	Mike Ambroziak	602-228-5040			

HOTEL RESERVATIONS

Renaissance Glendale Hotel & Spa
9495 W. Coyotes Boulevard, Glendale, AZ 85305

Special AZ Water Group Rate: $159 single/double. To receive this rate call 1-800-HOTELS1 (1-800-468-3571) and mention the AZ Water Annual Conference.

Reservations must be made by April 22. The hotel will continue to accept reservations at the group rate after the cut-off date, but only if rooms are still available.

CONFERENCE LOCATION

Renaissance Glendale Hotel & Spa
9495 W. Coyotes Boulevard, Glendale, AZ 85305
http://www.renaissanceglendale.com

The Renaissance Glendale Hotel & Spa offers:

- 320 beautifully appointed guest rooms
- Spa Botanica – full-service spa with outdoor treatment rooms
- Center with indoor lap pool and exercise equipment
- Fully-equipped 24-hour business center
- Soleil restaurant serving breakfast, lunch and dinner
- Ray's lounge with outdoor seating surrounded by water and fire features
- Caffeina's Marketplace Café – proudly brewing Starbucks® coffee

PARKING INFORMATION

The parking lots to the north and southeast sides of the Hotel do not belong to the Renaissance Glendale Hotel & Spa and therefore are not liable for any damage or towing that may ensue. Currently these parking lots can be used for conference attendees during the day, but are subject to towing if left overnight (signs are posted). Therefore, if you are staying at the Hotel overnight, please use the Hotel parking options.

- Day Valet Parking: $8 (includes drive in/out privileges)
- Overnight Valet parking: $15 (includes drive in/out privileges)
- Self-parking: $4 for first hour, $1 each additional hour ($10 maximum – including overnight). Self-parking comes with drive in/out privileges.

REGISTRATION

Registration is located in the meeting room lobby (see page 32). Pre-registration is highly encouraged, however on-site registration will be accepted. To register online, go to www.azwater.org and click on Events. We will continue to accept mailed and faxed registration forms, but encourage you to use the online registration method.

A new online registration program has been developed to streamline the registration process (this includes speakers and moderators as well). This year, you will receive your conference confirmation package in the mail. This package will include your badge, tickets, and other related conference materials. When you arrive at the conference venue you will no longer stand in a long line to pick up your materials. Just stop by the registration desk to pick up your conference (giveaway) and updated program guide.

Full Conference Registration:

Coffee and Tea:	W, TH, F
Breaks:	W, TH, F
Lunch:	W, TH, F
Exhibition Happy Hour:	W
BBQ Party:	W

One-day Registration:

Wednesday:	Coffee and Tea, Breaks, Lunch, Exhibitor Happy Hour, BBQ Party
Thursday:	Coffee and Tea, Breaks, Lunch
Friday:	Coffee and Tea, Breaks, Lunch

CANCELLATIONS & REFUNDS

If you must cancel your conference enrollment, please notify AZ Water in writing. Cancellations received before the start of the conference will receive a full refund, minus a $35 handling charge. No refunds will be issued for cancellations received after the conference has begun. Refunds will be issued after the conference. Substitutions are allowed for individuals unable to attend the conference.

PROFESSIONAL DEVELOPMENT HOURS

Professional Development Hours (PDHs) are available for attending the opening session, technical sessions, and exhibition. A maximum of 18 PDHs will be awarded based on your attendance. The licensee is responsible for choosing sessions that meet the PDH requirements for their specific certification. AZ Water will issue a certificate to indicate the number of PDHs awarded during the conference, but cannot guarantee that all PDHs will qualify for every licensee.

AZ Water uses an automated PDH tracking system to provide attendees a quicker retrieval of their PDH certificate. Each registrant will have a bar code on their name badge and when scanned, a time stamp will record attendance at each technical session and operator certification training. The process of recording your attendance is simple. There will be badge scanners for self-use located inside each technical session room. **To get credit you must scan the bar code on your badge in and out for each session you attend.** Your attendance will be registered electronically and your record of attendance and certificate will be available for download on the AZ Water web site four weeks following the conference.

EXHIBIT INFORMATION

Exhibits will be in the Media Room at the Renaissance Glendale Hotel. Prize drawings and raffles will be presented during the dedicated exhibit hours on both days.

WEDNESDAY, MAY 11

Exhibit Hall Hours ..... 10:30am – 6:30pm
Exhibition Happy Hour ..... 5:00pm – 6:30pm

THURSDAY, MAY 12

Exhibit Hall Hours..... 8:00am – 3:00pm
Exhibits Close 3:00pm

EXHIBITION HAPPY HOUR
WEDNESDAY, MAY 11
5:00pm – 6:30pm
AZ Water and our vendor partners are excited to host a happy hour in the Exhibit Hall at the conclusion of Wednesday's technical sessions. Before you head over to the BBQ Party at The Saddle Ranch Chop House be sure to stop by the Exhibit Hall to mingle and network with fellow conference attendees and AZ Water's vendor partners. Snacks and drinks will be available.

CONFERENCE BBQ PARTY
WEDNESDAY, MAY 11
6:00pm – 10:00pm
The Saddle Ranch Chop House, Westgate Entertainment District
9375 W. Coyotes Blvd, Glendale, AZ 85305

For the second year we have chosen the Saddle Ranch Chop House for it's STEAKS, BULLS, & ROCK N ROLL! With a rustic over-sized bar, mechanical bull (rides are free), and outdoor stone fire pits, Saddle Ranch provides the atmosphere for fellow conference attendees to gather and eat, drink and celebrate while the Meter Mania Competition gets underway, the Young Professionals raffle off great gifts, and our DJ takes you into the night with your favorite tunes.

OPERATOR TRAINING TRACK
WEDNESDAY
- Operator Math I
- Operator Math II
- Water Operation and Maintenance: Hydraulically Operated Control Valves

THURSDAY
- Wastewater Operator Panel
- Water Operator Panel
- Sewer Valve Operation and Maintenance

FRIDAY
- Mock Exam
- Exam Review
- Gravity and Pressure Pipe Assessment, Renewal, and Rehabilitation Technologies

2016 AZ WATER BEST OF THE YEAR AWARDS PROGRAM

WEDNESDAY, MAY 11
8:00am – 8:30am
- Projects of the Year
  - Water System
  - Water Treatment
  - Wastewater System
  - Wastewater Treatment
  - Water Reuse
  - Environmental Stewardship Award
  - Kachina Award for Outstanding Service

11:30am – 12:00pm
- Plant and System Operations Awards
  - Plants
  - Systems
  - Operators
  - Operations Supervisor
  - Electrician
  - Maintenance Mechanic
  - Technology Professional
  - Laboratory Analyst
- Safety Awards
- Engineer of the Year
- Operations Leadership Award
- Construction Professional of the Year

Evening BBQ
- Gimmicks and Gadgets Awards
- Young Professional of the Year
- Nathan Burbank Environmental Educator Award
- Lab Analyst Excellence Award

THURSDAY, MAY 12
11:30am – 1:00pm — AWWA Luncheon
- AWWA Life Members and Gold Drop Awards
- George Warren Fuller Award
- WFP Kenneth J. Miller Award
- Gift for the National Representative
- AZ Water Life Members

Separate Late Afternoon Event
- Select Society of Sanitary Sludge Shovelers

FRIDAY, MAY 13
12:00pm – 1:30pm — WEF Luncheon
- AZ Water Scholarships
- Arthur Sydney Bedell Award
- George W. Burke Award
- WEF Life Members
- President Award
- Water Environment Research Foundation
- Gift for the National Representative
- Water Research Foundation
- Quentin Mees Research Award
- Outgoing Board Member Recognition
- Kachina Pin (Past-President)
- Gavel Passing

AZ WATER'S ANNUAL BUSINESS MEETING
THURSDAY, MAY 12
12:45pm
Agenda Items
- Approve 2016-2017 Arizona Section American Water Works Association Board of Trustees
- Approve 2016-2017 Arizona Water Environment Association Board of Directors
- Approve 2016-2017 AZ Water Association Board of Directors

WELCOME — MAY 11 / 8:00AM - 8:30AM

IAN HUGH, *City of Glendale Vice Mayor*

In January 2015, Ian Hugh was appointed Vice Mayor. Hugh currently serves on Glendale's Government Services Committee and the National League of Cities Community and Economic Development Policy and Advocacy Committee. In addition, he is a member of the Glendale West Rotary Club.

KEYNOTE, PANEL DISCUSSION

Groundwater: To enact a law for the common good...

This lively documentary by filmmaker Michael Schiffer (writer of *Colors, Lean on Me,* and *Crimson Tide*) tells the true and inspiring story of the contentious battle between the farms, cities, and mines in the late 1970's, which led — against all odds — to the passage of one of the most important water laws in America...

The 1980 Arizona Groundwater Management Act... a major reason we still have water in this time of drought.

KATHLEEN FERRIS

Kathy is a Senior Research Fellow at the Morrison Institute for Public Policy at ASU where she consults with the Kyl Center for Water Policy. She also serves as legal counsel and policy advisor for the Arizona Municipal Water Users Association.

Kathy began her career in water in 1977 working for the Arizona State Senate and later that year was appointed Executive Director of the Arizona Groundwater Management Study Commission. Her work with Governor Bruce Babbitt culminated in the passage of the 1980 Arizona Groundwater Management Act. Kathy participated in the Act's negotiations and supervised the drafting of the Act, which continues to be one of the nation's most visionary laws for managing groundwater.

Kathy then served for five years as Chief Counsel of the newly formed Arizona Department of Water Resources, and in 1985, she was appointed by Governor Babbitt to be Director of the Department. As Director, she was actively involved in the development of many legislative initiatives, including the Underground Water Storage Act and the "Lakes Bill," which banned the use of drinking water in man-made subdivision lakes.

From 2012 to 2016, Kathy was Executive Director of the Arizona Municipal Water Users Association. As a lawyer in private practice prior to that time, she represented a wide array of clients, including municipalities, developers, golf courses, industries and environmental groups.

MICHAEL SCHIFFER

Happily living in Phoenix after escaping alive from L.A., Michael Schiffer wrote the groundbreaking screenplay for *Colors,* directed by Dennis Hopper, starring Sean Penn and Robert Duval. His next film, *Lean on Me,* starring Morgan Freeman, won NAACP Image Awards for Best Film and Best Actor; and was followed by *Crimson Tide* (Gene Hackman and Denzel Washington), *The Peacemaker* (George Clooney and Nicole Kidman), and *The Four Feathers,* starring Heath Ledger, Wes Bentley, and Kate Hudson.

The writer of *Call of Duty,* Versions 1 and 2; Michael's producing credits include *Lean on Me, Very Bad Things,* and *Le Divorce,* a Merchant/Ivory film, based on the novel by Diane Johnson. The author of *Lessons of the Road* and *Ballpark,* both published by Simon & Schuster, Michael is working on a new book, titled: *One Last Look at the Open Road; A memoire, revisited.* A Creative Advisor at the ScripTeast Writers Conference in Poland, Michael is a Trustee Professor at Chapman University's Dodge School of Film and Media Arts.

DESALINATION PANEL SESSION MAY 11 / 1:00PM - 2:30PM

Connecting Israeli Water Management and Technological Innovations to Arizona

Panel Moderator and Panelist: **Sharon B. Megdal, Ph.D.** *Panelists:* **Craig Gooch**, Regional Director, North America, TaKaDU; **Glenn Hammer**, President & CEO, Arizona Chamber of Commerce and Industry; Others to be named.

Projections show that Arizona faces a future gap between water demand and supply. Arizonans have a history of surface water and groundwater management innovations. It is recognized that meeting Arizona's future water demands will require additional water policy and management actions, including increased conservation and deployment of technology, along with consideration of new financing approaches. Others in the United States and around the world face or have faced similar challenges. Israel, a recognized water management and technology leader, has addressed water scarcity through a portfolio of actions, including the deployment of large-scale seawater desalination, wastewater reuse, brackish water desalination, and water conservation and efficiencies. Israel has also been a leader in relying on private sector to build large treatment facilities and relying on technology to reduce system water losses. To what extent can Israel's policies and practices serve as a model for Arizona? What can Israel learn from Arizona? The panel will examine Israel's policies and practices and discuss these and other questions.

SHARON B. MEGDAL, *Director, Water Resources Research Center, The University of Arizona*

Sharon B. Megdal is Director of The University of Arizona Water Resources Research Center (WRRC), an Extension and research unit in the College of Agriculture and Life Sciences. Sharon also holds the titles: Professor and Specialist, Department Soil, Water, and Environmental Science; C.W. & Modene Neely Endowed Professor; and Distinguished Outreach Professor. Her work focuses on water policy and water resources management challenges and solutions, on which she writes and frequently speaks. She teaches the graduate course Arizona Water Policy and advises many graduate students. In her second six-year term as a Central Arizona Board member, Sharon serves as Board Secretary and Chair of the Central Arizona Groundwater Replenishment District and Storage Committee.

GLENN HAMER, *President & CEO, Arizona Chamber of Commerce and Industry*

Glenn Hamer has been president and CEO of the Arizona Chamber of Commerce and Industry since 2006. He has overseen the organization's development into one of the most respected pro-business public policy entities in the state. Glenn serves on many boards and committees,. Glenn visited Israel with Governor Ducey in Otober 2015 and is a member of the Governor's Water Augmentation Council. Glenn was named a Most Admired Leader by the Phoenix Business Journal, and in both 2013 and 2014 Glenn was named Best Powerbroker by the Arizona Capitol Times. Hamer is a graduate of Cornell University's School of Industrial and Labor Relations and Arizona State University's College of Law.

CRAIG GOOCH, *TaKaDu Ltd., Regional Director; www.takadu.com*

Craig is the Regional Director for TaKaDU, an Israel-based company recognized as a leader in Integrated Water Network management. TaKaDU provides water utilities with an Event Management Solution, managing the life-cycle of all network issues, while providing operational benefits, strategic insights and changing the way water utilities work. The TaKaDU solution is deployed with leading water utilities in nine countries. TaKaDU was honored as a Technology Pioneer by the World Economic Forum of Davos, and featured as a Harvard Business School case since 2013. Craig also is a Principal at Psomas Engineering providing technology strategy and implementation services for utility and government organizations. Craig holds a B.S. in Geography from the University of California Riverside.

107TH ARIZONA TOWN HALL PANEL

Solving Arizona's Water Needs

Moderator: **David Iwanski, AZ Water Executive Director.** *Panelists:* **Tara Jackson**, President – Arizona Town Hall; **Sarah Porter**, Director – Kyl Center for Water Policy; Other Panelists TBD.

Ranchers, developers, environmentalists, and community members from across the state met at the 107th Arizona Town Hall to develop recommendations on how to prepare for Arizona's water future. This diverse group of leaders developed consensus recommendations on actions we need to take as individuals, communities and the state as a whole. Learn about the recommendations from the 107th Arizona Town Hall on "Keeping Arizona's Water Glass Full" as well as some of the efforts that have taken place since the Town Hall concluded last November. The audience will then participate in a mini-Town Hall discussion to develop their priorities and action steps.

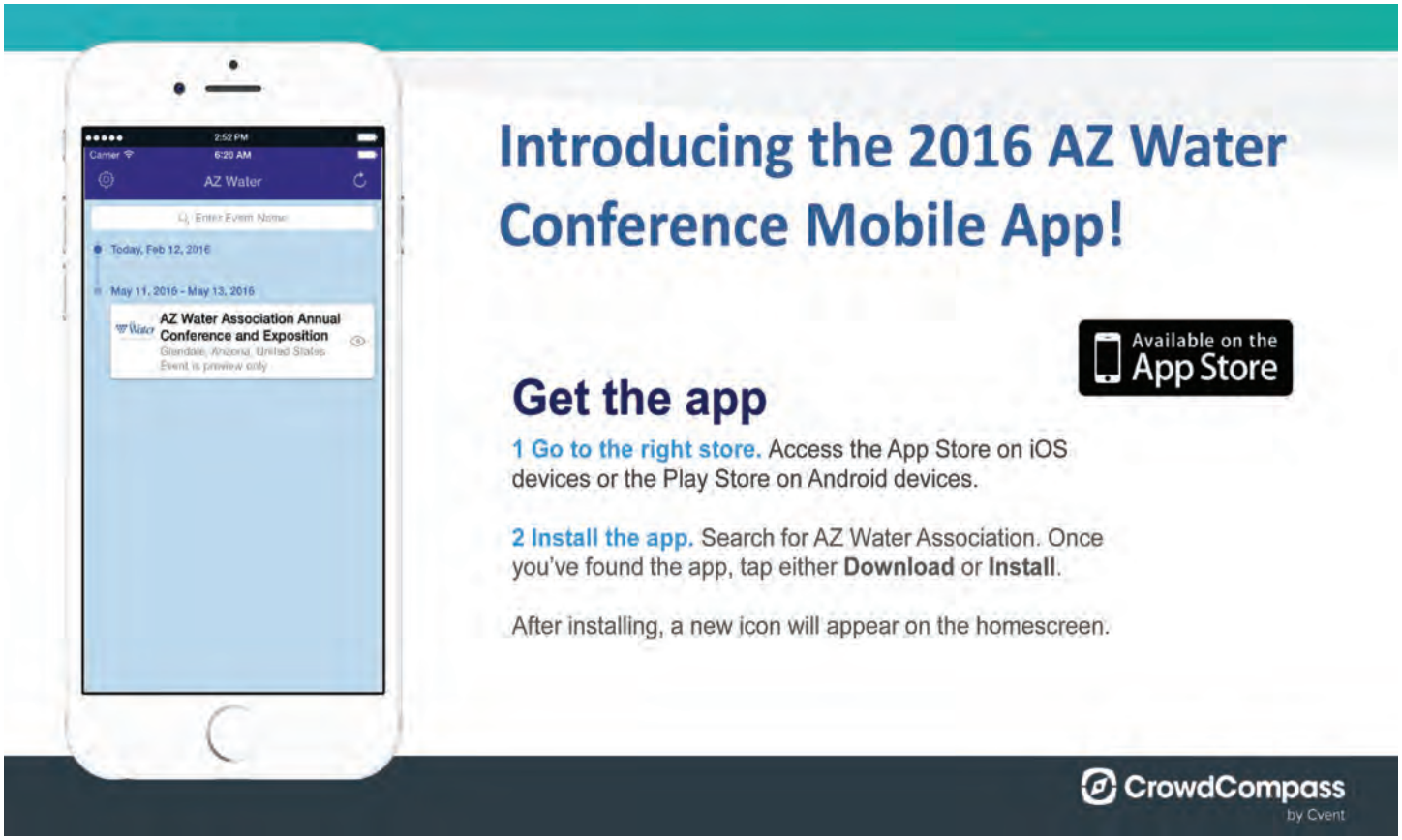
TARA L. JACKSON

Ms. Jackson has served as President of the Arizona Town Hall since July of 2006. The Arizona Town Hall is a non-profit organization that has brought diverse Arizonans together for over 50 years to discuss critical and often divisive policy issues. The Town Hall process builds bridges across political, geographical and other barriers while also developing leaders and engaged citizens. Recommendations from the Town Halls have had a significant impact on almost every aspect of the state.

Ms. Jackson has also practiced law in the area of employment and commercial litigation for sixteen years with the Phoenix firm Bonnett, Fairbourn, Friedman and Balint. In addition to her law practice, Ms. Jackson taught as an Adjunct Professor for ASU's Law School and has served in numerous positions for both state and federal bar associations. Arizona's federal judges appointed her to serve as a Lawyer Representative for the Ninth Circuit and selected her to co-chair Arizona's delegation. She currently serves on advisory boards for Arizona State University and Rio Salado Community College.

SARAH PORTER

In January 2015, Sarah Porter was named inaugural director of the Kyl Center for Water Policy. Part of Arizona State University's Morrison Institute for Public Policy, the Kyl Center promotes research, analysis, collaboration and open dialogue to build consensus in support of sound water stewardship solutions for Arizona and the West. Porter serves on the University of Arizona's Water Resources Research Center's External Advisory Council, the Phoenix Parks and Recreation Board and several other community boards. A native of Phoenix, Porter received her undergraduate degree from Harvard College (1985) and her J.D. from Arizona State University College of Law (1992).



AWWA and WEF SPEAKERS

AWWA LUNCHEON SPEAKER — THURSDAY, MAY 12

DAVID E. RAGER
Treasurer (2012-2016), American Water Works Association

In January 2012, David became the CEO of SD1, the wastewater and storm water utility for three counties of Northern Kentucky. Prior to his position at SD1, David served for 17 years as the CEO of the Greater Cincinnati Water Works. While at Cincinnati, he worked to create a high performance organization using strategic business planning processes that included employee work teams, regular customer surveys, and focus groups for insight into service delivery. The result has been an organization with a strong customer focus and a highly motivated workforce.

David has over 39 years of experience at the local government level. In addition to serving as the CEO of the Greater Cincinnati Water Works, he has served as city manager, deputy city manager, and planning commissioner for Cincinnati, Ohio. Prior to assuming responsibility for utility services for Cincinnati, David spent ten years overseeing police, fire, emergency medical, and emergency communication services for the city.

Currently David serves on the Board of Directors for the American Water Works Association (AWWA). In June 2012, David began his term as the new AWWA Treasurer. He has also been chair of the Water Utility Council, chair of the Board of Trustees for the Water Research Foundation, a member of the International Council, and previously served as President of the Board of Directors for the Association of Metropolitan Water Agencies.

David has been a speaker at numerous forums and conferences during his career, including various utility industry conferences about strategic planning, public affairs planning, creating a customer service focus, and creating change leaders. Most recently he spoke at the Australian National Water Conference in May 2011 discussing operational issues for water utilities in today's challenging economy.

David received his BS from University of Cincinnati and his MBA from Xavier University. David lives in Cincinnati with his wife Susan and their daughter, Theresa.

WEF LUNCHEON SPEAKER — FRIDAY, MAY 13

PAUL BOWEN
President (2015-2016), Water Environment Federation

Paul Bowen is currently the Director, Environmental Sustainability for The Coca-Cola Company. In this role he leads a multidisciplinary program that reaches across the Coca-Cola System. He is responsible for delivering on Company commitments in water, energy, climate, and packaging recovery. His team helps embed environmental sustainability across all Coca-Cola System operations. He serves as a technical expert for developing water reuse with corporate quality standards and as a SME on water and wastewater treatment issues.

Prior to his position with The Coca-Cola Company, Paul was an Assistant Professor in the School of Civil Engineering & Environmental Science at the University of Oklahoma and Vice-President and Senior Staff Consultant for Metcalf & Eddy.

A WEF member since 1977, Paul has held multiple leadership and committee roles within WEF. He currently serves as the Vice-Chair of the Committee Leadership Council. He has served on the Program Committee as both chair and vice chair as well as served as a member and chair of the Residuals & Biosolids Technical Symposium, Industrial Wastes Technical Symposium and the Research Symposia. Paul was also chair of the Committee Leadership Council's Delivery Focus Group and a member of the Public Affairs & Communications and Industrial Wastes Committees. In addition, he has served as a literature review author for the Residuals & Biosolids and Industrial Wastes Committees.

Also an active member of the Georgia Association of Water Professionals (GAWP), Paul has served as a member and chair of GAWP's Program Committee and a member of Industrial Waste Committee. His other professional affiliations include: the American Water Works Association, American Society Of Civil Engineers, International Water Association, and International Society of Beverage Technologist. He has also served as a member of the Board of Directors for WEF's Charity of Choice, Water For People.

Paul received his B.S. in Natural Systems (Chemistry and Biology) from Mercer University (Macon, Ga.) in 1975, and his M.S. (1976) and Ph.D. (1982) in Environmental Systems Engineering from Clemson University (Clemson, S.C.).

AZ Water ASSOCIATION

Professionals Dedicated To Arizona's Water

SPONSORSHIP OPPORTUNITY

89th Annual Conference & Exhibition
May 11-13, 2016

Renaissance Glendale Hotel & Spa, Glendale, AZ

The AZ Water Association provides value to our members by offering an annual three-day conference designed to provide professional development, continuing education, and distribution of technical information regarding the enhancement of Arizona's drinking water, water reuse, and environmental resources.

Your company's sponsorship of the conference will help AZ Water continue to develop quality education programs that serve our members, while keeping registration costs to a minimum. Sponsorships are used to help offset annual conference expenses such as the facility, exhibition, speakers, training materials, awards, luncheon programs, and other conference events. If your sponsorship form is received by April 22 your company will be listed in the Conference Program Guide. If not, you will still be listed on conference signage, conference slide show, the web site, and in the summer issue of the *Kachina News* magazine.

Annual Conference Recognition Levels Available (please select one):

_____ GOLD - $750 _____ SILVER - $500 _____ BRONZE - $250

Gold level sponsors will be listed using a large company logo, Silver level sponsors will be listed using a small company logo, and Bronze level companies will be listed as text.

What recognition do sponsors receive?

- Company will be listed in conference printed material.
- Company will be listed on the AZ Water conference web page with a link to their company web site.
- Company will be listed on signage at the conference (during all events and in registration area).
- Company will appear in rotating slide shows during the three conference luncheons.
- Company will be listed in the AZ Water summer Kachina News magazine as a Gold, Silver, or Bronze Sponsor (The Kachina News reaches 2300 AZ Water members and industry stakeholders)

Contact Person_____

Company_____

Address_____

Phone_____ Fax_____ Email_____

Credit Cards Accepted: MasterCard, VISA, AMEX

Credit Card Number_____

Expiration Date_____ 3-Digit CVV Code on Back of Credit Card_____

Cardholder_____ Signature_____

Email Receipt to_____

Enclosed is my check for $_____ (Make check payable to AZ Water)

For additional information please contact Debbie Muse at 480-987-4888 or by email musegroup@aol.com

Return completed form and payment to:
AZ Water Association
18521 E. Queen Creek Rd., Ste. 105-611
Queen Creek, AZ 85142
480-816-7039 FAX

Online registration is encouraged — Go to www.azwater.org and click on Events.

AZ Water ASSOCIATION

Professionals Dedicated To Arizona's Water

89th Annual AZ Water Association GOLF TOURNAMENT

Tuesday, May 10th, 2016

6:30 registration, 7:30 a.m. Shotgun Start

Coldwater Golf Club

100 N. Clubhouse Dr., Avondale, AZ 85323

April 29th Registration deadline

Register online at azwater.org

All golf registrations and golf sponsorships must be completed online with payment by credit card preferred; however, checks are accepted. 100% of the tournament proceeds benefit the AZ Water Scholarship Fund

COLDWATER GOLF CLUB

- $65 green fees - AZ Water Association Members
- $135 green fees - non-members (includes 1 yr membership)
- $535 foursome sponsor - includes foursome + advertising
- $1000 hole sponsor - see azwater.org for details
- $2500 bronze sponsor - see azwater.org for details
- $5000 silver sponsor - see azwater.org for details
- $7500 gold sponsor - see azwater.org for details
- $15000 platinum sponsor - see azwater.org for details

For questions, please contact **Dave Iwanski** at **dciwanski@cox.net** or call **(623) 693-9304**

2016 Annual Conference BBQ

AZ Water ASSOCIATION

Professionals Dedicated To Arizona's Water

Celebrating 89 Years

SADDLE RANCH

EST. 1999

STEAKS ★ BULLS ★ ROCK N' ROLL

Wednesday, May 11th, 6–10 PM

9375 West Coyotes Blvd, Glendale, AZ 85303

Food & Drinks

Salads, Ribs, Chicken Breast, Tri-Tip, Mac & Cheese, Brownies, S'mores, Cotton Candy

Coffee, Soft Drinks, and Iced Tea on the house. 1 FREE Wine or Beer

Activities

Free Bull Rides (to win a prize), Meter Mania Competition, Young Professional Awards & Dancing

- YOUNG PROFESSIONALS (YP) COMMITTEE -

Fresh Ideas Contest

The Fresh Ideas winner will be sent to the 2016 AWWA Annual Conference & Exposition (ACE) in Chicago!

Fresh Ideas contestants are identified during the conference. Support YPs and attend these presentations.

Contestants are judged by you, the audience.

AZ Water and AWWA have been sending a lucky Young Professional (YP) to ACE for the past 8 years and are excited to continue with this tradition.

AZ Water Association

Professionals Dedicated To Arizona's Water

YOUNG PROFESSIONALS COMMITTEE

JUDGES WANTED FOR

Student Poster Competition

AZ Water Annual Conference

A great way to interact with the students looking to join the WATER and WASTEWATER INDUSTRY!

Brand NEW Judging Panel!

Stop by the Vendors Exposition at the Renaissance Glendale Hotel & Spa
Glendale, Arizona
Wednesday May 11, 2016 | 5-6:00pm
Prize Distribution at the BBQ - 6:45pm

METER MANIA Competition

89th AZ Water Annual Conference & Exhibition

May 11-13th, 2016

Awards & Prizes

Timed assembly of the Neptune T-10

At the center of almost every operator there sits a competitive force that drives us to constantly be better than we were before. It is this competitive drive that fuels events like the Operations Challenge at WEFTEC and the Meter Madness Competition at AWWA's ACE every year. Events like these are held throughout the United States all year long and are hugely successful. For years now Arizona had been left in the dark regarding these competitions, but starting out two years ago at our very own AZ Water conference, we stepped into the competition arena with the first meter competition of our own. Meter Mania was Arizona's first ever meter competition and gave operators, engineers, and others involved the chance to show that they had what it took to vie for the title "Meter Mania Champion".

For the last two years Meter Mania was voted the top attraction of the AZ Water Conference! We promise that this year will be bigger and better but we need volunteers and team participation. This year's event will feature both individual and team competition and awards.

The Meter Mania competition is a timed disassembly and reassembly of the Neptune T-10 water meter. We will have the opening competition at the AZ Water barbeque May 11th, 2016. The competition is open to individuals or teams of five; qualifying rounds will run throughout the barbeque and the second day of the conference. On the third day of the conference (Friday) we will hold the championship round which will place our top competitors/teams in a face to face showdown to see who will be crowned the 2016 Meter Mania Champion or Team. Prizes will be awarded for the top three individual competitors and gloating rights given to the champion team.

There is no entry fee. For official rules, entry forms, or if you would like to volunteer to help, please contact Jesse Black at jblack@epcor.com.

Renaissance Glendale Hotel

REGISTRATION 7:00 - 5:00

TIME	AZ WATER 89TH ANNUAL CONFERENCE PROGRAM — WEDNESDAY, MAY 11, 2016			
7:00 - 8:00	REGISTRATION OPENS (Coffee Served)			
8:00 - 8:30	WELCOME REMARKS & AWARDS (Solana E)			
8:30 - 5:00	TECHNICAL PROGRAM .....The Renaissance Glendale Hotel			
8:00 - 5:00	STUDENT POSTERS (ON-DISPLAY) .....In Front of Exhibition Hall			
10:00 - 6:30	MANUFACTURER'S EXHIBITION .....Exhibit Hall / Renaissance Glendale Hotel			
	TRACK 1 – UTILITY MANAGEMENT	**TRACK 2 – ENERGY/SUSTAINABILITY**	**TRACK 3 – WASTEWATER TREATMENT**	**TRACK 4 – WATER TREATMENT**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Moderator: James Taylor	*Moderator: Andy Terrey*	*Moderator: Curt Courter*	*Moderator: Richard Sacks*
8:30 - 9:00	Adding Another Step; City of Mesa Residential Tiered Rate Structure. Gretchen Baumgardner	From Toilet to Turbine: Converting Waste to Energy in the Nation's Capital Jason Wiser	Decision Processes for Greenfield Water Reclamation Plant Phase III Expansion Hebi Li	Partnership for Safe Water Improves Water Quality and Operations Barbara Martin
9:00 - 9:30	Expense, Project and Budget Management Tactics to Provide Wastewater Service Delivery Without Increasing Rates Andrew Rheem	Energy Evaluation of Central Arizona Project (CAP) Operational and Pumping Efficiency Ty W. Morton	Chandler Ocotillo Water Reclamation Plant Expansion Andrew Gilmore	AJWD Commissions First Surface WTP Michael Loggins
9:30 - 10:00	Transitioning from Meter Size to Equivalent Residential Unit Base Charges to Improve Customer Equity Frank Davis	Sustainable Wastewater Treatment Plant Improvements Using Envision Brad Tackett	Traveling Bridge Filter Rehabilitation with Horizontal-Type Cloth Media Filter Chad D. Meyer	Challenges in Sludge Treatment at the Jonny G. Martinez Water Treatment Plant, Tempe, Arizona Luiza S. Yordanova
10:00 - 10:30	Clear and Confident Utilities - the Key to Transforming Automated Meter Projects David Allen	Solar Energy Applications for Water and Wastewater Treatment Facilities Michael Krebs	Butler Water Reclamation Facility LEAPmbr Upgrade and Conversion. Robert Garcia	Conversion from Gaseous Chlorine to Sodium Hypochlorite Utilizing Onsite Generation Jason Bobko
10:30 - 11:30	MANUFACTURER'S EXHIBITION GRAND OPENING (Media Center)			
11:30 - 1:00	LUNCHEON & KEYNOTE SPEAKER (Solana E)			
	TRACK 1 – INNOVATIVE TECHNOLOGY	**TRACK 2 – WASTEWATER COLLECTIONS**	**TRACK 3 – WASTEWATER TREATMENT**	**TRACK 4 – DESALINATION PANEL**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Moderator: Jesse Black	*Moderator: Seth Fronk*	*Moderator: Annette Reese*	*Moderator: Sharon Megdal*
1:00 - 1:30	Lessons Learned from Building and Commissioning the Greenfield Welded Steel Pipe Manufacturing Facility David Tantalean	Magnesium Hydroxide Odor Mitigation and Struvite Formation Evaluation Johnny L. Nogales	Diving In: From Conception to Construction of a New WRF Jared Carr	Connecting Israeli Water Management and Technology Innovations to Arizona Sharon Megdal Glenn Hamer Craig Gooch
1:30 - 2:00	Fiberglass Pipe Helping Solve the World's Drinking Water Shortage Jeffrey LeBlanc	When Nobody Nose: A Case Study on Odor Control Matthew Shroll	The Challenges of Expanding with a Small Footprint and Close Properties Shannon Hutchings	
2:00 -2:30	Managing Asbestos-Cement Drinking Water Mains Kay Gehring	Lessons Learned from a Comprehensive City of Phoenix 24-Inch Force Main Inspection Ryan Riggs	City of Yuma Planning for the Future - an Innovative Approach to Master Planning Wille Farmer	
2:30 - 3:00	MANUFACTURER'S EXHIBITION BREAK (Media Center)			
	TRACK 1 – INNOVATIVE TECHNOLOGY	**TRACK 2 – RESEARCH**	**TRACK 3 – WASTEWATER TREATMENT**	**TRACK 4 – YP-UTILITY MANAGEMENT**
	Moderator: Chris MacDonald	*Moderator: Craig Caggiano*	*Moderator: Steve Wedwick*	*Moderator: Lourdes Lopez*
3:00 -3:30	Getting New Life Out of an Aging Wastewater Lagoon System Tom Daugherty	Utility Evaluation of a Cupric Ion Solution for Quagga Mussel Control in Arizona Joe Hernandez	Process Considerations for Changing Times: Process Optimization and Doing More with Less. Ron Latimer	Learning from Lessons of the Past - A panel discussion on water issues from Michigan to Arizona. Dave Modeer Richard Sacks Al Brown
3:30 - 4:00	The Various Analyses Applicable to Vertical Turbine Pumps Alex Walker	An Investigation of Factors Affecting the Spread of D. Bugensis in Arizona's Reservoirs Andrew Buell	Re-Evaluating State-Point Analysis with Ballasted Mixed Liquor Systems Nathan Antonneau	
4:00 - 4:30	Transforming Data into Knowledge and Knowledge into Optimization Bryan Sharpnack	Vulnerability of Urban Water Systems to Climate Change and Mitigating the Potential for Cascading Failures Emily Bondank	Characterization of Sustainable Struvite Control in Wastewater Treatment Plants Using Residual Biogas Sarah Moore	
4:30 - 5:00	Gate 5 Energy Partners, Inc. - Sustainable Energy from Sewage Sludge Steve Delson	Multi-Scale Water Resources Planning and Management Hwee Hwang	A Novel Approach to Managing Carbon Sources for Biological Nutrient Removal Process Grandhi Srikanth	
5:00 - 6:30	EXHIBITION HAPPY HOUR AND STUDENT POSTER COMPETITION			
6:00 - 9:30	BBQ PARTY @ SADDLE RANCH CHOP HOUSE			

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AZ WATER 89TH ANNUAL CONFERENCE PROGRAM — WEDNESDAY, MAY 11, 2016				TIME
REGISTRATION OPENS (Coffee Served)				7:00 - 8:00
WELCOME REMARKS & AWARDS (Solana E)				8:00 - 8:30
TECHNICAL PROGRAM .....The Renaissance Glendale Hotel				8:30 - 5:00
STUDENT POSTERS (ON-DISPLAY) .....In Front of Exhibition Hall				8:00 - 5:00
MANUFACTURER'S EXHIBITION .....Exhibit Hall / Renaissance Glendale Hotel				10:00 - 6:30
TRACK 5 – CONSTRUCTION	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Moderator: Dave Dill	*Moderator: Robin Bain*	*Moderator: Doug Berschauer*	*Committee Meetings*	
Val Vista Water Transmission Main Rehabilitation - Steel Slip Lining of 90" PCCP David Markert	Get to Know Us: Building Rapport with Customers through the Glendale Water Services Department's Branding and Public Outreach Committee Joanne E. Toms	Operator Math I	Select Society of Sanitary Sludge Shovelers Committee	8:30 - 9:00
Rehabilitation of T-Lock Pipe on an Arizona Power Plant Recirculation Pipeline Mike Ambroziak	Landscape Water Savings Program for HOA Landscapes Jeff Lee			9:00 - 9:30
Planning Challenging Tie-Ins During Palo Verde Nuclear Generating Station Plant Outages David Fagerstrom	Progressive Water Conservation Practices in Schools Darren Sversvold		Information Technology Committee	9:30 - 10:00
Trenchless Technology for Sewers and Waterlines; Large and Small Bob Owens	Water Conservation Rebate Audit Claudia Christo		Research Committee	10:00 - 10:30
MANUFACTURER'S EXHIBITION GRAND OPENING (Media Center)				10:30 - 11:30
LUNCHEON & KEYNOTE SPEAKER (Solana E)				11:30 - 1:00
TRACK 5 – PRETREATMENT	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Moderator: Richard Dalton	*Moderator: Guy Carpenter*	*Moderator: Doug Berschauer*	*Committee Meetings*	
EPA Region 9 Regulatory Update Amelia Whitson	Sustainability in the Tucson Management Area: Application Using the Colorado River Simulation System Luis Huizar	Operator Math II	AZWARN Committee	1:00 - 1:30
	One Water Los Angeles 2040 Plan: Managing All Water as One Water Using a Novel Water Balance Model Qun (Charlie) He		Energy Committee	1:30 - 2:00
ADEQ Pretreatment Regulatory Update Galileo Gutierrez	Projecting Goodyear's Future with Development Entitlement-based Water Demands Eric McLeskey			2:00 -2:30
MANUFACTURER'S EXHIBITION BREAK (Media Center)				2:30 - 3:00
TRACK 5 – YOUNG PROFESSIONALS	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Moderator: Bill Roberts	*Moderator: Mike Worlton*	*Moderator: Jesse Black*	*Committee Meetings*	
Implementing a Leading Groundwater Treatment Program in the Coachella Valley Ryan Rhoades	Arizona's Water Resources - A Municipal Provider's Overview Wally Wilson	Water Operation and Maintenance Hydraulically Operated Control Valves	Lab Practices Committee	3:00 -3:30
Lessons Learned while Designing, Permitting, Starting-Up, and Operating a Wellhead Groundwater Cooling System David Highfield			Phoenix Luncheon Committee	3:30 - 4:00
CAP Industrial Water Treatment Systems: How Revit 3D Modeling Made Equipment Layout "Real" Blake E. Abts	Lessons of History and a Reality Check for Arizona's Water Future Doug Kobrick			4:00 - 4:30
Emerging Technology for Small Systems Drinking Water Treatment: Nitrate Removal Heather Stancl	Water Supply: Mid-Xentury or Modern? Tracy Moraca			4:30 - 5:00
EXHIBITION HAPPY HOUR AND STUDENT POSTER COMPETITION				5:00 - 6:30
BBQ PARTY @ SADDLE RANCH CHOP HOUSE				6:00 - 9:30

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SCHEDULE | THURSDAY, MAY 12, 2016

Renaissance Glendale Hotel

REGISTRATION 7:00 - 5:00

TIME	AZ WATER 89TH ANNUAL CONFERENCE PROGRAM — THURSDAY, MAY 12, 2016			
7:00 - 8:00	COFFEE (Solana E)			
8:00 - 3:00	MANUFACTURER'S EXHIBITION .....The Renaissance Glendale Hotel			
8:00 - 5:00	TECHNICAL PROGRAM .....The Renaissance Glendale Hotel			
	TRACK 1 – INNOVATIVE TECHNOLOGY	**TRACK 2 – UTILITY MANAGEMENT**	**TRACK 3 – DISTRIBUTION**	**TRACK 4 – REGULATORY**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Moderator: Andy Mally	*Moderator: Doug Berschauer*	*Moderator: Melanie Sikes*	*Moderator: Bob Hollander*
8:00 - 8:30	Impacting Your Non-Revenue Water Through a Water Audit Michael Simpson	AWWA Effective Utility Management Process Katheryn Sorenson	Water Booster Pump Station Design - A Regulatory Review Perspective from ADEQ Engineering Review Unit Tanveer Faiz	EPA Drinking Water Regulation Updates Daria Evans-Walker
8:30 - 9:00	The Benefits of PEXa for Water Service Applications through Performance Data, Installation Techniques and Case Studies Whit Hall	Management Strategies to Optimizing Water Operations Jessica L. Marlow	Coordination of Pump Control Valves & Variable Speed Pumps is Critical to Preventing Pressure Surges Michael Georgalas	Revised Total Coliform Rule Implementation Update: Arizona Prospective Korissa Entringer
9:00 - 9:30	Utilizing Remote Intelligence Monitoring and Management Systems to Conserve Water and Reduce Operational Expenses Harold Mosley	Building a Workforce For the Future "Diversity Isn't a Bad Word" David Burks	New Orleans Water Hammer Mitigation Project and the 170 mgd Booster Pump Station Improvements Larry Leischner	Introduction to Electronic Reporting for Water Quality Permitees Mindi Cross
9:30 - 10:00	MANUFACTURER'S EXHIBITION BREAK (Media Center)			
	TRACK 1 – WASTEWATER COLLECTIONS	**TRACK 2 – UTILITY MANAGEMENT**	**TRACK 3 – DISTRIBUTION**	**TRACK 4 – REGULATORY**
	Moderator: Tom Braatelien	*Moderator: Jeanne Jensen*	*Moderator: Larry Hanson*	*Moderator: Korissa Entringer*
10:00 - 10:30	Sewer Lift Station Design - A Regulatory Review Perspective from ADEQ Engineering Review Unit Tanveer Faiz	Triple Bottom Line Analysis Helps Tucson Water Identify Alternative to Building Expensive Pipeline Alan Forrest	Assessment of Large Diameter Transmission Mains: Moving Beyond PCCP to Concrete and Metallic Pipe Assessment Bethany McDonald	Understanding Your AZPDES Permit and New Electronic Reporting Requirements Andy Koester
10:30 - 11:00	Manhole and Sewer Inspections at Davis Monthan Air Force Base, Tucson, Arizona Erin Lansey	Improving Agency Cooperation for a Successful Project Mario Mendez	Condition Assessment of Critical Transmission Pipelines at the Central Arizona Project Jim Geisbush	City of Peoria Efforts to Comply with the Renewed AZPDES General Permit for Small MS4s. Robert A. Hollander
11:00 - 11:30	Sinclair Sewer Interceptor - Replacing a segment of 30" Sewer within a Casing Pipe Mike Farley	Safety in Design (SiD) James Taylor	Moving Water in Mesa - Upgrades to Transfer Station No. 3 Melanie Sikes	Operation and Maintenance of Low Pressure Sewer: Critical Issues and ADEQ's Standpoint Fahmida Maula
11:30 - 1:00	LUNCHEON, AWWA SPEAKER, & BUSINESS MEETING (Solana E)			
1:00 - 2:30	107TH ARIZONA TOWN HALL PANEL DISCUSSION			
2:30 - 3:00	MANUFACTURER'S EXHIBITION BREAK (Media Center)			
	TRACK 1 – WATER QUALITY COMMUNICATION	**TRACK 2 – SPECIAL TOPICS / SCADA**	**TRACK 3 – DISTRIBUTION**	**TRACK 4 – REGULATORY**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Moderator: Christina Hoppes	*Moderator: Patrick Goodfellow*	*Moderator: Seth Morales*	*Moderator: Anupa Jain*
3:00 - 3:30	Tap Into Quality – Your Source for Helping to Communicate the Safety, Reliability, and Convenience of Tap Water with Your Community. Rebecca Hamel	Our SCADA System is Secure, Right? Wrong. Top Mistakes Utilities Make on Cyber Security and How to AvoidThem. Daniel Groves	Utility Optimization through Productivity Management and Benchmarking Andrew Jackson	Read Your Permit! Fred Mashburn
3:30 - 4:00	The Advisory Panel on Emerging Contaminants Daniel R. Quintanar	Cyber Security - Protecting What You Can't See Tom Powell	Operational Resiliency through Effective Water Meter Maintenance Programs Angie Darnell	Source Water Protection: Protecting Your Sources of Drinking Water for Future Generations Victor Scherer
4:00 - 4:30	Water…Wastewater…..What's in a Name? Roger Carr	The 5 Deadly Sins of SCADA/PCS Cybersecurity Robert L. George	Main Breaks, Leakage, and Distribution System Evaluations Frank J. Blaha	1,4-Dioxane Discovery in Scottsdale Groundwater. Evaluation of the Analytical Method, Monitoring Data and Regulatory Perception. Suzanne Grendahl
4:30 - 5:00	Communicating with the Public: Tools and Techniques for Educating your Community About Tap Water Rebecca Hamel	Can You Handle the Pressure? Tempe's Experience with Pressure Optimization Craig Caggiano	Those Pesky TTHMs! Simon Horsley	US Bureau of Reclamation Grant Opportunities Jessica Asbill-Case
6:00 - 9:00	NETWORK ON YOUR OWN			

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AZ WATER 89TH ANNUAL CONFERENCE PROGRAM — THURSDAY, MAY 12, 2016				TIME
COFFEE (Solana E)				7:00 - 8:00
MANUFACTURER'S EXHIBITION .....The Renaissance Glendale Hotel				8:00 - 3:00
TECHNICAL PROGRAM .....The Renaissance Glendale Hotel				8:00 - 5:00
TRACK 5 – CONSTRUCTION	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Moderator: Richard Distler	*Moderator: Nashita Naureen*	*Moderator: Doug Kobrick*	*Committee Meetings*	
Building Big with Small Budgets Nico Swart	Innovative Financing for your Not-So-Traditional Infrastructure Projects Susan Craig	Wastewater Operator Panel Discussion		8:00 - 8:30
How Construction Documents Differ for Alternative Delivery Projects Tom Paul	Improvements in Infiltration Due to Water Quality Improvements at the Sweetwater Reclaim Facility Dick Thompson		Water Distribution Committee	8:30 - 9:00
Risk Management Tools and How to Conduct a Risk Management Workshop Chris Wilson	Artificial Recharge - Better Accuracy Through Site-Specific Data Collection Donald Hanson			9:00 - 9:30
MANUFACTURER'S EXHIBITION BREAK (Media Center)				9:30 - 10:00
TRACK 5 – PRETREATMENT	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Moderator: Kevin Chadwick	*Moderator: W. F. McCarthy*	*Moderator: Lisa Jackson*	*Committee Meetings*	
Evidence Collection and Technical Support Richard Dalton	Case Study: Developing Salinity Management Strategies for Reclaimed Water in Chandler Michael Hwang	Water Operator Panel Discussion	Panel Discussion Meeting	10:00 - 10:30
Pretreatment - POTW Police Lacey James	Prospering with Limited Water Supplies: The Role of Desalination in Israel Sharon B. Megdal			10:30 - 11:00
The War Against Fats, Oil, and Grease (FOG) Lee Robinson	Scottsdale Unsalted: Results Revealed for Two-Year Pilot Rebate Program Chris Hassert			11:00 -11:30
LUNCHEON, AWWA SPEAKER, & BUSINESS MEETING (Solana ABCDE)				11:30 - 1:00
107TH ARIZONA TOWN HALL PANEL DISCUSSION				1:00 - 2:30
MANUFACTURER'S EXHIBITION BREAK (Media Center)				2:30 - 3:00
TRACK 5 – RESEARCH	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Moderator: Jean E. McLain	*Moderator: Gretchen Baumgardner*	*Moderator: Jesse Black*	*Committee Meetings*	
Continuous Hydrogen Peroxide Production in Microbial Electrochemical Cells Michelle N Young	Roadmap to the 21st Century Well Field - An Updated Perspective on Well Assessment Programs Lauren Handley	Sewer Valve Operator and Maintenance	Construction Committee	3:00 - 3:30
Liquid Chromatography Paired Ion Positive Electrospray Ionization Tandem Mass Spectrometry - A Novel Analytical Technique for Analysis of Haloacetic Acids. Ivo Hrabovsky	Predicting Reverse Flow Hydraulics in Aquifer Storage and Recovery (ASR) Wells - How Does It Work? Nathan Nutter		Scholarship Committee	3:30 - 4:00
Sorptive Nanomaterials Integrated into Polymer Mats Via Electrospinning for Reduction of Organic Contaminants Natalia Hoogesteijn von Reitzenstein	Part 2: Phoenix's ASR Well: Glass Beads Versus Silica Sand Filter Pack: Is There a Difference? Gary M. Gin		Young Professionals Committee	4:00 - 4:30
Phosphate Removal from Domestic Wastewater Using Cerium Chloride and Using Cerium-Impregnated Media John Michael Gonzales	City of Chandler Aquifer Storage and Recovery Wells Expansion and Future Planning Alan Palmquist		Future Cities	4:30 - 5:00
NETWORK ON YOUR OWN				6:00 - 9:00

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TIME	AZ WATER 89TH ANNUAL CONFERENCE PROGRAM — FRIDAY, MAY 12, 2016			
7:00 - 8:00	COFFEE (Solana E)			
8:00 - 3:30	TECHNICAL PROGRAM .....The Renaissance Glendale Hotel			
	TRACK 1 – DISTRIBUTION	**TRACK 2 – SPECIAL TOPICS / SCADA**	**TRACK 3 – RESEARCH**	**TRACK 4 – WASTEWATER TREATMENT**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Moderator: Erin Pysell	*Moderator: Frederick Tack*	*Moderator: Charlie He*	*Moderator: Doug Kobrick*
8:00 - 8:30	Water Distribution System Valve Assessment Program - An Asset Management Approach for Valves Michael Vrolyks	Developing and Implementing Standards in your SCADA System Philip Glass	Solving Salinity Problem Without Generating a Brine? Mono-Valent Selective Ion Exchange Membrane for Reuse and Desalination Enhancement Qun (Charlie) He	Lessons Learned from Applying Extractive Nutrient Recovery for Managing Phosphorus in Sidestreams and Biosolids Wendell Khunjar
8:30 - 9:00	Butterfly Valve Failure Modes and the Huge Cost Benefit of Repairing the Gearbox and Replacing the Valve Seat Versus Total Valve Replacement Britt Klein	O&M Improvements from Situation Awareness Concepts Calvin R. Rooker	Electrochemical Ion Exchange Regeneration and Fluidized Bed Crystallization for Zero Liquid Discharge Water Softening Yingying Chen	Evaluating the Association of Gold Nanoparticles with Wastewater Treatment Activated Sludge Justin Kidd
9:00 - 9:30	Critical Large Valve Assessment and Replacement for the City of Chandler Lloyd Hiser	Technology Master Planning at the Speed of Change Esteban Azagra	Impact of Irrigation Canal Sediment on Microbial Water Quality Christina Morrison	How to Maximize Polymer Value for Improved Sludge Treatment Yong Kim
9:30 - 10:00	Infrastructure Optimization Through Effective Valve Maintenance Programs Steve Notch	Virtualization for SCADA Infrastructure Derek Schell	Coliphages – What Are They and Why They Might Be an Appropriate New Indicator of Fecal Contamination of Water? Charles P. Gerba	Recovery Opportunities for Metals and Energy from Sewage Sludges Anjali Mulchandani
10:00 - 10:30	BREAK			
	TRACK 1 – DISTRIBUTION	**TRACK 2 – WATER FOR PEOPLE**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER TREATMENT**
	Moderator: Eric French	*Moderator: Lisa Melton*	*Moderator: Clayton Freed*	*Moderator: Mike Weber*
10:30 - 11:00	Municipal Steel Water Storage Tank Condition Assessment and Rehabilitation - A Case Study Brindha Dhanasekaran	Water For People: Making a Difference for Everyone, Forever Corin Marron	Think Outside the GAC Box: Can Prechlorination Extend GAC Media Life and Also Reduce DBP Formation? Amlan Ghosh	Chlorine Gas Disinfection: A Regulatory Perspective Eric Laurin
11:00 - 11:30	Selecting and Installing Geomembrane Liners for Potable Water Storage Facilities Jonathan Boitano	Water For People - Working Towards Full Coverage Laura L. McCasland	What's (Staying) in your GAC? Mike Caruso	Control of Trihalomethanes at the 23rd Avenue WWTP Gustavo Lopez
11:30 - 12:00	Static Pressure Maps for Water Systems Jamie Patterson	Engineers Without Borders - University of Arizona: Challenges and Lessons Learned During Sanitation Project in Bolivia Vicky Karanikola	Pre-Chlorination and Granular-Activated Carbon as a Strategy to Reduce Formation of Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) Natalia Fischer	Energy Management Strategies for UV Disinfection Taylor A Reynolds
12:00 - 1:30	LUNCHEON, WEF SPEAKER, & GAVEL PASSING (Solana E)			
	TRACK 1 – ENERGY / SUSTAINABILITY	**TRACK 2 – UTILITY MANAGEMENT**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER COLLECTIONS**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Moderator: Haley Paul	*Moderator: Fred Rouse*	*Moderator: Mike Caruso*	*Moderator: Carol Johnson*
1:30 - 2:00	Alternative Thought Processes in Funding Energy Efficient Infrastructure Improvements Rob Wax	How Lake Havasu City's Pro-Active Wastewater Asset Management Program Makes Every Dollar Count While Keeping Rates Low and Service Delivery High Doug Thomas	Signal Butte Water Treatment Plant Update Reid B. Guzy	Benefits of Sewer Collection System Modeling Benjamin R. Fyock
2:00 - 2:30	Turning Data Into Action to drive System Optimization and Performance Steve Wortendyke	A Pro-Active and Integrated Asset Management Program - City of Phoenix Steel Tank Rehabilitation Program Can Xiao	Calculating Log Removal/Inactivation Credits for Surface Water Treatment William Kenning	Sun City Wastewater Condition Assessment, Phase 1 and 2 Marc Allen
2:30 - 3:00	Water Buffering Capacity of Urban Green Infrastructure in Phoenix Metropolitan Area Jiachuan Yang	The Integration of Technology into Pretreatment Edward Meza	Filtration Technology for High Turbidity Variety Source Water - A Feasibility Study Chao-An Chiu	Doing It Right – Developing a Truly Comprehensive Sewer Assessment/Rehab Program Mark Courtney

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AZ WATER 89TH ANNUAL CONFERENCE PROGRAM — FRIDAY, MAY 12, 2016				TIME
COFFEE (Solana E)				7:00 - 8:00
TECHNICAL PROGRAM .....The Renaissance Glendale Hotel				8:00 - 3:30
TRACK 5 – SPECIAL TOPICS – STORMWATER	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Moderator: Misti Burkman	*Moderator: Jason Bobko*	*Moderator: Gary Whitten*	*Committee Meetings*	
How Low (Impact) Can You Go? Award-Winning Low-Impact Development Toolkit from the Cities of Mesa and Glendale Megan Sheldon	Communicating Tucson's Recycled Water Program Corin Marron	Mock Exam		8:00 - 8:30
Preparing for Intense Storms at Arizona Airports Lisa Farinas	Planning Goodyear's Growth When Easy Water is Nearly Gone - Paradigm Shifts in Water Supply Planning Richard A. Humpherys			8:30 - 9:00
Asset Management for ADOT Stormwater Pump Stations: Central District Pump Station Condition Assessment Rezaur Rahman	Primary Data of Water Use Trends in Single Family Residences: Evidence from Research in Phoenix Paulette Fenderson		Utility Council Committee	9:00 - 9:30
Installed Stormwater BMPs from an Inspector's Point of View, the Good and the Bad of BMP Usage John E Eyre	HOA Water Budgeting Using GIS and Theoretical Need Jennifer Davidson			9:30 - 10:00
BREAK				10:00 - 10:30
TRACK 5 – SPECIAL TOPICS	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Moderator: Kari Tobin	*Moderator: Carol M. Ward-Morris*	*Moderator: Gary Whitten*	*Committee Meetings*	
Construction Ingenuity and Benefits of Low-Loaded Activated Sludge Technology at Big Park WWTP Todd Hansen	Where Can You See Water Disappearing Before Your Eyes? Esmie Avila	Exam Review	Water Treatment Committee	10:30 - 11:00
Construction of Hydrogen Sulfide Mitigation System Eric Christian Vechan	Urban Water Use Trends: Past, Present, and Future Carol M. Ward-Morris		Water Distribution Committee	11:00 -11:30
City of Phoenix Water Services Department, RTU Replacement at 26 Wastewater Lift Stations Tony Leibold				11:30 - 12:00
LUNCHEON, WEF SPEAKER, & GAVEL PASSING (Solana E)				12:00 - 1:30
TRACK 5 – CONSTRUCTION	**TRACK 6 – WATER RESOURCES**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Moderator: Richard Jaquay	*Moderator: Mario Castaneda*	*Moderator: Tyson Glock*	*Committee Meetings*	
Solids Handling Facilities Improvements at the Union Hills WTP Gordon Thelin	DPR Pilot Plant Operation Tips, Tricks, and Insights for Design Chelsea Francis	Gravity and Pressure Pipe Assessment, Renewal, and Rehabilitation Technologies	Water For People Committee	1:30 - 2:00
Accelerated Reservoir Construction on Postage Stamp Lance Seifert	Development of a Framework for Direct Potable Reuse Jeff Mosher			2:00 - 2:30
Booster Pump Replacement Challenges in Affluent Neighborhoods Bryan J. Forster	Membrane Concentrate Management Alternatives for Inland Potable Reuse Viking Edeback		Annual Conference Committee	2:30 - 3:00

Sessions and speakers are tentative and subject to change. Refer to the final conference program guide when you pick up your registration package.

WEDNESDAY

TRACK 1 – UTILITY MANAGEMENT

8:30-9:00

Adding Another Step; City of Mesa Residential Tiered Rate Structure

Gretchen Baumgardner, City of Mesa

Over the last several years per unit residential water usage within the City of Mesa has decreased. To adjust for revenue planning and to create a more equitable share of the cost for water, the City of Mesa implemented changes to its water rate structure beginning FY 2015/2016. The notable changes to the rate structure include rate increases, adjusting the tier structure, and adding a fourth tier. This presentation will discuss the new adjusted tier rate structure in light of the change in residential demand, and its impact on City residents and revenue generation.

9:00-9:30

Expense, Project and Budget Management Tactics to Provide Wastewater Service Delivery Without Increasing Rates

Andrew Rheem, Raftelis Financial Consultants

Lake Havasu City completed a multi-year wastewater expansion program installing a centralized sewer system throughout much of the existing City ahead of schedule and under budget.

During this session the City's budget analyst Cassandra Clow and Andrew Rheem of Raftelis Financial Consultants, will discuss how the expense, project and budget management tactics were implemented to manage system costs with current revenue mitigating wastewater rate adjustments.

9:30-10:00

Transitioning From Meter Size to Equivalent Residential Unit Base Charges to Improve Customer Equity

Frank Davis, Raftelis Financial Consultants

This session will describe the analysis used to determine the inequities that existed between the single-family and multifamily classes under the meter equivalent approach. Additionally, the session will describe the methodology to develop the readiness to serve charges on a per unit basis for the multifamily class, and how the change in methodology impacted the number of equivalents, amount of fixed revenues, and the monthly bills of different classes. Other topics will include the approach to equating a single-family dwelling to a multifamily dwelling and the challenges in communicating the range of initial impacts within the multifamily customer classification.

10:00-10:30

Clear and Confident Utilities – The Key to Transforming Automated Meter Projects

David Allen, SL-serco

The Tempe Automated Meter Team will share how they defined their needs and then went to market with a strong Automated Meter Project. The fast paced discussion will include a summary of the steps it takes to grow a single vision for automated metering outcomes and how to hold the vendors accountable to the vision. Talk is designed for utility leadership, customer service professionals and IT directors.

TRACK 1 – INNOVATIVE TECHNOLOGY

1:00-1:30

Lessons Learned from Building and Commissioning the Greenfield Welded Steel Pipe Manufacturing Facility

David Tantalean, Ameron

In 2013 Ameron Water Transmission Group started building one the largest Welded Steel Pipe manufacturing plants in North America to service water projects in the United States, Mexico and Canada. This presentation will outline the background, challenges and successes of building a facility to US and Mexican standards under a short schedule; the certification process to ISO, SPFA and NSF for the labor and materials produced; the logistics of managing raw material and finish products thru International Borders and the challenges we have faced with inspection and acceptance within the industry of an engineer product.

1:30-2:00

Fiberglass Pipe Helping Solve the World's Drinking Water Shortage

Jeffrey LeBlanc, Thompson Pipe Group – Flowtite

With the aim of alleviating the endemic water shortage, the San Diego County Water Authority (SDCWA) initiated the Carlsbad Desalination Project. This project was slated to begin delivering fresh drinking water to businesses and residents by the end of 2015. The plant was designed to convert more than 100 million gallons a day (MGD) of raw seawater into 54 MGD of desalinated drinkable water. This is the first of 12 such plants due to be constructed in California.

2:00-2:30

Managing Asbestos-cement Drinking Water Mains

Kay Gehring, 3M

Managing aging asbestos-cement drinking water pipes presents some unique challenges, compared to ferrous pipes. An approach to managing AC pipes would prevent matrix degradation, while providing structural enhancement. A new option can address these concerns.

3:00-3:30

Getting New Life Out of an Aging Wastewater Lagoon System

Tom Daugherty, Triplepoint Environmental

It is accepted that America's wastewater infrastructure is aging—and in many cases, falling into disrepair. This crisis is often most acutely felt by smaller, rural municipalities, many of which utilize a lagoon as a part of their wastewater treatment process. Operators face the limitations of conventional lagoon aeration technologies, financing difficulties, the desire to limit treatment downtime, and a general lack of technology options. In order to help alleviate these issues, this presentation will review real-world studies to determine the economic, engineering, and operational merits of rehabilitating existing lagoons with advanced aeration systems and nutrient control.

3:30-4:00

The Various Analyses Applicable to Vertical Turbine Pumps

Alex Walker, Weir Floway, Inc.

Vertical Turbine Pumps are vertically mounted centrifugal pumps that are very versatile do to their multi-staging capability. These pumps are used for many applications in almost every market. The parameters for specifying a vertical turbine pump are largely dependent on the application of service and end user preference. This presentation will discuss different types of typical analyses that VTP OEM's are requested to perform, a review of the benefits of each analysis, the outputs engineers should expect and recommendations for when and when not to specify a certain analyses.

4:00-4:30

Transforming Data into Knowledge and Knowledge into Optimization

Bryan Sharpnack, Hach

This session will show examples from utilities that have implemented Database Management Systems, trend charting, KPIs, and other tools and have used those tools as part of their strategy of ongoing improvements – making information driven decisions and optimization. We will discuss how and where these tools should be applied. Basic techniques will be presented including how to interpret SPC charts.

Understanding what tools and options are available will help utilities facilitate better business practices to drive improvements. Using a data management system can help utilities to produce a higher quality product at a lower price while protecting our environment.

4:30-5:00

Sustainable Energy from Sewage Sludge

Steve Delson, Gate 5 Energy Partners, Inc.

Gate 5 energy Partners introduces a highly scalable and sustainable infrastructure that will keep sewage sludge and many other natural waste out of the environment and produce renewable energy without using fossil fuel.

TRACK 2 – ENERGY/ SUSTAINABILITY

8:30-9:00

From Toilet to Turbine: Converting Waste to Energy in the Nation's Capital

Jason Wiser, Brown and Caldwell

DC Water's newly combined heat and power facility is now operating and converting digester gas to energy. This state of the art facility produces up to 14 MW of renewable electricity and offsets more than 30 percent of the treatment plant's electric power demand.

9:00-9:30

Energy Evaluation of Central Arizona Project (CAP) Operational and Pumping Efficiency

Ty W. Morton, HDR Engineering

The Bureau of Reclamation contracted with the HDR/ CDM Joint Venture to conduct a review of historical CAP operational and equipment performance data, including time of use and energy price fluctuations, to evaluate the efficiency of CAP's pumping activities. This review is the basis of an ongoing study to identify equipment upgrades and potential changes in operational management that will promote flexibility and maximize efficiency.

9:30-10:00

Sustainable Wastewater Treatment Plant Improvements Using Envision

Brad Tackett, Greeley and Hansen

The 170 MGD 26th Ward Wastewater Treatment Plant's upgrades provide critical redundancies to ensure it remains in operation for decades to come. New York City's DEP will be installing new energy efficient main sewage pumps, process air blowers and LED lighting. Additionally, a green roof will be added, large blowers will be put indoors to reduce noise, and all materials will be reused and recycled whenever possible. The ongoing project work is taking place pursuant to an agreement between the NYDEC and New York City, with Greeley and Hansen as the design lead on the project.

10:00-10:30

Solar Energy Applications for Water and Wastewater Treatment Facilities

Michael Krebs, PACE

Water and wastewater treatment facilities consume significant energy and appear on the surface to be perfect candidates for alternative energy applications such as solar. However, the viability of alternative power sources is highly variable and unique to each facility for a wide range of reasons, namely life-cycle costs vs savings that these systems can offer. This presentation will walk through a straightforward process to performing a pro-forma for new or existing water and wastewater facilities, public funding opportunities, regulatory implications and case studies of current projects in Arizona will be presented.

TRACK 2 – WASTE WATER COLLECTIONS

1:00-1:30

Magnesium Hydroxide Odor Mitigation and Struvite Formation Evaluation

Johnny L. Nogales, Carollo Engineers Inc.

Carollo Engineers conducted field testing of dosing magnesium hydroxide into the Albuquerque Bernalillo County Water Utility Authority wastewater collection system for odor control in conjunction with or in lieu of existing odor control chemicals. It was demonstrated that a dose of 35 mg/L magnesium hydroxide with about a third of the normal ferric and peroxide dosages can achieve odor control at overall reduced annual chemical costs ($0.84M versus $1M). However, dosing magnesium hydroxide may create conditions conducive to struvite formation. This study utilized field testing and modeling was used to determine optimum dosing strategies and methods to minimize struvite formation.

1:30-2:00

When Nobody Nose: A Case Study on Odor Control

Matthew Shroll, Brown and Caldwell

Available data suggests effective operation of the City of Mesa's Baseline Road Biofilter (BRB), yet nearby residents have recently filed odor complaints. Located along Baseline Road, the BRB treats foul air from the Baseline Road Interceptor and upstream siphon structure. Brown and Caldwell worked with the City of Mesa to identify, prioritize, and control odor emissions. Sampling activities included grab samples for reduced sulfur analysis, smoke testing, and differential air pressure monitoring. Field data was coupled with air dispersion modeling to create solutions that would mitigate the risk of odor emission to surrounding residential areas.

2:00-2:30

Lessons Learned from a Comprehensive City of Phoenix 24-inch Force Main Inspection

Ryan Riggs, HDR Engineering

The City of Phoenix has recently launched an assessment program for its force main assets. The initial focus is the Ahwatukee Force Main, a triple barrel force main, with each barrel comprised of 3.1 miles of 24-inch ductile iron pipe. The assessment methods used included remote field electromagnetic inspection, an established technology deployed using PICA's See Snake; pipe wall assessment , an emerging technology deployed using Pure's SmartBall; and gas pocket and leak detection using Pure's SmartBall. The presentation will cover the planning, execution, and field validation aspects of the inspections.

TRACK 2 – RESEARCH

3:00-3:30

Utility Evaluation of a Cupric Ion Solution for Quagga Mussel Control in Arizona

Joe Hernandez, Scottsdale Water

As quagga mussels continue to spread into metropolitan regions of the southwest, an increasing number of surface water providers and end users are being challenged with the need to find safe and practical solutions to infrastructure impacts. Copper-based compounds have been shown to effectively control the proliferation of problem aquatic organisms, including mollusks, grasses, and filamentous algae. In an effort to address a quagga mussel problem, a small scale pilot study was developed to derive site specific information about the tolerance limits of quaggas and the pulmonate snail Physella acuta, to copper. A custom made set of flow-through aquatic macrofauna observation tanks were utilized to contain and experimentally treat and monitor adult and juvenile quagga mussel specimens along with reproductively viable snails.

3:30-4:00

An Investigation of Factors Affecting the Spread of D. bugensis in Arizona's Reservoirs

Andrew Buell, Arizona State University

Quagga mussels are an invasive species that can cause damage to both engineered systems and ecosystems. The mussels have been in the Colorado River system in Arizona since 2007-2008, yet they have not invaded the Salt and Verde River Watersheds. This research has identified factors that could limit their growth in Bartlett and Saguaro Lakes. The historical data on temperature and dissolved oxygen profiles in the reservoirs was examined and it was found that both temperature and dissolved oxygen will limit growth in the summer months.

4:00-4:30

Vulnerability of Urban Water Systems to Climate Change and Mitigating the Potential for Cascading Failures

Emily Bondank, Arizona State University

As ambient temperatures increase in the Southwest due to climate change, the urban water infrastructure designed to operate under historical temperature conditions may become increasingly vulnerable to component and process failures. Used was a combined mean time to failure and fault tree analysis to estimate that under conditions where summertime temperatures have increased from around 104oF to 114oF, temperature-related infrastructural failures can lead to a 3-fold increase in the likelihood that there is a water outage to customers on any given day. We found that proactive governance and strategic improvements to maintenance practices can effectively offset this potential threat to reliability.

4:30-5:00

Multi-Scale Water Resources Planning and Management

Hwee Hwang, University of Arizona

This study involves application of multi-level planning for water resources and resource management in the presence of significant future uncertainties. At each planning level, constraints arise that govern water resources development and management at lower levels. For example, regional decisions affect state, planning area and local water management. Objective measures of planning success include new sustainability metrics and economic efficiency. Demonstration of the modeling approach was carried out using the Lower Colorado River Basin, State of Arizona, and Tucson Active Management Area as planning levels. Results can be used to compare management decisions at all levels.

TRACK 3 – WASTE WATER TREATMENT

8:30-9:00

Decision Processes for Greenfield Water Reclamation Plant Phase III Expansion

Hebi Li, City of Mesa

Jointly owned by City of Mesa, Town of Gilbert and Town of Queen Creek, the Greenfield Water Reclamation Plant is experiencing increasing flow, which is expected to reach the capacity of 16 mgd in 2019. The plant also faces some operation and maintenance challenges. The goal of the project is to improve the existing plant and expand its capacity to 30 mgd while utilizing innovative technologies for cost savings. This presentation will shed light into the decision processes the project team went through to help the project stay on course with the plant improvements and expansion needs, budget and schedule.

9:00-9:30

Chandler Ocotillo Water Reclamation Plant Expansion

Andrew Gilmore, Carollo Engineers

This presentation will showcase the OWRF Expansion Project, which will increase the OWRF capacity by 5 mgd AADF (5.5 mgd MMADF) from 10 mgd to 15.5 mgd. The OWRF expansion has been programmed to allow for an additional 30 mgd of treatment. New facilities include headworks, MBR, disinfection, reclaimed water pumping, solids handling, odor control, administration building, and maintenance building. The detailed design of the 5 mgd expansion was completed in October 2015 with construction (Sundt/McCarthy as the CMAR) scheduled to be completed.

9:30-10:00

Traveling Bridge Filter Rehabilitation with Horizontal-Type Cloth Media Filters

Chad D. Meyer, Carollo Engineers

The City of Mesa Northwest Water Reclamation Plant is an 18 mgd AADF facility including liquids and solids treatment processes. Due to the system aging, the existing sand media traveling bridge filters exhibited signs of underperformance, as well as structural, mechanical, and electrical issues. The goal of this presentation is to discuss evaluation, design, and selection performed by Carollo, Mesa, and CMAR, for an updated reliable filtration system to reduce or eliminate the current operational and maintenance issues. More specifically, to provide insights on the evaluation and design of the first horizontal-type cloth media filter installation in Arizona.

10:00-10:30

Butler Water Reclamation Facility LEAPmbr Upgrade and Conversion

Robert Garcia, City of Peoria

Last year we presented on the advantages of converting our current membranes to the new ZeeWeed 500d 370 sq. ft. LEAPmbr Membranes. Learn about the upgrade as it happened.

TRACK 3 – WASTE WATER TREATMENT

1:00-1:30

Diving In: From Conception to Construction of a New WRF

Jared Carr, City of Peoria

EPCOR Water's 8 MGD Luke 303 WRF is designed as a regional solution for the Loop 303 Corridor where there is minimal existing demand. Master planning from 0 to 8 MGD provides a unique challenge in terms of unit sizing, technology selection, equipment phasing, and

permitting. However, despite the many challenges, with coordination among all respective Federal, State, County, and Municipal agencies in addition to private utility companies and careful consideration that facility development does not outpace or underestimate population growth expectations, a master plan for a regional wastewater solution is possible where exceptional growth is expected.

1:30-2:00

The Challenges of Expanding with a Small Footprint and Close Properties

Shannon Hutchings, AMEC Foster Wheeler

The Palm Valley WRF located in Goodyear, Arizona is being expanded to a treatment capacity of 5.8 MGD. This SBR wastewater treatment facility utilizes activated sludge with biological nitrogen removal to treat municipal wastewater. The new design includes two new SBR basins as well as new and replacement equipment/processes to the existing plant. Because the facility has such a small footprint and is in such close proximity to residential housing, there is an emphasis on aesthetics, noise control, and odor control.

2:00-2:30

City of Yuma Planning for the Future – An Innovative Approach to Master Planning

Wille Farmer Jr., Carollo Engineers

The City of Yuma's last IMP was completed in 2008. Since that time, changes in economic growth, regulatory climate, wastewater quality, and enhancements in treatment technologies prompted a re-evaluation of the original projections and recommendations. The evaluations completed as part of this project were specific to the Figueroa Avenue Water Pollution Control Facility (FAWPCF). The FAWPCF's effluent discharge permit expires in 2018 and uncertainty about the future permit effluent limits drove the City to conduct this master plan. The goal of the plan was to validate planning projections, evaluate the conditions of the existing facilities and overall wastewater system treatment needs for the next 20 years.

TRACK 3 – WASTE WATER TREATMENT

3:00-3:30

Process Considerations for Changing Times: Process Optimization and Doing More with Less

Ron Latimer, Hazen and Sawyer

The presentation will use case studies to demonstrate process optimization opportunities related to nitrogen removal, maximizing performance to do more with less, and energy reduction. In addition, sidestream treatment for optimization and doing more with less will be reviewed.

3:30-4:00

Re-evaluating State-Point Analysis with Ballasted Mixed Liquor Systems

Nathan Antonneau, Evoqua

The limiting step in just about any wastewater treatment system is the liquid-solid separation in the secondary clarifiers. State-point is a useful tool in ascertaining the clarifier capacity of an existing system. The author intends to demonstrate how ballasting an existing system shifts the solids flux to increase system capacity.

4:00-4:30

Characterization of Sustainable Struvite Control in Wastewater Treatment Plants Using Residual Biogas

Sarah Moore, University of Arizona

Struvite scaling in wastewater treatment plants causes significant processing problems, including plant shutdown. Struvite formation may be controlled by acid addition, as struvite is less soluble at low pH. Since carbon dioxide readily forms carbonic acid when dissolved in water, it is possible to reuse residual biogas to lower the pH of wastewater in order to prevent the formation of struvite. The purpose of this study is to investigate the feasibility of using biogas for struvite control instead of chemical addition so that treatment plants around the world may solve processing problems by recycling a byproduct.

4:30-5:00

A Novel Approach to Managing Carbon Sources for Biological Nutrient Removal Process

Grandhi Srikanth, ???

Managing carbon sources for biological treatment process helps to enhance the biological nutrient removal process for nitrogen and phosphorus, reduce chemical usage, power consumption for aeration, biosolids production and handling, and carbon emissions for the wastewater treatment process will be discussed. It may reduce the COD removed in biosolids, the production of biogas and the energy recovery through cogeneration. A holistic approach managing the trade-off between carbon utilization for nutrient removal and biogas production for energy recovery offers opportunities for process optimization and costing savings. This session includes an interactive story-telling style demo of a novel approach using a recently completed case study.

TRACK 4 – WATER TREATMENT

8:30-9:00

Partnership for Safe Water Improves Water Quality and Operations

Barbara Martin, American Water Works Association

The Partnership for Safe Water, a voluntary water utility optimization program established in 1995 and administered by AWWA, is a self-assessment and optimization program for surface water treatment plants and drinking water distribution systems. This presentation will provide a program overview and describe the self-assessment process. Success stories from North American utilities and water quality data will demonstrate the long term benefits of maintaining a utility focus on optimization and continuous improvement.

9:00-9:30

AJWD Commissions First Surface WTP

Michael Loggins, Apache Junction Water District

The Apache Junction Water District (District) has historically used a combination of groundwater and treated surface water from Mesa to provide drinking water to Apache Junction residents. To enable self-reliance for water treatment and delivery, the District chose to utilize a portion of their CAP allocation and construct its first water treatment plant. The new Surface Water Treatment Plant (SWTP) utilizes a conventional treatment system with adsorption clarification and media filtration. The presentation will review the District's water resources portfolio, describe the SWTP's design components and construction progress, and highlight the challenges of this unique project.

9:30-10:00

Challenges in Sludge Treatment at the Jonny G. Martinez Water Treatment Plant, Tempe, Arizona

Luiza S. Yordanova, City of Tempe

The City of Tempe's Johnny G. Martinez Treatment Plant produces over 2,000 tons of alum sludge per year. Sludge treatment challenges occur at the JGM WTP due to several factors, chief of which are the basin cleaning regimen required to maintain TTHM requirements, and then also the difference in source water used at this facility. The Salt River Project supplies Salt River and Verde River waters to the plant at different times during the year. These source water chemistries contrast markedly from each other and stimulate significant operator skill in handling the treatment in sludge formation processes.

10:00-10:30

Conversion from Gaseous Chlorine to Sodium Hypochlorite Utilizing Onsite Generation

Jason Bobko, Town of Gilbert

Learn more about why the Town of Gilbert is proposing to convert one of their treatment plants from a gaseous chlorine disinfectant to onsite hypo generation.

TRACK 4 – DESALINATION PANEL

1:00-2:30

Connecting Israeli Water Management and Technology Innovations to Arizona

Moderator & Panelist: Sharon Megdal, Water Resources Research Center, University of Arizona

Panelists: Gary Gooch, North American Takadu; Glenn Hamer, Arizona Chamber of Commerce & Industry; others TBD

Projections show that Arizona faces a future gap between water demand and supply. Arizonans have a history of surface water and groundwater management innovations. It is recognized that meeting Arizona's future water demands will require additional water policy and management actions, including increased conservation and deployment of technology, along with consideration of new financing approaches. Others in the United States and around the world face or have faced similar challenges. Israel, a recognized water management and technology leader, has addressed water scarcity through a portfolio of actions, including the deployment of large-scale seawater desalination, wastewater reuse, brackish water desalination, and water conservation and efficiencies. Israel has also been a leader in relying on private sector to build large treatment facilities and relying on technology to reduce system water losses. To what extent can Israel's policies and practices serve as a model for Arizona? What can Israel learn from Arizona? The panel will examine Israel's policies and practices and discuss these and other questions.

TRACK 4 – YP: UTILITY MANAGEMENT

3:00-5:00

Learning from Lessons of the Past – A Panel Discussion on Water Issues from Michigan to Arizona

David Modeer – CRWUA President, Richard Sacks – City of Scottsdale, & Al Brown – Arizona State University

This panel discussion will analyze the cause and effect of problems that happened in Flint Michigan as well as similar issues here in Arizona. Many people don't give a second thought to what goes into providing safe, reliable drinking water, until it's threatened. From boiled water issues to corrosive pipes, as water professionals involved in dealing with emergencies in supplying this precious resource to the public, how can we learn from the past problems that brought disruption and challenges to parts of our industry? The panelists are experts in different aspects of the water industry, with inside knowledge of many of these past problems. A key objective will be to discuss how the responses were handled as well as how we can learn from these past problems and prevent future crises.

TRACK 5 – CONSTRUCTION

8:30-9:00

Val Vista Water Transmission Main Rehabilitation-Steel Slip Lining of 90" PCCP

David Markert, Kiewit Infrastructure West

This project involved the rehabilitation of 6,200-feet of 90-inch pipeline through the installation of new split and solid can steel liners. Additional scopes of work included annular space grouting, cement mortar lining, new steel closure piping, disinfection and start up services. Final surface restorations and landscaping were also part of this project. This project was completed ahead of schedule and under budget by $1.4 million.

9:00-9:30

Rehabilitation of T-Lock Pipe on an Arizona Power Plant Recirculation Pipeline

Mike Ambroziak, Construction Product Marketing

This presentation will discuss the background of the facility, and installation process used at the Redhawk Power Plant to install internal joint seals on a 72-inch T-Lock pipeline. Approximately 20 years old, the pipeline is used for their recirculation water system for cooling the two power generators on site. Internal joint seals (commonly called Weko Seals) were used to repair deteriorating extrusion welds on the inside the T-Lock lined pipeline.

9:30-10:00

Planning Challenging Tie-Ins during Palo Verde Nuclear Generating Station Plant Outages

David Fagerstrom, Archer Western Construction

Archer Western was selected to construct train 7 clarifiers at the water reclamation facility for the Palo Verde Nuclear Generating Station. During the Spring 2015 outage, Archer Western completed two plant tie-ins to an underground 54" influent pipe and a 66" effluent pipe to allow train 7 to be put online. These tie-ins were successfully carried out due to the close coordination and best practices used between Archer Western, Waterworks Engineers, WRF Projects, plant operations, and plant maintenance.

10:00-10:30

Trenchless Technology for Sewers and Waterlines; Large and Small

Bob Owens, EEC

EEC will present five case study projects in trenchless excavation for water and wastewater pipeline projects. Each of these represents a unique set of requirements, different locations, and sizes that vary substantially. In each case, there were environmental challenges in addition to physical challenges. It is always in trenchless excavation, important to recognize the soil and water conditions that affect the choices of equipment and conduit selection itself.

TRACK 5 – PRETREATMENT

1:00-2:00

EPA Region 9 Regulatory Update

Amelia Whitson, Environmental Protection Agency

EPA Region 9 Pretreatment Coordinator Amelia Whitson will provide a regulatory update to the Local Coordinators and Programs within the Arizona Pretreatment Community.

2:00-2:30

ADEQ Pretreatment Regulatory Update

Galileo Gutierrez, Arizona Department of Environmental Quality

ADEQ Pretreatment Coordinator, Galileo Gutierrez will provide a regulatory and State Program update to Local Coordinators and Programs within the State of Arizona.

TRACK 5 – WATER TREATMENT

3:00-3:30

Implementing a Leading Groundwater Treatment Program in Coachella Valley, CA

Ryan Rhoades, Hazen and Sawyer

The Coachella Valley, serving a desert community located just over an hour from Arizona, is implementing a $200M program for over 85 mgd of groundwater treatment and 36 individual facilities integrated throughout the water system. A central resin regeneration facility will be the hub for operations. Resin will be extracted from the well sites every few weeks to months, transported to/from the central facility for regeneration, and ultimately loaded back into the resin vessels. A series of decision focused workshops, a Theory of Operations Plan, and CMAR delivery method were strategies used for program delivery.

3:30-4:00

Lessons Learned while Designing, Permitting, Starting-Up, and Operating a Wellhead Groundwater Cooling System

David Highfield, Wilson Engineers

Groundwater with elevated temperature, while not a health concern, has historically seen limited use due to consumer aesthetic expectations. Wilson Engineers recently designed, permitted, inspected, and assisted with the start-up of a wellhead treatment system utilizing closed circuit cooling coils to address high temperatures being produced by groundwater wells serving developments in the west valley. This presentation will highlight the unique application of closed circuit cooling coils used in this drinking water application as well as the challenges that had to be overcome and lessons learned while designing, permitting, constructing, starting-up, and operating this facility.

4:00-4:30

CAP Industrial Water Treatment Systems: How Revit 3D Modeling Made Equipment Layout "Real"

Blake E. Abts, Carollo Engineers

The Brady, Picacho, and Red Rock Pumping Plants (A-Plants) located in northern Pinal County deliver Central Arizona Project (CAP) water to its customers. These pumping plants contain large centrifugal-type pumps that require an industrial water treatment system to service the needs of the pumps and the pumping facilities. The industrial water treatment systems are approximately 30 years old and are in need of upgrades. This presentation will take you through the decisions made on equipment selection and will show you the pumping plants and their industrial water treatment system through the use of the 3D Revit software.

4:30-5:00

Emerging Technology for Small Systems Drinking Water Treatment: Nitrate Removal

Heather Stancl, Arizona State University

With increasing stresses on drinking water supply with both quantity and quality, novel treatment solutions are critical to the long-term outlook. Employing a photocatalytic UV/TiO2 system, this work targets nitrate removal to nitrogen gases. Varied wavelength input has been shown to produce varied by-product selectivity, ranging from predominantly ammonium to zero ammonium outcomes. This study aims to determine the impacts of irradiance utilizing ultraviolet light emitting diodes and explore methods to treat nitrate for small systems applications. Additional research into a fixed-film process for nitrate will utilize fiber optics for light delivery and catalyst substrate to determine feasibility of application.

TRACK 6 – WATER RESOURCES

8:30-9:00

Get to Know Us: Building Rapport with Customers through the Glendale Water Services Department's Branding and Public Outreach Committee

Joanne E. Toms, City of Glendale Water Services Department

For a number of years, water utilities often operated under the philosophy that "no news is good news," especially when it came to being featured in the media. This prevailing attitude has changed and utilities are increasingly seeing the value of public education and outreach as a way to develop community support. In 2012, the city of Glendale Water Services Director initiated a Branding and Public Outreach (BPO) committee to communicate key messages and build rapport with our water customers. This presentation will provide an overview of the BPO committee from concept to execution, including an overview of our successes.

9:00-9:30

Landscape Water Savings Program for HOA Landscapes

Jeff Lee, Town of Gilbert Water Conservation

Landscape water use represents a significant potential for water savings. A highly cost effective way to realize large water savings is by working with owners and managers of large common area landscapes in Homeowner's Associations. This program develops a monthly calculated water requirement specific to the community based on landscape area and historical weather data. The calculated water need of that landscape is compared to the actual water consumption to identify any potential for savings. Establishing a relationship, proving water and dollar savings, and constant communication with customers has led to significant (21%) water savings at participating HOAs.

9:30-10:00

Progressive Water Conservation Practices in Schools

Darren Sversvold, City of Phoenix

Schools in Phoenix have taken innovative approaches to upgrading campus features that have resulted in significant water and energy savings. As older campuses are upgraded and newer campuses go online, total water use for all schools will likely decrease in the years to come. This presentation will showcase case studies as well as provide efficiency benchmarks for water use in schools.

10:00-10:30

Water Conservation Rebate Audit

Claudia Christo, City of Scottsdale

Scottsdale Water is wrapping up its two-year pilot rebate program aimed at reducing salinity in its reuse flow stream. Existing sewer customers were offered a range of rebate options designed to reduce added salts in the sewage system. Reduced salinity in the reuse stream translates into lower advanced treatment costs at Scottsdale's Water Campus. Without costly treatment technologies such as reverse osmosis, high salinity reuse water will continue to have detrimental effects on turf irrigation and groundwater recharge.

TRACK 6 – WATER RESOURCES

1:00-1:30

Sustainability in the Tucson Management Area: Application Using the Colorado River Simulation System

Luis Huizar, University of Arizona

The future availability of Colorado River water is of concern in the Tucson metropolitan area. Water rights likely exceed the average natural flow in the river, making the Colorado River Basin a stressed watershed. Sustainability metrics will be applied to the Tucson Active Management Area (TAMA) in order to determine the sensitivity of water availability to management decisions in the Colorado River system. A downscaled Global Climate Model scenario is used to represent naturalized flows and determine storage levels in Lake Mead/ Powell. These results will be uses in the calculation of water security metrics for the TAMA.

1:30-2:00

One Water Los Angeles 2040 Plan: Managing All Water as One Water Using a Novel Water Balance Model

Qun (Charlie) He, Carollo Engineers

City of Los Angeles recently embarked on the One Water LA 2040 Plan to manage its scarce water resources. A water mass balance model, referred as the Blue Plan-it (BPI) model, was developed using a non-proprietary simulation and optimization platform to manage all water resources as "One Water". It integrates all water flows and treatment plants in the City, considering the entire water cycle. This presentation will focus on how the model helped the development of the One Water LA Plan, and how it can easily be customized to help Arizona water agencies with water scarcity issues.

2:00-2:30

Projecting Goodyear's Future with Development Entitlement-based Water Demands

Eric McLeskey, Carollo Engineers

It is critical that Goodyear track commitments that have been made to provide water service to promote orderly growth and to make certain that the required water resources are in place at the appropriate time. Carollo used ArcGIS to create a geo-spatial model of Goodyear's water resources commitments using the City's development entitlement database, water customer billing records and land ownership, parcel, land use and other data layers. This presentation will demonstrate how the model enabled the City to spatially visualize how much water has been committed to current customers and how much is needed to serve future developments.

3:00-4:00

Arizona's Water Resources – A Municipal Provider's Overview

Wally Wilson, AZ Water Resource Committee

An Overview of Arizona's water resources; where they are, how they are used, and what is their future in an uncertain world.

4:00-4:30

Lessons of History and a Reality Check for Arizona's Water Future

Doug Kobrick, Hazen and Sawyer

There is no shortage of discussion regarding our water future, yet specific plans are elusive, and the sentiment is the problem is not really here yet. We have past accomplishments to be proud of, but what now? Lessons from our past, coupled with engineering realities and honest examination of costs and limited funding are needed to develop realistic future plans. The past teaches that water projects take decades, a perceived crisis spurs action, conservation is underestimated, and water has shifted from ag to M&I uses as Arizona has grown. Self-reliant projects will be the key to solve our water problems.

4:30-5:00

Water Supply: Mid-century or Modern?

Tracy Moraca, Brown and Caldwell

EPCOR Water owns and operates the potable water system in the master planned community of Sun City, Arizona. Much of the water resource supply to this area was constructed in the 1950s and is nearing or past its useful life. Replacement is required to maintain water supply. Sun City Wells 6.3 and 1.1B were replaced and equipped to allow EPCOR Water to upgrades their sites to current standards while still providing continuous and uninterrupted water to their Sun City customers.

TRACK 7 – OPERATOR TRAINING

8:30-10:30

Operator Math I

This session will cover basic math concepts and formulas. It will include the calculation of area, volume, and keeping track of units. The concepts and formulas used in this session will be applied in Operator Math II. This session is intended to strengthen math skills so they can be applied in answering typical certification questions.

1:00-2:30

Operator Math II

This session will build on the basic math skills from Operator Math I. The skills learned in the previous session will be applied in questions that are typical in operator certification testing (both water and wastewater related questions). Those who struggle with math are encouraged to attend both Operator Math I and II sessions.

3:00-5:00

Hydraulically Operated Control Valves

Comprehensive Overview of the typical materials of construction, Base Valve Operation, Typical Pilot system operation to include: Pump Control Valves, Pressure Reducing Valves, Pressure Sustaining Valves and Pressure Relief Valves. Class will also cover trouble shooting and maintenance items that are typical, in addition to detailed explanations on basic main valve rebuilds.

TRACK 8 – COMMITTEE MEETINGS

8:30-9:00 – Select Society of Sanitary Sludge Shovelers (5S)

9:30-10:00 – Information Technology

10:00-10:30 – Research

1:00-1:30 – AZWARN

1:30-2:30 – Energy

3:00-3:30 – Lab Practices

3:30-4:30 – Phoenix Luncheon Program

THURSDAY

TRACK 1 – INNOVATIVE TECHNOLOGY

8:00-8:30

Impacting your Non-Revenue Water through a Water Audit

Michael Simpson, M.E. Simpson Co., Inc.

Impacting non-revenue water by conducting a detailed water audit, focusing on real and apparent losses and how to effectively mitigating both types of losses and how this will increase a systems revenues and improve efficiencies will be discussed.

8:30-9:00

The benefits of PEXa for Water Service Applications through Performance Data, Installation Techniques and Case Studies

Whit Hall, Rehau

While water service lines are the smallest diameter piping within a municipality's inventory, they typically demand a large share of repair and replacement resources. Despite this, it seems as though getting management, engineering and operations in the same room to solve this service line piping dilemma can be more difficult than a third-shift repair in the middle of the mayor's neighborhood on a holiday weekend. This presentation will discuss the benefits of PEXa for water service line applications through the use of performance data, installation techniques and case studies.

9:00-9:30

Utilizing Remote Intelligence Monitoring and Management Systems to Conserve Water and Reduce operational expenses

Harold Mosley, Mueller Company

Water utilities across the U.S., including Arizona, are challenged with meeting federal regulations, state regulations, and department standards for water quality and system management. Many of these challenges occur at remote points of the distribution network. Recently introduced technology is targeted at helping utility managers and their teams meet overcome these challenges by providing them with the system intelligence necessary to make better informed decisions and to do so in real time.

TRACK 1 – WASTE WATER COLLECTIONS

10:00-10:30

Sewer Lift Station Design – A Regulatory Review Perspective from ADEQ Engineering Review Unit

Tanveer Faiz, Arizona Department of Environmental Quality

ADEQ Water Quality Division (WQD) Engineering Review Unit (ERU) is responsible for reviewing the design of all water and wastewater projects. The purpose of this presentation is to highlight best practices and critical elements of Sewer Lift Station design from an ERU review perspective. It should be noted that the design review provided by WQD ERU is primarily to ensure regulatory compliance. The major focus of the design review is to ensure reliability, redundancy, adequate capacity and flexibility. By adhering to ERU guidelines, the customers can expedite the review process.

10:30-11:00

Manhole and Sewer Inspections at Davis Monthan Air Force Base, Tucson, Arizona

Erin Lansey, HDR Engineering

Davis Monthan Air Force Base (DMAFB) is undertaking a multi-phase study to reduce infiltration and inflow (I/I) into their sewer system. Sewer flows leaving the site are metered, and DMAFB is charged for all sewer flows including I/I. Phase I of the study determined that DMAFB was experiencing significant inflow and rainfall induced infiltration during the monsoon season each year. As part of Phase II, DMAFB contracted with HDR to expand the inspection of their sewer system and provide recommendations to mitigate I/I to their system.

11:00-11:30

Sinclair Sewer Interceptor – Replacing a Segment of 30" Sewer within a Casing Pipe

Mike Farley, Woodson Engineering

The City of Flagstaff approached us about a segment of their 30-inch sewer interceptor running through NAU Campus that was ponding and not flowing properly. Upon further investigation we determined the problem was a segment of the 30-inch interceptor that was within a 48-inch casing going under San Francisco St. We developed a conceptual design, construction plans and specifications, and became the construction manager overseeing the removal of the 30-inch sewer within the casing and replacing the pipe.

PANEL SESSION: 107TH ARIZONA TOWN HALL

1:00-2:30

See page 5 for more information.

TRACK 1 – WATER QUALITY COMMUNICATION

3:00-3:30

Tap into Quality – Your Source for Helping to Communicate the Safety, Reliability, and Convenience of Tap Water with Your Community

Rebecca Hamel, Town of Gilbert

Tap into Quality presents its history, message, goals, and the ways in which its committee members serve Arizona's water professionals. This presentation will discuss the importance of proactively communicating positive messages with the public about tap water. We will discuss Tap into Quality's recent re-branding and website redesign as well as the committee's educational video as tools that all water professionals may use when communicating with the public.

3:30-4:00

The Advisory Panel on Emerging Contaminants

Daniel R. Quintanar, Tucson Water

The Arizona Department of Environmental Quality (ADEQ) formed the Advisory Panel on Emerging Contaminants (APEC) in 2012 to produce a comprehensive report describing the status of emerging contaminants in Arizona's waters. The report entitled Emerging Contaminants in Arizona's Water was compiled to document the most recent available information on emerging contaminants in Arizona's water supplies. Emerging contaminants include many chemicals and pathogenic microorganisms. According to the Chemical Abstract Services more than 65 million chemicals products are available commercially and approximately 15,000 new chemicals are added per day. (www.cas.org). This report documents the issues surrounding emerging contaminants in Arizona's waters.

4:00-4:30

Water…Wastewater… What's in a Name?

Roger Carr, City of Peoria

An awareness to find a better messaging vehicle... what are we doing anyway...for the water wastewater industry.

4:30-5:00

Communicating with the Public: Tools and Techniques for Educating Your Community About Tap Water

Rebecca Hamel, Town of Gilbert

In our technology-driven culture, communication with the public is moving away from traditional print advertising and towards digital advertising and social media. In this program, opportunities and best practices for communicating with the public about tap water will be discussed. Tap into Quality will introduce helpful tools developed by our committee and other organizations for Arizona water professionals to use when communicating the story of tap water with the public.

TRACK 2 – UTILITY MANAGEMENT

8:00-8:30

AWWA Effective Utility Management Process

Katheryn Sorensen, City of Phoenix

In 2006, the American Public Works Association, the American Water Works Association, the National Association of Clean Water Agencies, the National association of Water Companies, the Unites States Environmental protection Agency, and the Water Environment Federation formalized a collaborative effort among the organizations to promote effective utility management. The groups found that water sector utilities across the country face common challenges. They also identified "Ten Attributes of Effectively Managed Water Sector Utilities". Last summer, the Environmental Protection Agency brought these groups, along with Phoenix Water, Boston Water & Sewer Commission, NEW Water, and others together in Washington DC to update the ten attributes and revise the Effective Utility Management framework. Kathryn will discuss the findings and recommendations of this group.

8:30-9:00

Management Strategies to Optimizing Water Operations

Jessica L. Marlow, Town of Gilbert

When you think of optimizing water operations, the first thing that comes to mind is usually related to making field staff more efficient. However, the concept of doing more with less, and optimizing your field operations has many layers. It is not only dependent on the day to day activities of the field staff, but is highly dependent on the training and development of management and supervisory staff, as well as the implementation of standardized processes, procedures, and programs.

9:00-9:30

Building a Workforce for the Future – Diversity Isn't a Bad Word

David Burks, City of Peoria

Trends and technology have dictated a change in today's work climate. The change in technology and regulations was key in our decision making when hiring. However in reality, we need a staff consisting of operators that are diversified at adapting the past operator duties to the current, hi-tech skills necessary in our industry. During the hiring process, education and experience have been the key focus in hiring for operations. This hiring phenomenon has essentially depleted the fish in the pond, so to speak. The situation we created is a non-existent workforce pool to hire from, which lacks the longevity in securing the future. The question is now what?

10:00-10:30

Triple Bottom Line Analysis Helps Tucson Water Identify Alternative to Building Expensive Pipeline

Alan Forrest, CH2M

Tucson Water took a multi-faceted approach which incorporated scenario planning, a multi-variable analysis, and decision analysis to determine a strategy of action that ensures the future reliable and cost-effective delivery of renewable water supplies to the community. This presentation will describe the approach taken in conducting the Alternative Infrastructure Analysis (AIA) and will discuss the results of the study.

10:30-11:00

Improving Agency Cooperation for a Successful Project

Mario Mendez, Arizona Water Company

When water line conflicts became evident, a fast track drainage improvement project in Coconino County was not going to comply with the desired construction schedule. Arizona Water Company, Coconino County Department of Public Works and Civiltec Engineering worked together to develop a strategy to satisfy the concerns of all agencies and maintain the project construction schedule.

11:00-11:30

Safety in Design (SiD)

James Taylor, GHD Inc.

This discussion will focus on the importance of developing and implementing programs focused on lifecycle impacts of safety.

PANEL SESSION: 107TH ARIZONA TOWN HALL

1:00-2:30

See page 5 for more information.

TRACK 2 – SPECIAL TOPICS / SCADA

3:00-3:30

Our SCADA system is secure, right? Wrong. Top Mistakes Utilities Make on Cyber Security and How to Avoid Them

Daniel Groves, Arcadis

This presentation will provide utility managers and technical staff an overview of why many utility SCADA systems are not secure, some of the most common mistakes that expose utility SCADA systems to attack; how to quickly get a sense of how secure your SCADA really is some ways to start improving the security posture of your SCADA system.

3:30-4:00

Cyber Security – Protecting What You Can't See

Tom Powell, Greeley and Hansen

Protecting your facility from adversarial threats is more than locks, fences, and cameras, the traditional deterrence's or delays for physical security. Protection of the control system involves what cannot be seen, and what can impact day to day operation or impact public confidence. Protection is needed for unseen threats, or threats that can be launched from miles or continents away. This presentation will address the considerations for implementation of cyber security measures to protect the computer or SCADA network, specifically the controls network, for water and wastewater treatment plants.

4:00-4:30

The 5 Deadly Sins of SCADA/PCS Cybersecurity

Robert L. George, EMA, Inc.

Most cybersecurity guidance focuses on things you should do to fend off and detect attacks. This presentation focuses on practices you should avoid to reduce exposing your system to attack in the first place. We'll review five common mistakes that expose your system to attack, and highlight solutions to avoid these mistakes while still getting essential work done.

4:30-5:00

Can You Handle the Pressure? Tempe's Experience with Pressure Optimization

Craig Caggiano, City of Tempe

In order to optimize operation of the drinking water system, the City of Tempe joined the AWWA Partnership for Safe Water (PSW) Distribution System Optimization Program (DSOP) in 2011. Through this program, Tempe evaluated its drinking water distribution system optimization, and identified five goals for increased optimization. Two of the top goals were related to pressure management. In order to achieve these goals, Tempe implemented a low cost strategy to monitor system pressure. This presentation describes that strategy Tempe utilized to achieve a more optimized drinking water system.

TRACK 3 – DISTRIBUTION

8:00-8:30

Water Booster Pump Station Design – A Regulatory Review Perspective from ADEQ Engineering Review Unit

Tanveer Faiz, Arizona Department of Environmental Quality

ADEQ Water Quality Division (WQD) Engineering Review Unit (ERU) is responsible for reviewing the design of all water and wastewater projects. The purpose of this presentation is to highlight best practices and critical elements of Water Booster Pump Station design from an ERU review perspective. It should be noted that the design review provided by WQD ERU is primarily to ensure regulatory compliance. The major focus of the design review is to ensure reliability, redundancy, adequate capacity and flexibility. By adhering to ERU guidelines, the customers can expedite the review process.

8:30-9:00

Coordination of Pump Control Valves & Variable Speed Pumps is Critical to Preventing Pressure Surges

Michael Georgalas, Stantec Consulting Services

Careful consideration must be given regarding opening and closure times of pump control valves relative to the ramp-up and ramp-down times for variable speeds pumps to minimize pressure fluctuations within pipelines. An example will be presented where the closure times of the pump control valves were not compatible with shut-down of the variable speed pumps. The example will present data illustrating pressure anomalies within the system, identify the approach used to perform a transient analysis to identify the cause of the anomalies, summarize the findings of the transient analysis, review implementation of operational changes, and present system results after implementation.

9:00-9:30

New Orleans Water Hammer Mitigation Project and the 170 mgd Booster Pump Station Improvements

Larry Leischner, Stanley Consultants

Stanley Consultants is providing design services for three booster pump stations in New Orleans. Project includes rehabilitation of four 40 MGD pumps and new electric motors with VFD drives at the Claiborne Pump Station, and rehabilitation of one 45 MGD pumps at Panola Pump Station. To mitigate water hammer, check valves in all three pump stations were replaced with electrohydraulic actuated quick opening/ slow closing ball valves. Two elevated tanks were provided to provide storage during water hammer events. Two bladder tanks were provided in the system to further mitigate low surge pressures within the water system.

TRACK 3 – DISTRIBUTION

10:00-10:30

Large Diameter Transmission Mains: Moving Beyond PCCP to Concrete and Metallic Pipe Assessment

Bethany McDonald, HDR Engineering

Assessment of large diameter transmission mains has become a major focus of the water industry. Finding defects that lead to failure for pipelines like these is difficult. Assessment methodologies can be grouped according to the resolution of the data obtained and the level of effort required to deploy the tool. Using three inspection tiers optimizes the cost-effectiveness of the program against the pipeline condition data obtained. The presentation will discuss the specific technologies employed for each tier of assessment. How the technologies are deployed and where they fall on the scale from emerging to established will also be discussed.

10:30-11:00

Condition Assessment of Critical Transmission Pipelines at the Central Arizona Project

Jim Geisbush, Central Arizona Project

This presentation will be a review of the most recent pipeline inspections performed by CAP engineers, an approximately 7 mile long 78-inch pipe and an approximately 7 mile long 72-inch pipe. The presentation will touch on planning outages, dewatering of the pipes, lock-out/tag-out for safety, the required surface support for the inspection team, inspection tools, inspection protocol, subsequent repairs, documenting the inspection results, and lessons learned.

11:00-11:30

Moving Water in Mesa – Upgrades to Transfer Station No. 3

Melanie Sikes, Carollo Engineers

Upgrading the existing City of Mesa Transfer Station 3 from 16 mgd to 24 mgd required answering several questions including:

•How much of the existing pump station infrastructure can be used in the upgrade?

•What kind of surge protection should be provided?

•Can the construction phasing be scheduled in the bid documents to minimize down time to the existing pump station?

•How many needs and wish list items can we fit within the construction budget?

This presentation will review how the project team members worked together to answer these questions to successfully develop the design for the TS3 upgrade.

PANEL SESSION: 107TH ARIZONA TOWN HALL

1:00-2:30

See page 5 for more information.

TRACK 3 – DISTRIBUTION

3:00-3:30

Utility Optimization through Productivity Management and Benchmarking

Andrew Jackson, Town of Gilbert

Utilities are faced with unprecedented challenges related to infrastructure upkeep and system component degradation. Strategic goals and O&M programs are critical components necessary for sustainable long range infrastructure planning. Productivity management and benchmarking are significant factors a utility must calculate to ensure established program goals are met.

3:30-4:00

Operational Resiliency through Effective Water Meter Maintenance Programs

Angie Darnell, Town of Gilbert

As a result of the aging water infrastructure and system component degradation, utilities are faced with the challenge of maintaining and maximizing operational resiliency. Once a strategic meter maintenance program is in place, it is imperative that the utility continuously performs a check and balance to ensure the program is effectively accomplishing the goals of the utility while also being cost effective. The Town of Gilbert will present data they've collected over the course of a year that illustrates a comprehensive look into the challenges and successes of their metering programs.

4:00-4:30

Butterfly Valve Failure Modes and the Huge Cost Benefit of Repairing the Gearbox and Replacing the Valve Seat Versus Total Valve Replacement

Britt Klein, Tucson Water

This Presentation will review common butterfly valve failures, including the causes, cures and prevention. Failure types will address various gear failures, shear and roll pin failures and seat gasket failures. Repair and maintenance will cover gear repair, adjusting and replacing the internal mechanical seat gasket, and the importance of vaults over the actuator "gear box" for safe access and maintenance ability.

4:30-5:00

Those Pesky TTHMs!

Simon Horsley, Stantec

Have you ever had that nagging feeling that you might have greater total trihalomethane (TTHM) concentrations in your water system than your rigorous sampling and testing protocols may indicate? Are you testing at the right locations? Does the time of year matter? Will the TTHM concentrations rise if you switch from groundwater to surface water as your primary supply? If you ever asked yourself any of those questions so that you can better protect the people you serve… or if you are just into water chemistry and computer modeling… this presentation is for you!

TRACK 4 – REGULATORY

8:00-8:30

EPA Drinking Water Regulation Updates

Daria Evans-Walker, US EPA Region 9

Participants will learn about upcoming federal regulations. This presentation will review the changes coming due to RTCR, the UCMR3 detects (including hexavalent chromium) and LCR LTR (if available).

8:30-9:00

Revised Total Coliform Rule Implementation Update: Arizona Prospective

Korissa Entringer, Maricopa County Environmental Services

This presentation will provide an overview of the Revised Total Coliform Rule including discretionary policies and procedures related to this rule that are specific to the State of Arizona. This presentation will also provide review/report of implementation challenges associated with this rule Arizona.

9:00-9:30

Introduction to Electronic Reporting for Water Quality Permitees

Mindi Cross, Arizona Department of Environmental Quality

The Arizona Department of Environmental Quality is leveraging e-technology by upgrading our outdated hardware and software and taking our first steps toward the myDEQ vision – a customer specific web portal that will provide customers with the convenience and cost-savings associated with online transactions. The Water Quality Division delivered one of the first applications to allow Aquifer Protection Permittees to submit monitoring and reporting data electronically.

10:00-10:30

Understanding Your AZPDES Permit and New Electronic Reporting Requirements

Andy Koester, Arizona Department of Environmental Quality

The presentation will explain the basics of who is required to obtain an AZPDES permit, the components that make up an individual permit and an update on the new electronic DMR reporting obligations.

10:30-11:00

City of Peoria – Efforts to Comply with the Renewed AZPDES General Permit for Small MS4s

Robert A. Hollander, City of Peoria

The Arizona Department of Environmental Quality is in the process of renewing the Arizona Pollutant Discharge Elimination System (AZPDES) General Permit for Small Municipal Separate Storm Sewer Systems (MS4s). There will be new and additional compliance conditions in this permit compared to the existing permit. This presentation will cover the new and additional conditions and how the City of Peoria is planning on addressing them. The final permit is expected to be issued and become effective in early 2016.

11:00-11:30

Operation and Maintenance of Low Pressure Sewer: Critical Issues and ADEQ's Standpoint

Fahmida Maula, Arizona Department of Environmental Quality

Low-pressure Sewer Systems (LPS) can provide long-term cost effective performance to public health and the environment with proper design, operation and routine maintenance. There are many effective methods to control sewer odor and gases caused by hydrogen sulfide production; however, some methods may be more suitable and efficient than others, depending on the characteristics of the pressure sewer. Injection of Chemical to remove odor was successfully tested and is easy and cheaper to adapt. As an alternative of chemicals in existing pipes, supply of compressed air directly into the pressure sewer systems can be used effectively.

PANEL SESSION: 107TH ARIZONA TOWN HALL

1:00-2:30

See page 5 for more information.

TRACK 4 – REGULATORY

3:00 – 3:30

Read Your Permit!

Fred Mashburn, City of Phoenix

Permits are a fundamental part of environmental regulation. Permitting is used by agencies to insure environmental compliance and to describe compliance requirements. Unfortunately, all too often permits are poorly understood by the regulated community and the permitting process is suboptimal. Understanding the purposes, goals, common elements, and frequent issues of water and wastewater permits is a critical step for streamlining environmental regulation.

3:30-4:00

Source Water Protection: Protecting Your Sources of Drinking Water for Future Generations

Victor Scherer, Arizona Department of Environmental Quality

ADEQ's Source Water Program is helping public water systems throughout Arizona create site specific plans for protection of drinking water resources. These plans develop and implement best management practices for drinking water protection. This program is a continuation of the original source water assessments that were conducted on all public water systems from 1999 through 2003.

4:00-4:30

1,4-Dioxane Discovery in Scottsdale Groundwater – Evaluation of the Analytical Method, Monitoring Data and Regulatory Perception

Suzanne Grendahl, City of Scottsdale

As part of the UCMR3, Scottsdale sampled all EPDSs, including the one associated with the Superfund Site, and discovered 1,4-Dioxane. In order to study the occurrence of 1,4-Dioxane across the superfund site, the city quickly developed the analytical method in-house. The discovery of the contaminant prompted early notification to the agencies which have oversight on the project. The presentation will discuss how the agencies, the city and the participating companies all had a role in deciding an immediate response and then what to do long term. It will also outline the process of developing the analytical method in house.

4:30-5:00

US Bureau of Reclamation Grant Opportunities

Jessica Asbill-Case, US Bureau of Reclamation

The US Bureau of Reclamation has grant opportunities available each fiscal year to provide funding for water related projects. US Bureau of Reclamation funds entities for conservation plans, water savings projects, and Title XVI authorized water reuse projects.

TRACK 5 – CONTRUCTION

8:00-8:30

Building Big with Small Budgets

Nico Swart, PCL Construction, Inc.

With more stringent EPA regulations, small rural communities are caught in a never ending loop of not having adequate funds to meet EPA regulations and simply continue to by the yearly fines associated with not being in compliance. How to build with diminished budgets.

8:30-9:00

How Construction Documents Differ for Alternative Delivery Projects

Tom Paul, Mortenson Construction

The presentation will cover the uniqueness of alternative delivery documents from those of traditional design-bid-build documents.

9:00-9:30

Risk Management Tools and How to Conduct a Risk Management Workshop

Chris Wilson, Stanley Consultants

Risk management helps project teams better anticipate issues which may lead to cost overruns, schedule slippage, scope creep, and quality concerns. Risk management also involves identifying and assessing known risks to the project so the project team can develop and implement a response strategy for each risk. This presentation will include an overview of the importance of risk management, different levels of tools to manage risk, and a brief example of a simple risk management workshop.

TRACK 5 – PRETREATMENT

10:00-10:30

Evidence Collection and Technical Support

Richard Dalton, City of Tempe

In every environmental enforcement action, whether it is civil or criminal, there is a complex process in developing the case and supporting data used to validate it. Industrial Pretreatment professionals are required to follow an aggressive evidence handling and quality assurance protocol when performing their inspections, and reviewing to data to ensure compliance with local and federal regulations. This presentation will discuss the various types of enforcement actions, and evidence media from documentation, photographs, samples, and witness interviews. An emphasis will be placed on the custody chain, as well as the defense of data, and the actions of the investigator.

10:30-11:00

Pretreatment- POTW Police

Lacey James, City of Avondale

Did you know that a POTW has its own Police detail? That's right! Under the Clean Water Act's General Pretreatment Regulations it establishes the responsibilities of Federal, State, and local government, industry and the public to implement standards to control pollutants from industrial users. Pretreatment staff conducts inspections, sampling events, education, surveillance, enforcement activities of private users to protect the public's infrastructure and the safety of those who work on the collection and wastewater treatment plants.

11:00-11:30

The War Against Fats, Oil, and Grease (FOG)

Lee Robinson, City of Glendale

This is an overview of the City of Glendale Pretreatment Fats, Oil, and Grease (FOG) Program. This is a short presentation showing the multiple ways that the Glendale pretreatment program proactively keeps FOG out of the sewer system to avoid costly sanitary sewer overflows (SSO)'s.

PANEL SESSION: 107TH ARIZONA TOWN HALL

1:00-2:30

See page 5 for more information.

TRACK 5 – RESEARCH

3:00-3:30

Continuous Hydrogen Peroxide Production in Microbial Electrochemical Cells

Michelle N. Young, Arizona State University

Hydrogen peroxide (H2O2) is widely used in the water and wastewater industries, but is produced using unsustainable methods. We demonstrate sustainable, continuous H2O2 production in the cathode of a microbial electrochemical cell (MEC). We varied cathode hydraulic retention time (HRT), airflow, and stabilizer concentrations to determine H2O2 concentrations. Our MEC produces H2O2 concentrations 0.2 wt%-0.31 wt% with as little as 0.01-0.02 W-h/gH2O2 of power input, with the optimum at a 4-h HRT, 20 cm3/min airflow, and no stabilizer. Stabilizers fail to increase H2O2 concentrations as they contribute to nutrient limitation in the anode.

3:30-4:00

Liquid Chromatography Paired Ion Positive Electrospray Ionization Tandem Mass Spectrometry – A Novel Analytical Technique for Analysis of Haloacetic Acids

Ivo Hrabovsky, City of Scottsdale

A novel liquid chromatography mass spectrometry method utilizing paired ion positive electrospray ionization mass spectrometry was developed for selective and sensitive analysis of 6 haloacetic acids (HAAs). Ion pair reagent forms singly charged complex with HAAs allowing the negatively charged molecule to be detected in the positive ion mode with good sensitivity. With optimal ion pair reagent, high molecular weight complexes are formed. The detection limits of <0.5 µg/L can be achieved for all 6 HAAs with simple sample pretreatment and direct sample injection into the LC with MS detection in the multiple reaction monitoring mode.

4:00-4:30

Sorptive Nanomaterials Integrated into Polymer Mats via Electrospinning for Reduction of Organic Contaminants

Natalia Hoogesteijn von Reitzenstein, Arizona State University

Sorptive nanomaterials supported by web-like polymer scaffolds with high surface area were tested for their ability to reduce a model organic contaminant will be discussed.

4:30-5:00

Phosphate Removal from Domestic Wastewater Using Cerium Chloride and Using Cerium-Impregnated Media

John Michael Gonzales, Greeley and Hansen

The use of cerium chloride (CeCl3) to remove phosphate from waters is evaluated in this study. Excessive discharge of phosphate into the environmental promotes eutrophication of lakes and rivers. Cerium chloride, a newly available coagulant, is expected to remove phosphate from waters. The objectives of this research are to determine the efficacy of cerium chloride in removing phosphate from waters. Cerium chloride showed high phosphate removal at a wider pH range. However, impregnation of various filter media with cerium chloride and using various techniques was proven unsuccessful for phosphate removal.

TRACK 6 – WATER RESOURCES

8:00-8:30

Innovative Financing for Your Not-So-Traditional Infrastructure Projects

Susan Craig, Water Infrastructure Finance Authority of Arizona

Come hear about the new innovative "infrastructure" projects WIFA is targeting and how you can make them happen for your community. This presentation will explore initiatives to support nonpoint source (including forest restoration) and stormwater projects. Two big questions often surround these types of projects: how to pay and who pays? WIFA will present possible solutions utilizing its loan and technical assistance funding programs, and discuss the benefits and incentives available to customers. Learn ways to protect your community, public health, economic development, and Arizona's quality of life through investment in infrastructure.

8:30-9:00

Improvements in Infiltration Due to Water Quality Improvements at the Sweetwater Reclaim Facility

Dick Thompson, Tucson Water

Tucson Water's Sweetwater Reclaim Facility effluent quality was improved dramatically when Pima County brought on line the Aqua Nueva Waste Water Facility. Infiltration rates were expected to increase with this higher quality and early results confirmed this. After nine months of use rates have increased in basins which had been in use for more than 18 years.

9:00-9:30

Artificial Recharge – Better Accuracy through Site-specific Data Collection

Donald Hanson, Clear Creek Associates

Artificial recharge facilities, regardless of the technology used, require some level of analysis to simulate or predict the impact of recharge on local groundwater conditions. Simulating mounding and lateral spreading at facilities that intend to use spreading basins or vadose zone wells can be difficult because aquifer property data from wells do not necessarily apply to the vadose zone. This presentation focuses on types and methods of data collection, how much is enough, interpretation, and uses to better simulate a future recharge facility's operating capabilities and impacts to the local aquifer system.

10:00-10:30

Case Study: Developing Salinity Management Strategies for Reclaimed Water in Chandler

Michael Hwang, CH2M

The City of Chandler is in the process of developing strategies for salinity management in their reclaimed water. As part of this effort, a TDS assessment was performed of their system to evaluate sources of salinity in their reclaimed water and model potential approaches for mitigating TDS. This presentation will provide a case study of this effort and summarize the City's approach to salinity management of reclaimed water.

10:30-11:00

Prospering with Limited Water Supplies: The Role of Desalination in Israel

Sharon B. Megdal, Ph.D., Director The University of Arizona Water Resources Research Center

This presentation will address the role of desalination technology in Israel's efforts to address the scarcity of natural water sources relative to demand. Since 2006, when I first visited the Ashkelon Desalination facility, I have been following Israel's deployment of reverse osmosis desalination technology to treat both seawater desalination and brackish water. I have visited three additional plants since that time, including Sorek. When opened in 2014, it was the world's largest reverse osmosis seawater desalination facility. Through photos and other footage, the presentation will discuss how the location and expansion of seawater desalination plants have considered sensitive coastal areas, as well as the scarcity of coastal land. The presentation will also dispel what was my pre-conceived notion that all desalination plants look alike. Brackish water plants have also been built in Israel, including one that relies on evaporation ponds rather than disposal of brine to the Mediterranean Sea. Some of the desalination plants are owned and operated by Mekorot, Israel's National Water Carrier. Others have been developed through public-private partnerships.

11:00-11:30

Scottsdale Unsalted: Results Revealed for Two-year Pilot Rebate Program

Chris Hassert, Scottsdale Water

Scottsdale Water is wrapping up its two-year pilot rebate program aimed at reducing salinity in its reuse flow stream. Existing sewer customers were offered a range of rebate options designed to reduce added salts in the sewage system. Reduced salinity in the reuse stream translates into lower advanced treatment costs at Scottsdale's Water Campus. Without costly treatment technologies such as reverse osmosis, high salinity reuse water will continue to have detrimental effects on turf irrigation and groundwater recharge.

PANEL SESSION: 107TH ARIZONA TOWN HALL

1:00-2:30

See page 5 for more information.

TRACK 6 – WATER RESOURCES

3:00-3:30

Roadmap to the 21st Century Well Field – An Updated Perspective on Well Assessment Programs

Lauren Handley, Brown and Caldwell

Cities may look at the installation of new well fields as an opportunity to perform a comprehensive analysis of the aquifer and distribution systems to identify strategic locations for new water supply and ASR wells. This presentation will present a roadmap to finding the right well locations, including assessing the current state of the aquifer, estimating pumping/injection rates, prioritizing potential sites, and hydraulic modeling. With a fully integrated well assessment program, municipalities can site a well field that incorporates both water supply and ASR wells, ensures maximum production/injection capabilities, manages water quality concerns, and maximizes delivery to the distribution system.

3:30-4:00

Predicting Reverse Flow Hydraulics in Aquifer Storage and Recovery (ASR) Wells – How Does It Work?

Nathan Nutter, Carollo Engineers

Aquifer Storage and Recovery (ASR) well injection hydraulics are poorly understood in the water engineering industry. This presentation will show the benefits of understanding reverse flow hydraulics in ASR wells, and how they can limit or enhance recharge operation.

4:00-4:30

Part 2: Phoenix's ASR Well: Glass Beads Versus Silica Sand Filter Pack: Is There a Difference?

Gary M. Gin, City of Phoenix

City of Phoenix has successfully installed, developed and pump tested an 18-inch diameter Aquifer Storage and Recovery (ASR) well with natural silica sand (mesh 6 x 9) and glass beads (Sigmund Lindner, Type S, 2.4-2.9 mm). Phoenix's ultimate goal is to pilot these glass beads under recharge operations to determine the impacts to recharge operations (i.e., reduced backwash operations, sustainable and consistent recharge rates over time) and well clogging. This presentation will summarize our recent performance results and assess the differences between these two media.

4:30-5:00

City of Chandler Aquifer Storage and Recovery Wells Expansion and Future Planning

Alan Palmquist, Wilson Engineers

The City of Chandler Ocotillo Recharge Facility is undergoing an expansion of its Aquifer Storage and Recovery (ASR) wells to accommodate future reclaimed water being produced from its Water Reclamation Facilities. To plan for this expansion requires careful development with the adjacent Water Reclamation Facility, Reverse Osmosis Facility, and Large Industrial Customers. We will explore the potential pitfalls and successes to expand this facility to accommodate current and future reclaimed water production.

TRACK 7 – OPERATOR TRAINING

8:00-9:30

Wastewater Operator Panel Discussion

A panel of senior wastewater (treatment and collection) operators will answer questions and share their experiences. In addition to audience questions, a series of topics will be presented to allow the panel to share their knowledge with attendees. Panel members include John Pinkston, City of Chandler, Karla Camou-Guerra, City of Peoria, and others to be named.

10:00-11:30

Water Operator Panel Discussion

A panel of senior water (treatment and distribution) operators will answer questions and share their experiences. In addition to audience questions, a series of topics will be presented to allow the panel to share their knowledge with attendees. Panel members include Chris Kincaid, City of Chandler; Todd Hellman, City of Glendale; Jason Bobko, Town of Gilbert; and David Burks, City of Peoria.

PANEL SESSION: 107TH ARIZONA TOWN HALL

1:00-2:30

See page 5 for more information.

TRACK 7 – OPERATOR TRAINING

3:00-5:00

Sewer Valve Operation and Maintenance

With the aggressive environment present in today's sewer systems valve selection is critical. This class will discuss materials selections and valve selections for different applications. In addition, trouble shooting and rebuild options for different types of valves to include: Plug Valves, Sewer Air Release Valves, Check Valves, and Cast and Fabricated Slide Gates.

TRACK 8 – COMMITTEE MEETINGS

10:00-11:30 – Panel Discussion Meeting
3:00-3:30 – Construction
3:30-4:00 – Scholarship
4:00-4:30 – Young Professionals
4:30-5:00 – Future Cities

FRIDAY

TRACK 1 – DISTRIBUTION

8:00-8:30

Water Distribution System Valve Assessment Program – An Asset Management Approach for Valves

Michael Vrolyks, Wachs Water Services

In this presentation we will share the proactive steps taken by the City of Phoenix to kick start their renewal program by teaming with experts in distribution system asset assessment and inventory. These programs produce immediate results by identifying and documenting the location and operability of system components and delivering this data to the City of Phoenix Project Team so they can begin the important process of improving operational intelligence.

8:30-9:00

Main Breaks, Leakage, and Distribution System Evaluations

Frank J. Blaha, Water Research Foundation

In evaluating buried pipelines for possible renewal, a common consideration is how a utility's break rate compares with other utilities, but there is no nationally accepted main break number. Evaluating the literature, supplemented by case study reviews, this session addresses: the primary sources of information to help inform a national main break rate discussion, what is a good estimate of the national main break rate and a reasonable national goal for main breaks in an optimized distribution system, and, how do main breaks and leakage interplay in the AWWA Manual M36 on water loss control?

9:00-9:30

Critical Large Valve Assessment and Replacement for the City of Chandler

Lloyd Hiser, CSW Contractors, Inc.

A large valve assessment study has recently been completed for the City of Chandler which evaluated the condition of 20" to 48" water valves located throughout their water transmission and distribution network. The analytical assessment of these valves resulted in a ranking system based on each valve's overall importance to the functionality of the water network and prioritized them in order of replacement precedence. The City chose the two highest priority valves located on a 48" PCCP water transmission main near the intersection of McQueen and Pecos Roads and had them replaced under a CMAR project delivery method.

9:30-10:00

Infrastructure Optimization through Effective Valve Maintenance Programs

Steve Notch, Town of Gilbert

Water utilities are faced with the challenge to maintaining aging infrastructure. Effectively managed assets will last the expected lifespan if maintained properly. A Water Distribution Valve Exercising Program should be designed to systematically identify, operate and assess all water distribution system valves.

10:30-11:00

Municipal Steel Water Storage Tank Condition Assessment and Rehabilitation – A Case Study

Brindha Dhanasekaran, CH2M

Welded steel tanks have provided reliable and economical water storage for municipal operations. Regular maintenance will maximize the durability and extend service life of steel tanks. However, facility shut downs for maintenance are not always possible, leading to long-term corrosion. Eventually, deferred maintenance will create the need for a systematic condition assessment and rehabilitation. If the assessment indicates severe damage, the replacement of the tank may be required. Using a case study of the Hahn Water Production Facility (WPF) in Chandler, AZ, this presentation will focus on methodology for condition assessment for aging welded steel tanks and strategies for rehabilitation.

11:00-11:30

Selecting and Installing Geomembrane Liners for Potable Water Storage Facilities

Jonathan Boitano, HDR Engineering

Just as coating technologies and product lines have advanced in recent years, so have geomembrane liners. Selecting the appropriate geomembrane, underlay fabric, and installation design are all essential in maximizing the lifespan and efficacy of the liner. This presentation will discuss the use of geomembrane liners for leak prevention in potable water storage facilities, available material types and their appropriate applications, installation techniques that will limit wear and maximize performance, and preventative maintenance. Examples from recent Tucson Water liner replacement projects will be presented for illustration and explanation.

11:30-12:00

Static Pressure Maps for Water Systems

Jamie Patterson, EPCOR Water

Using ArcGIS to create static pressure maps based on the hydraulic grade line is a great first step towards analyzing and understanding a water system. This GIS analysis uses network piping data and elevation data to calculate approximate pressures at various locations. The benefits include: immediate map deliverables for Operational use, improved asset data in GIS, enhanced system analysis, and improved communication with Operations staff. Owners who complete static pressure maps are well positioned to move on to more advanced hydraulic modeling.

TRACK 1 – ENERGY / SUSTAINABILITY

1:30-2:00

Alternative Thought Processes in Funding Energy Efficient Infrastructure Improvements

Rob Wax, Ameresco

It is clear to the Arizona Community now, that there is a relationship between water and energy. This energy-water "Nexus" is something we must continue to strive for, for increased efficiency. Both pieces will build an infrastructure for a sustainable development and community in Arizona. However, once the ideas on conservation are formed, how do we implement them into energy efficiency projects? What if, in these times of low funding, we do not have the capital to complete the improvements we need? In this session, we will present how self-funded projects can be the alternative solution to these questions.

2:00-2:30

Turning Data into Action to Drive System Optimization and Performance

Steve Wortendyke, Black and Veatch

Water and wastewater utilities typically have many sources of data that are collected through either of manual or automatic activity. One of the most common data sources is an automation control system that provides process control and monitoring of critical instrumentation in a graphical representation that allows operations staff to view the current status. While useful for instantaneous monitoring of the plant, the repository of the collected data generally lack the analytics and data visualization that is geared toward long-term system optimization. We will discuss the implementation of these pilot projects, their successes and lessons learned.

2:30-3:00

Water Buffering Capacity of Urban Green Infrastructure in Phoenix Metropolitan Area

Jiachuan Yang, Arizona State University

Building urban green infrastructure in Phoenix helps to cool the environment and reduce the urban heat island. Day peak surface temperature and 2m air temperature can be reduced by 6 and 2 degree Celsius in full greening scenario as compared to the water-saving scenario. Substantial amount of water consumed for irrigation requires special attention when planning urban green infrastructure for Phoenix city in the future.

TRACK 2 – SPECIAL TOPICS / SCADA

8:00-8:30

Developing and Implementing Standards in Your SCADA System

Philip Glass, City of Peoria

In this presentation, I will be discussing the need for standardization in SCADA graphic screens and programs. The presentation will begin with why standards are important and the consequences of not using standards. I will give numerous examples of graphic screen and programming attributes that can be standardized, along with recommendations for basic standards. The presentation will conclude with a summary of efforts involved and benefits that can be realized by the development and use of standards in your SCADA system.

8:30-9:00

O&M Improvements from Situation Awareness Concepts

Calvin R. Rooker, EMA, Inc.

As part of the Regional Optimization Master Plan project, Pima County Regional Wastewater Reclamation Department asked EMA to prepare a SCADA Master Plan as a roadmap to upgrade critical infrastructure, using best practices and situation awareness concepts for significant operations and maintenance improvements. PCRWRD wanted to centralize their system operations standardizing their operator interface experience. EMA worked with PCRWRD to evaluate and develop a standardized operator interface and alarm management design to improve operator awareness and reduce nuisance process alarms. This session highlights concepts and solutions used to upgrade and improve infrastructure and presents benefits realized by O&M staff.

9:00-9:30

Technology Master Planning at the Speed of Change

Esteban Azagra, Arcadis

This session will focused on discussing best practices for the development of technology master plans, departing from "traditional" functional perspectives, and focusing on a business-driven approach to ensure effective business and IT alignment.

9:30-10:00

Virtualization for SCADA Infrastructure

Derek Schell, Brown and Caldwell

As the cost of control system interruptions become elevated due to the extended use, integration, and increase in user access, ensuring control system availability is critical in today's water and wastewater SCADA infrastructures. Since many SCADA managers are constantly modifying and upgrading their system as technology advances, many can benefit from the limited physical hardware, failover and disaster recovery support, and legacy operations advantages virtualization can provide. Each SCADA system has different needs and uses for their system. Understanding these needs is key to understanding how virtualization can provide advantages to SCADA systems of the future.

TRACK 2 – WATER FOR PEOPLE

10:30 – 11:00

Water For People: Making a Difference for Everyone, Forever

Corin Marron, Arcadis

Water For People brings together local entrepreneurs, civil society, governments, and communities to establish creative, collaborative solutions that allow people to build and maintain their own reliable safe water systems. Empowering everyone transforms people's lives by improving health and economic productivity to end the cycle of poverty. This presentation will provide an overview of Water For People's model and highlight ways AZ Water members can get involved.

11:00-11:30

Water For People – Working Towards Full Coverage

Laura L. McCasland, City of Scottsdale

Water For People brings together local entrepreneurs, civil society, governments, and communities to establish creative, collaborative solutions that allow people to build and maintain their own reliable safe water systems. Empowering everyone transforms people's lives by improving health and economic productivity to end the cycle of poverty. In this session, the local committee co-chair, Laura McCasland, will talk about the recent Impact Tour to Bolivia, EF Accelerator (WFPs latest initiative), Sanitation as Business (SaaB) and the numerous ways that Water For People is fulfilling its mission and goals.

11:30-12:00

Engineers Without Borders – University of Arizona: Challenges and Lessons Learned During Sanitation Project in Bolivia

Vicky Karanikola, University of Arizona

Engineers without Borders –University of Arizona worked in the Andean community of Marquirivi, Bolivia. The project was a sanitation project that would include latrines, showers, and sinks. The team constructed a community shower structure and performed multiple water testing and improvements in the community. However, EWB encountered significant obstacles in terms of initially the design and later with the community's lack of active participation and community feel among the members of the community. This presentation will focus on lessons learned from project red flags and how other chapters can recognize and avoid similar problems with projects in developing communities.

TRACK 2 – UTILITY MANAGEMENT

1:30-2:00

How Lake Havasu City's Pro-Active Wastewater Asset Management Program Makes Every Dollar Count While Keeping Rates Low and Service Delivery High

Doug Thomas, Lake Havasu City

Lake Havasu City was in the midst of a multi-year wastewater expansion program installing a centralized sewer system throughout much of the existing City, costs of the project were estimated to exceed $500M, wastewater revenues were lagging projections as customers reduced water use and the resulting rate adjustments projected monthly residential wastewater bills over $100 at the end of the project. During this session the City's wastewater director Doug Thomas and Andrew Rheem of Raftelis Financial Consultants, will discuss how the asset management program assisted the City during the feasibility analysis.

2:00-2:30

A Pro-active and Integrated Asset Management Program – City of Phoenix Steel Tank Rehabilitation Program

Can Xiao, City of Phoenix

By utilizing a proactive and integrated asset management approach, learn how the City of Phoenix successfully transitioned its Steel Tank Rehabilitation Program into an asset management program integrated with both engineering and operational components that will ultimately be focused on Preventative Maintenance (PM) activities.

2:30-3:00

The Integration of Technology into Pretreatment

Edward Meza, Town of Gilbert

This presentation will include using the technology of computer tablets to conduct Pretreatment Inspections and using remote flow equipment to generate real time flows and reports. It will cover the reason for, the opportunities faced, lessons learned, and the efficiencies created.

TRACK 3 – RESEARCH

8:00-8:30

Solving Salinity Problem Without Generating a Brine? Mono-Valent Selective Ion Exchange Membrane for Reuse and Desalination Enhancement

Qun (Charlie) He, Carollo Engineers

In the southwest US, reclaimed water with high sodium concentration or sodium adsorption ratio poses a critical issue for irrigation. Many utilities use reverse osmosis (RO) or nanofiltration (NF) to desalinate the reclaimed water, which generates a brine (or concentrate) stream that cannot be easily disposed of. A treatment process that can selectively remove sodium or chloride would be ideal. Newly developed IX membranes enhance the selective removal of monovalent ions. This presentation will discuss results of a recent completed pilot testing using novel monovalent selective IX membranes at Water Campus, City of Scottsdale, Arizona.

8:30-9:00

Electrochemical Ion Exchange Regeneration and Fluidized Bed Crystallization for Zero Liquid Discharge Water Softening

Yingying Chen, University of Arizona

A bipolar membrane electrodialysis stack and a fluidized bed crystallization reactor were used to regenerate ion exchange media in a closed-loop system. The process eliminates the creation of waste brine solutions that are normally produced when regenerating ion exchange media. The energy costs for producing acids and bases were an order of magnitude lower than the costs for purchasing acid and bases in bulk quantities.

9:00-9:30

Impact of Irrigation Canal Sediment on Microbial Water Quality

Christina Morrison, University of Arizona

Irrigation canal sediment contains many microorganisms, some of which may be pathogenic. These pathogens can be re-suspended from the sediment, resulting in the degradation of water quality

within the canal. This study sought to determine whether changes in canal water velocity influence pathogen re-suspension, and whether the same behavior is exhibited when sediment size is varied. Water velocity was varied in a closed-system flume lined with sediment inoculated with a target organism. It was found that the amount of re-suspended organism increases with increasing velocity, with larger increases corresponding to smaller sediment size.

9:30-10:00

Coliphages – What Are They and Why They Might be an Appropriate New Indicator of Fecal Contamination of Water?

Charles P. Gerba, University of Arizona

Recently the United States Environmental Protection Agency has proposed the use of coliphages as a measure of fecal contamination of recreational waters. Methods for detection of coliphages and there occurrence after different wastewater treatments are reviewed.

TRACK 3 – WATER TREATMENT

10:30-11:00

Think Outside the GAC Box: Can Prechlorination Extend GAC Media Life and Also Reduce DBP Formation?

Amlan Ghosh, Corona Environmental Consulting

The City of Scottsdale uses GAC at its Chaparral WTP to remove TOC and reduce DBP formation in the distribution system. The City had previously evaluated pre-chlorination prior to GAC which showed that when pre-chlorination was applied, TTHM formation in the treated water was reduced by up to 39%. However, several questions remain regarding the efficient use of prechlorination, such as prechlorination dose, contact time, etc. WRF project 4607 is addressing these questions through pilot and full-scale evaluations. This presentation will demonstrate the effect of prechlorination on prolonging GAC media life and reducing DBP formation in the distribution system.

11:00-11:30

What's (Staying) in Your GAC?

Mike Caruso, Black & Veatch

Granular activated carbon (GAC) is a popular choice locally for filtration and removal of disinfection by-product precursors and other dissolved contaminants. To reduce costs, GAC is "reactivated" to remove these contaminants … but are they all really removed? This presentation explores the trend of heavy metals (arsenic) retention within GAC media after the reactivation process and options for cost effectively controlling heavy metals buildup to maintain NSF certification.

11:30-12:00

Pre-chlorination and Granular Activated Carbon as a Strategy to Reduce Formation of Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5)

Natalia Fischer, Arizona State University

The cities of Phoenix and Scottsdale both use GAC to minimize DBP formation and comply with TTHMs and HAA5 Maximum Contaminant Level (MCL) regulations. The objective of this project was to investigate the impact of pre-chlorination on the removal of TOC and on the formation potential and removal of THMs and HAA5 by GAC using water from a treatment plant in the city of Scottsdale. Results showed that the use of chlorine could extend the GAC bed life. TTHM formation potential in the effluent was also reduced, which implies that pre-oxidation can assist with compliance with more strict MCL limits.

1:30-2:00

Signal Butte Water Treatment Plant Update

Reid B. Guzy, Black & Veatch

After the project was temporarily put on hold in 2011, the Signal Butte WTP design has resumed and is anticipated to reach 90% in June 2016, with the plant producing water in 2018. Early in the renewed predesign effort, the City of Mesa updated the treatment process to include ballasted flocculation with ozone and biological filtration. These technologies will initially treat 24 mgd, and 48 mgd at buildout. This presentation highlights key decisions made by the team in determining the need for and timing of the plant, updating the treatment process, and an overview of the WTP facilities and schedule.

2:00-2:30

Calculating Log Removal/Inactivation Credits for Surface Water Treatment

William Kenning, Maricopa County Environmental Services Department

Calculating the log removal credit for a surface water or ground water under the direct influence of surface water (GWUDI) treatment process is based on the source water quality, the type of treatment techniques and options being applied, and the disinfection method(s) used to produce drinking water. This presentation will cover source water classification and removal credits awarded to standard treatment processes such as conventional, direct, alternative, diatomaceous earth and slow sand filtration systems and unfiltered systems. Additional treatment options and the methodology for calculating the log removal credit for multi-barrier treatment processes and disinfection methods will also be covered.

2:30-3:00

Filtration Technology for High Turbidity Variety Source Water – A Feasibility Study

Chao-An Chiu, Carollo Engineers

Membrane filtration technologies, with pretreatment, show greater potential for the application of water treatment with high turbidity variety than conventional filtration. In addition, membrane filtration requires less footprint, to achieve higher solids removal, while meeting the physical restrictions of the project. Further studies of coagulant optimization and simulation distribution system (SDS) testing are recommended for better understanding organic removal and disinfection by-product (DBP) mitigation in the proposed regional water supply system with long water age.

TRACK 4 – WASTEWATER TREATMENT

8:00-8:30

Lessons Learned from Applying Extractive Nutrient Recovery for Managing Phosphorus in Sidestreams and Biosolids

Wendell Khunjar, Hazen and Sawyer

We will review the lessons learned from design, construction and operation of nutrient recovery facilities. As part of this present, we will also provide an overview of the approach that can be used to quantify benefits of implementing extractive nutrient recovery

8:30-9:00

Evaluating the Association of Gold Nanoparticles with Wastewater Treatment Activated Sludge

Justin Kidd, Arizona State University

The association of engineered nanomaterials (ENMs) with suspended solids in wastewater treatment plant (WWTP) sludges is likely to be the dominant pathway of their removal. The goal of this research was to test and provide sufficient information to predict the removal of gold nanoparticles to sludge in wastewater treatment through their association with sludge. We conducted experiments to determine the net removal of gold nanoparticles, the biomass density of the sludge, the surface affinity of gold to sludge, and the dissolution of gold nanoparticles. Sludge is an effective tool for associating and removing gold nanoparticles from wastewater.

9:00-9:30

How to Maximize Polymer Value for Improved Sludge Treatment

Yong Kim, UGSI Chemical Feed, Inc.

This presentation will demonstrate how a good understanding of fluid dynamics and polymer chemistry helps in designing better mixing equipment to maximize the value of polymeric flocculants. Laboratory testing and field evaluations at several wastewater treatment plants confirmed that well-designed polymer mixing equipment alone could improve the dewatering process efficiency as well as significant polymer savings.

9:30-10:00

Recovery Opportunities for Metals and Energy from Sewage Sludges

Anjali Mulchandani, Arizona State University

U.S. sewage sludges were analyzed for metal content. We have identified 13 of the most lucrative elements present, including gold, silver, copper, phosphorous and iron, which amount to a relative potential economic value of $280/ton of sludge if fully recovered. There is also potential for energy recovery through extraction of bio-oil from bacterial lipids. A sludge treatment scheme utilizing hydrothermal liquefaction is under development, through which these valuable resources can be extracted while simultaneously destroying pathogens and recalcitrant pollutants.

10:30-11:00

Chlorine Gas Disinfection: A Regulatory Perspective

Eric Laurin, Coe & Van Loo Consultants, Inc.

Disinfection using chlorine gas is declining owing to safety and regulatory concerns. Applicable Fed and TCEQ regulations and leak control technologies will be discussed.

11:00-11:30

Control of Trihalomethanes at the 23rd Avenue WWTP

Gustavo Lopez, Wilson Engineers

The latest Arizona Pollutant Discharge Elimination System permit for the 23rd Avenue WWTP includes monthly average and daily maximum effluent limits for bromodichloromethane and dibromochloromethane. The 23rd Avenue WWTP's Aquifer Protection Permit (APP) includes the alert level and aquifer quality limits for total THMs. The purpose of this presentation is to discuss the results of two different approaches that the City of Phoenix field tested at the 23rd Avenue WWTP to reduce the formation of the THMs and related components below the regulatory standards. The approaches that will be discussed are step feed chlorination and chloramination.

11:30-12:00

Energy Management Strategies for UV Disinfection

Taylor A Reynolds, Enaqua

UV disinfection is a significant drain on O&M budgets. By understanding the various control strategies implemented by UV manufacturers and how to optimize energy usage, plants can minimize the impact the UV systems have on the annual O&M Budget. In addition to control strategies; design considerations and UV lamp physics will be discussed to demonstrate how all these aspects ultimately play into the final

energy bill delivered to the plant. By the end of the presentation, operators be able to evaluate where improvements might be made at their plant to decrease the energy bill for the UV system.

TRACK 4 – WASTEWATER COLLECTIONS

1:30-2:00

Benefits of Sewer Collection System Modeling

Benjamin R. Fyock, Pima County Regional Wastewater Reclamation Department

The Pima County Regional Wastewater Reclamation Department (PCRWRD) maintains a sewer collection system that includes more than 3,800 miles of sewer line, two metropolitan wastewater treatment plants and multiple sub-regional facilities. PCRWRD developed a computer model of the wastewater system to assist with CMOM compliance, short- and long-term planning as part of CIP prioritization, flow management plans, and capacity management.

2:00-2:30

Sun City Wastewater Condition Assessment, Phase 1 and 2

Marc Allen, EPCOR

EPCOR Water owns and operates water and wastewater systems in Sun City, Arizona where they wanted to develop a wastewater inspection, assessment and rehabilitation program. The wastewater system includes approximately 273 miles of gravity pipe and nine miles of pressurized force main pipe. Phase 1 of the project included risk analysis of all 273 miles of gravity pipe, identifying over 214,000 feet of higher risk pipe for inspection. Phase 2 included inspection and assessment of approximately 56,000 feet of the highest risk pipe as determined in Phase 1. The assessment identified 49 segments that are recommended for rehabilitation.

2:30-3:00

Doing It Right – Developing a Truly Comprehensive Sewer Assessment/ Rehab Program

Mark Courtney, Brown and Caldwell

The City of Tempe has approximately 530 miles of sewer mains and over 10,000 manholes installed in its wastewater collection system. In order to expand and improve overall management of the system, the City developed a comprehensive, multi-year assessment program. Several components differentiate this programmatic approach to condition assessment, including: multi-year commitment to find and address deficiencies system wide; defined and robust data management; improved maintenance management; and utilization of available technologies. Phase 1 of the program included inspection and assessment of 200,000 feet of pipe and 1,500 manholes, and a prioritized capital program to address identified deficiencies.

TRACK 5 – SPECIAL TOPICS – STORMWATER

8:00-8:30

How Low (Impact) Can You Go? Award-Winning Low-Impact Development Toolkit from the Cities of Mesa and Glendale

Megan Sheldon, City of Glendale

Low Impact Development (LID) is a sustainable approach to stormwater management with the goal to mimic the predevelopment hydrologic regime of a developed area. LID tools can be used to divert, store, and utilize stormwater runoff to support native and designed landscapes. While conventional stormwater systems are still critical to public safety, LID techniques can be part of a holistic approach, providing multiple benefits to the community to reduce potential flooding, improve water quality, and enhance landscapes. The LID Toolkit is a comprehensive compilation of solutions that are available for use in public and private locations throughout the region.

8:30-9:00

Preparing for Intense Storms at Arizona Airports

Lisa Farinas, City of Phoenix

Flooding is an ongoing hazard, especially when you operate the nation's fifth busiest airport. The City of Phoenix Aviation Department administers the Stormwater Pollution Prevention Program at the three City of Phoenix airports as part of its hazard mitigation program. Changing weather patterns have brought more intense storms to Phoenix in the last few years, with record breaking rainfall causing unprecedented flooding at the City of Phoenix airports. The Aviation Department has had to implement and reevaluate pollutant prevention strategies to prevent pollution during intense storms.

9:00-9:30

Asset Management for ADOT Stormwater Pump Stations: Central District Pump Station Condition Assessment

Rezaur Rahman, HDR Engineering, Inc

If left without routine maintenance and inspection, any asset will degrade and problems will arise. This presentation will discuss ADOT's Central District Pump Station Condition Assessment project that HDR is conducting. This evaluation plan is a structured program that will assess, prioritize, and recommend repair, rehabilitation and maintenance work on the Central District's 72 stormwater pump stations. This presentation will discuss the goals, outline and the importance of the project.

9:30-10:00

Installed Stormwater BMPs From an Inspector's Point of View, the Good and the Bad of BMP Usage

John E Eyre, Arizona Department of Environmental Quality

A Friday review of what an ADEQ Inspector sees in the field during a stormwater inspection with stormwater BMPs and how a stormwater inspection is supposed to go.

TRACK 5 – CONSTRUCTION

10:30-11:00

Construction Ingenuity and Benefits of Low-loaded Activated Sludge Technology at Big Park WWTP

Todd Hansen, MGC Contractors, Inc.

Big Park Domestic Wastewater Improvement District (District), Sunrise Engineering and MGC Contractors worked together to replace and increase the capacity of a nearly 20-year old activated sludge wastewater treatment plant near Sedona, Arizona. The existing WWTP was an "end of the line" plant that could not be removed from service while the construction of the new plant commenced. This new plant provides the District with lower overall operation and maintenance costs, can be maintained without taking the plant out of service and provides better effluent water quality than their previous system.

11:00-11:30

Construction of Hydrogen Sulfide Mitigation System

Eric Christian Vechan, Archer Western Construction

Learn about this CMAR project and how a hydrogen sulfide mitigation system for the City of Scottsdale was constructed. ECO2 supplied the major system components and Archer Western Construction was responsible for construction.

11:30-12:00

City of Phoenix Water Services Department, RTU Replacement at 26 Wastewater Lift Stations

Tony Leibold, Stanley Consultants

Stanley Consultants provided design and construction support for RTU replacements at the City's 26 Wastewater Lift Stations. Services included design for new RTU Control Panels and coordination of the construction of these panels and their installation on site. Each of these control panels and RTUs were designed using the latest versions of the City of Phoenix standards. For each lift station a complete set of "as-built" project documents were produced and entered into the City's document storage system.

1:30-2:00

Solids Handling Facilities Improvements at the Union Hills WTP

Gordon Thelin, Carollo Engineers

The City of Phoenix's Union Hills Water Treatment Plant (UHWTP) is a 160 mgd plant that treats water delivered by the CAP canal. In 2014, the City initiated the UHWTP Solids Handling Facility Improvements Project to provide improved sludge removal at the Pretreatment Facility as well as modification of the existing Interim Dewatering Building into a permanent Dewatering Building. This presentation will provide an overview of the changes to the Pretreatment Facility and the Dewatering Building that are currently in construction. The construction management coordination between the engineer, construction manager and the City will be highlighted.

2:00-2:30

Accelerated Reservoir Construction on Postage Stamp

Lance Seifert, Kiewit

This presentation will discuss the teams approach to the challenges faced during the Construction of a 20 MG concrete Reservoir at the Deer Valley Water Treatment Plant. The challenges included working within a live facility, little to no access for cranes and accelerated construction schedules.

2:30-3:00

Booster Pump Replacement Challenges in Affluent Neighborhoods

Bryan J. Forster, MGC Contractors, Inc.

City of Scottsdale, GHD, DWL Architects and MGC Contractors collaborated to design and replace two booster pump stations (BPS): 36-3 and 36-5. These were delivered via design-bid-build and were completed in the spring of 2016. Highly congested underground utilities, small sites, architecturally complex buildings and close proximity of neighbors created challenges that the project team was able to successfully overcome. Dozens of Maintenance of Plant Operations (MOPOs) were required to bring the new facilities on line and these new facilities improved the reliability of the Scottsdale water system.

TRACK 6 – WATER RESOURCES

8:00-8:30

Communicating Tucson's Recycled Water Program

Corin Marron, Arcadis

Tucson Water is in the initial implementation phase of its Recycled Water Program, embarking on public outreach, technical studies, and facility planning that will lead to permitting, design, and construction of potable reuse facilities. These efforts will further diversify the utility's water resource portfolio with a reliable and locally controlled renewable supply. This presentation will provide an overview of the ongoing public outreach efforts for the Recycled Water Program.

8:30-9:00

Planning Goodyear's Growth when Easy Water is Nearly Gone – Paradigm Shifts in Water Supply Planning

Richard A. Humpherys, Carollo Engineers

The City of Goodyear is a growing community that is faced with water resource challenges. Growth beyond current water resources will require a creative combination of conservation, maximizing reclaimed water supplies, and finding additional water resources, some of which may be unconventional. This presentation explores the alternatives that may pursue to help ensure its water future.

9:00-9:30

Primary Data of Water Use Trends in Single Family Residences: Evidence from Research in Phoenix

Paulette Fenderson, City of Phoenix

Water consumption for single-family residential end users has decreased over the years. The City of Phoenix Water Department has conducted residential end use studies in 1996, 2009, and 2015. The purpose of the study is to determine the rate change of appliances and fixtures in single-family homes from 1996 to present. The emphasis of the research is to evaluate the efficiency of Phoenix residential clothes washers, toilets, showerheads, and irrigation systems. The research will track single-family residential landscape trends from 1980s to current and it will link current and previous water bills to landscape trends.

9:30-10:00

HOA Water Budgeting Using GIS and Theoretical Need

Jennifer Davidson, City of Scottsdale

Scottsdale Water's homeowner association (HOA) water budget program utilizes ArcGIS and aerial photographs to determine landscape type and density and then uses a theoretical water budget to estimate a landscape budget. In Scottsdale, HOAs may also be responsible for domestic water uses and these uses go into a budget as well. Due to the diversity of the HOA properties, Scottsdale has three different HOA reporting templates. A common element in each of these templates is the landscape, and with approximately 675 HOAs within Scottsdale, an automated landscape budget process was necessary to meet Scottsdale's goal of efficiently assisting HOA customers.

10:30-11:00

Where Can You See Water Disappearing Before Your Eyes?

Esmie Avila, City of Avondale

The project goal for Avondale and other valley municipalities is to provide awareness of the importance of water conservation, wise water management and motivate personal accountability in a creative, engaging way. Through this school program we mix magic tricks with water conservation facts to make learning about water fun and engaging to students and teachers.

11:00-12:00

Urban Water Use Trends: Past, Present, and Future – Panel Discussion

Moderator: Carol M. Ward-Morris, Arizona Municipal Water Users Association

Speakers: Peter Mayer, Water DM; Gary Woodard, Montgomery & Associates; Doug Frost, City of Phoenix; Jeff Tannler, Arizona Department of Water Resources

Over the past 20 years, per capita water use across the U.S. has declined sharply, largely as a result of national water efficiency efforts. This presentation will review national, regional, and local urban water use trends from several key sources, including the USGS Water Use in the United States report, the Water Research Foundation's Residential End Uses of Water Studies (1999, 2015), as well as research in Pima and Maricopa counties and the city of Phoenix. Where and how demand reductions were achieved, future trends, and how those trends will play into water management will be discussed.

1:30-2:00

DPR Pilot Plant Operation Tips, Tricks, and Insights for Design

Chelsea Francis, Arcadis

El Paso Water Utilities' diverse portfolio of water resources, strained by a prolonged drought, developed a DPR project recycling secondary effluent from Roberto R. Bustamante WWTP. The new Advanced Water Purification Facility (AWPF) will be the second reuse treatment plant to pump purified wastewater to the potable water distribution system. The pilot includes denitrification, ozone, membrane filtration, membrane desalination, ultraviolet disinfection with advanced oxidation, granular activated carbon, and free chlorine disinfection. Online analyzers at the pilot evaluate the monitoring techniques essential to public health risk reduction. This session will present concepts in DPR pilot plant operation and implications for full-scale design.

2:00-2:30

Development of a Framework for Direct Potable Reuse

Jeff Mosher, National Water Research Institute

Guidance for direct potable reuse (DPR) was developed that allows for the safe implementation of DPR. The framework is a starting point for a larger discussion of DPR regulations and addresses the wide range of topics to successfully implement DPR. This effort was funded by WateReuse Association, with support from the Water Environment Federation and the American Water Works Association. The report was developed by an Expert Panel administered by NWRI.

2:30-3:00

Membrane Concentrate Management Alternatives for Inland Potable Reuse

Viking Edeback, Arcadis

Tucson Water is in the initial implementation phase of its Recycled Water Program. Initial implementation activities involve public outreach, technical studies, and facility planning that will lead to permitting, design, and construction of potable reuse facilities. Technical studies for the Recycled Water Program include purification process evaluations, including reverse osmosis and nanofiltration membrane processes, and an evaluation of membrane concentrate management alternatives. This presentation will provide an overview of concentrate management alternatives under evaluation for Tucson's Recycled Water Program, including a comparison of recovery effectiveness, energy usage, space requirements, comparative costs, maintenance requirements, and residuals disposal considerations.

TRACK 7 – OPERATOR TRAINING

8:00-10:00

Mock Exam

To help operators prepare for taking certification exam, a mock exam will be given. This exam will cover a wide variety of topics for both water and wastewater treatment/collection/distribution. The exam will also cover a wide arrange of grade levels. The mock exam is intended to help operators with exam preparation but should not be considered a substitute for normal exam preparation. The questions are considered to be typical but the mock exam may not cover all of the questions for your particular certification grade and type.

10:30-12:00

Exam Review

This session will review the answers to the mock exam held earlier in the morning.

1:30-3:00

Gravity and Pressure Pipe Assessment, Renewal, and Rehabilitation Technologies

As infrastructure continues to age many utilities find themselves in the position of having to prioritize projects with limited budgets. In the past the focus was on system expansion and today more of the focus is on maintenance and extending the life of the existing infrastructure. When asked "where do you want to spend your pipe budget" better information leads to more cost effective solutions. As technologies advance there are advanced technologies and systems to assess and focus renewal dollars where the most benefit can be derived. The class will cover items related to identifying defects, evaluating overall condition, and identifying areas of concern that can then be targeted for renewal. In addition, various systems will be discussed that can provide rehabilitation options rather than complete replacement which will in turn assist in extending the life of critical infrastructure rather than having to replace complete piping systems prematurely. The session with include the following: Gravity Pipe, Cleaning and Condition Assessment, Rehabilitation – spot repairs and lining systems, Pressure Pipe, Leak Detection, Condition Assessment, and Dedicated CCTV equipment.

TRACK 8 – COMMITTEE MEETINGS

8:30-8:00 – Biosolids & Residuals
9:00-10:00 – Utility Council
10:30-11:00 – Water Treatment
11:00-12:00 – Water Distribution
1:30-2:00 – Water For People
2:00-3:00 – Annual Conference

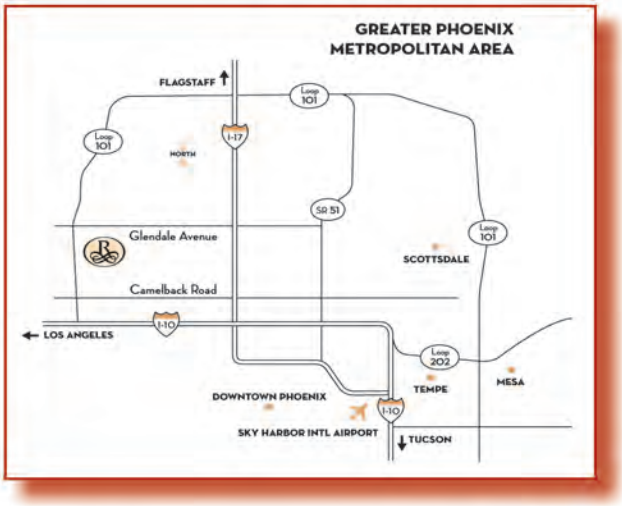
FRIDAY

RENAISSANCE
GLENDALE HOTEL & SPA

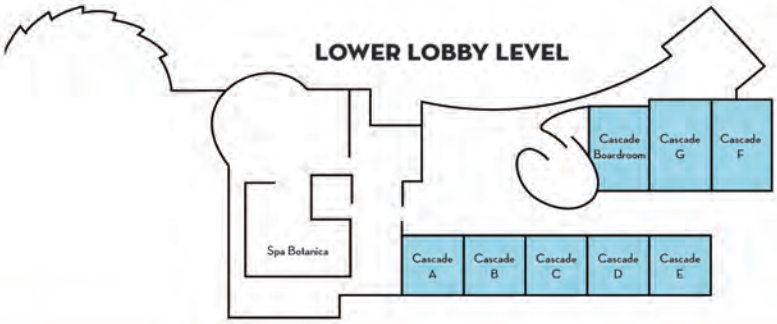
LOBBY LEVEL

SKY HARBOR TO RENAISSANCE GLENDALE HOTEL & SPA

- Head northwest on E Sky Harbor Circle S toward E Buckeye Rd.
- Turn left
- Take ramp to I-10 W
- Keep left at the fork to continue toward I-10 W and merge onto I-10 W
- Take exit 133B to merge onto AZ Loop 101 N
- Take exit 7 for Glendale Ave.
- Keep right at the fork, follow signs for Glendale Ave. E and merge onto W Glendale Ave.
- Turn right at N 95th Ave.
- Turn left at W Coyotes Blvd.



LOWER LOBBY LEVEL



everything UNDER THE sun!

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89TH ANNUAL CONFERENCE & EXHIBITION ~ REGISTRATION FORM

MAY 11-13, 2016

One Registrant Per Form (Online registration is encouraged — Go to www.azwater.org and click on Events)

NAME _____ BADGE NAME _____

EMPLOYER _____ TITLE _____

ADDRESS _____ CITY/STATE/ZIP _____

PHONE/FAX _____ E-MAIL _____

WHAT BEST DESCRIBES YOUR COMPANY'S AFFILIATION TO THE WATER INDUSTRY? PLEASE CHOOSE ONE: ☐ MUNICIPAL UTILITY ☐ PRIVATE UTILITY ☐ CONSULTING ENGINEER ☐ MANUFACTURER/SPECIAL PROVIDER ☐ REGULATING AUTHORITY ☐ ACADEMIA ☐ CONTRACTOR ☐ OTHER (NOT LISTED)

WHAT BEST DESCRIBES YOUR PRIMARY JOB FUNCTION? PLEASE CHOOSE ONE: ☐ UTILITY MANAGER ☐ ENGINEER/SCIENTIST ☐ OPERATOR ☐ CONSTRUCTION PROFESSIONAL ☐ STUDENT ☐ PROFESSOR/ACADEMIC ☐ PRODUCT SALES REPRESENTATIVE ☐ OTHER (NOT LISTED)

PLEASE CHECK HERE IF YOU ARE A SPEAKER ☐ DAY(S) SPEAKING _____

PLEASE CHECK HERE IF YOU ARE A MODERATOR ☐ DAY(S) MODERATING _____

PLEASE CHECK HERE IF YOU REQUIRE A VEGETARIAN MEAL ☐

DO YOU REQUIRE ANY SPECIAL ACCOMMODATIONS TO FULLY PARTICIPATE? _____

REGISTRATION CATEGORY		MEMBER Early Bird	MEMBER After 4/22/16	NON-MEMBER Early Bird	NON-MEMBER After 4/22/16	TOTAL
FULL ANNUAL CONFERENCE May 11 - May 13, 2016		$350	$390	$400	$440	_____
Includes Sessions/Exhibits	Coffee/Tea W TH F					
Exhibitor Happy Hour Wednesday	Lunch W TH F					
BBQ Party Wednesday	Breaks W TH F					
Are You Attending the BBQ Party?	Yes No					
ONE DAY REGISTRATION Wednesday, May 11		$180	same	$210	same	_____
Includes Sessions/Exhibits	Coffee/Tea • Breaks • Lunch					
Exhibitior Happy Hour						
BBQ Party						
Are You Attending the BBQ Party?	Yes No					
Thursday, May 12		$170	same	$200	same	_____
Includes Sessions/Exhibits	Coffee/Tea • Breaks • Lunch					
Friday, May 13		$160	same	$190	same	_____
Includes Sessions	Coffee/Tea • Break • Lunch					

STUDENTS Sessions & Exhibits Free (meals extra)

OPTIONAL EVENTS

Golf Tournament — Tuesday, May 10 — Register online at www.azwater.org

EXTRA MEAL TICKETS

Keynote Luncheon Program	Wednesday, May 11	$40.00	Quantity	_____
Barbecue (children 5 and under free)	Wednesday, May 11	$35.00	Quantity	_____
Barbecue (children 6 to 12)	Wednesday, May 11	$10.00	Quantity	_____
Luncheon Program	Thursday, May 12	$40.00	Quantity	_____
Luncheon Program	Friday, May 13	$40.00	Quantity	_____

AZ WATER MEMBERSHIP RENEWAL (if not current) $50.00 _____

AZ WATER NEW MEMBERSHIP $50.00 _____

TOTAL ENCLOSED _____

Make checks payable to "AZ Water" & mail to:

Conference Registrar
c/o Metro Water
P.O. Box 36870
Tucson, AZ 85740
Fax to: 520-877-1189

☐ Mastercard ☐ VISA ☐ American Express ☐ Check Enclosed ☐ Municipal PO # _____

Credit Card Number _____

Expiration Date _____ 3-Digit Security Code from Back of Card _____

Cardholder Name _____

Cardholder Signature _____

Email Address for Receipt _____

Online registration is encouraged — Go to www.azwater.org and click on Events.

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c/o Metro Water District
P.O. Box 36870
Tucson, AZ 85740

FAX TO:
(520) 877-1189
Credit Card Payment and Purchase Order

ONLINE:
www.azwater.org
Credit Card Payment and Checks Accepted