AZ Water Association

Professionals Dedicated To Arizona's Water

A Vibrant Arizona Through Safe, Reliable Water

88th Annual Conference & Exhibition

May 6th - 8th 2015

Glendale Renaissance Hotel & Spa, Glendale, AZ

American Water Works Association

Dedicated to the World's Most Important Resource™

www.azwater.org

wef member association

The AZ Water Association's 88th Annual Conference and Exhibition May 6th – 8th, 2015 being held at the Renaissance Glendale Hotel and Spa, promises to be chocked full of value for our water professionals! **Learn** from experiences of your peers…**See** the latest in equipment, technology, and services for the water and wastewater industry...**Gain** valuable Professional Development Hours (PDHs)...**Network** with others dedicated to Arizona's water. No matter what motivates you to come, we have planned a program to exceed your expectations!

Following the vision of AZ Water's Strategic Plan 2014 Update; ***"A Vibrant Arizona Through Safe, Reliable Water"*** was selected as our conference theme. Those seven words succinctly sum up what so many of you contribute to each and every day. And, to provide you the tools to further our vision and future strategic direction, we've created the following events:

- Technical tracks that highlight AZ Water's Strategic Plan for **outreach** and **leadership**
- A dynamic keynote from **Melanie Goetz**, who literally helped write the book on communicating **water's value** to the public.
- The **"Water Planning – Past, Present, and Shaping the Future"** Panel on May 6th, sponsored by the Young Professionals Committee, featuring Kathy Ferris, Pam Pickard, and Grady Gammage, Jr.

Teresa Smith-DeHesus
Conference
Committee Chair

- The **"The Value of Water: Building Support for Infrastructure Investment"** Panel on May 7th, moderated by Melanie Goetz, featuring the unique perspectives of key Arizona leaders - Chris Brady, Diane Brossart, Richard Morrison, and David Iwanski.
- The **"Water and Wastewater Operator" Panel** on May 7th to share senior operators' experiences.
- **Career Day** on May 7th – an opportunity to learn about the industry and potential job positions and employers.
- The **75th Anniversary** of the Select Society of Sanitary Sludge Shovelers where we'll celebrate AZ Water's history of volunteerism.

In addition, come join the fun, camaraderie and excitement at our AZ Water Traditions: Golf at The Legend at Arrowhead, "Best of the Year" Awards, Happy Hour in the Exhibit Hall, the BBQ at the Saddle Ranch & Chop House, and the Meter Mania Competition!

We salute the incredibly dedicated group of conference committee volunteers for the tremendous amount of time and energy spent developing the conference program. The AZ Water Association's 88th Annual Conference & Exhibition will have something for everyone in the water industry. We will see you at the conference May 6th – 8th so we can all help create *"A Vibrant Arizona Through Safe, Reliable Water!"*

2015 CONFERENCE PROGRAM TASK FORCE MEMBERS

ANNUAL CONFERENCE CHAIR

TERESA SMITH-DEHESUS, *Black & Veatch*

PROGRAM COMMITTEE CHAIR

MIKE CARUSO, *Black & Veatch*

MIKE AMBROZIAK, *CPM*
LARRY AYERS, *MGC Contractors*
AMY BAKER, *City of Peoria*
ROBIN BAIN, *City of Peoria*
GRETCHEN BAUMGARDNER, *City of Mesa*
DOUG BERSCHAUER, *CH2M HILL*
JESSE BLACK, *EPCOR*
VANESSA BORKOWSKI, *Black & Veatch*
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Project Engineering Consultants
CRAIG CAGGIANO, *City of Tempe*
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KEVIN CHADWICK,
Maricopa County Environmental Services Dept.
DALE CONOVER, *EPCOR*
TRICIA COOK, *Stantec*
CHRIS COURTER, *Hazen and Sawyer*
DAVID DIEFFENBACH, *ARCADIS*
LEVI DILLON, *City of Scottsdale*
FRED ECHEVARRIA, *Severn Trent*
SETH FRONK, *Intel*
DAVID GIANNETTO, *Felix Construction*
PATRICK GOODFELLOW, *CDM Smith*
SARAH GURULE, *Wilson Engineers*
LARRY HANSON, *NCS Engineering*
DARLENE HELM, *City of Phoenix*
BOB HOLLANDER, *City of Peoria*
ANUPA JAIN, *City of Chandler*
JEANNE JENSEN, *City of Tempe*
CAROL JOHNSON, *Pima County RWRD*
SAQIB KARORI, *WestLand Resources*
DOUG KOBRICK, *Hazen and Sawyer*
JENNY LOPEZ, *Greeley and Hansen*
LAURA MCCASLAND, *City of Scottsdale*
JOHN MASCHE, *City of Phoenix*
WILLIAM MCCARTHY, *Willdan*
DEBORAH MUSE, *AZ Water*
CHRISTINE NUNEZ, *City of Surprise*
ALAN PALMQUIST, *Wilson Engineers*
ERIN PYSELL, *NJB Soft*
ANNETTE REESE, *Black & Veatch*
JACQUELINE RHOADES, *Hazen and Sawyer*
RYAN RHOADES, *Hazen and Sawyer*
KARLA RICHARDS, *Brown and Caldwell*
STEVE ROHRER, *ARCADIS*
FRED ROUSE, *Stanley Consultants*
RICHARD SACKS, *City of Scottsdale*
CHRIS SIMKO, *Stantec*
JOSH SMITH, *Black & Veatch*
GORDON THELIN, *Carollo Engineerrs*
DAMIEN TONNELLE, *Wilson Engineers*
STEVE WEDWICK, *NCS Engineering*
MIKE WORLTON, *EPCOR*
JIM WRIGHT, *Statewide Disinfection Services*

A Vibrant Arizona Through Safe, Reliable Water

May 6-8, 2015

TUESDAY, MAY 5

7:30am		Golf Tournament, The Legend at Arrowhead, Glendale	Page 8

WEDNESDAY, MAY 6

10:30am –	6:30pm	Exhibit Hall Hours	Page 3
7:00am –	5:00pm	Conference Registration Hours	Page 2
7:00am –	8:30am	Continental Buffet Breakfast	
8:00am –	8:30am	Welcome / Awards Presentations	Pages 3
8:30am –	5:00pm	Technical Sessions and Operator Training Sessions	Pages 18-23
10:30am –	11:30am	Grand Opening Exhibit Hall	Page 3
11:30am –	1:00pm	Luncheon Program, Keynote, Award Presentations	Page 3&4
3:00pm –	5:00pm	Water Planning Panel Session	Page 4
5:00pm –	6:30pm	Manufacturer's Exhibitor Happy Hour	Page 3
6:00pm –	10:00pm	BBQ Party at Saddle Ranch Chop House	Page 9

THURSDAY, MAY 7

7:00am –	8:30am	Continental Buffet Breakfast	
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 23-27
9:30am –	10:00am	Break in Exhibit Hall	
11:30am –	1:00pm	Luncheon Program with WEF National Speaker	Page 6
12:45pm –	1:00pm	AZ Water Annual Business Meeting	Page 3
1:00pm –	2:30pm	Value of Water 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 8

7:00am –	8:30am	Continental Buffet Breakfast	
7:00am –	12:00pm	Conference Registration Hours	Page 2
8:00am –	3:00pm	Technical Sessions and Operator Training Sessions	Pages 28–31
10:00am –	10:30am	Break in Meeting Room Lobby	
12:00pm –	1:30pm	Luncheon Program with AWWA National Speaker	Page 6

MARK YOUR CALENDARS FOR 2016

89th Annual AZ Water Conference & Exhibition
May 5-7, 2016
Renaissance Glendale Hotel & Spa
Glendale, Arizona

AZ Water Association
Professionals Dedicated To Arizona's Water

1042 Willow Creek Road
A101-510
Prescott, AZ 86301
Phone 928-717-9905
Fax 928-717-9910
www.azwater.org

HOTEL RESERVATIONS

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

Special AZ Water Group Rate: $154 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 19. 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:

Breakfast:	W, TH, F
Breaks:	W, TH, F
Lunch:	W, TH, F
Exhibitor Happy Hour:	W
BBQ Party:	W

One-day Registration:

Wednesday:	Breakfast, Breaks, Lunch, Exhibitor Happy Hour, BBQ Party
Thursday:	Breakfast, Breaks, Lunch
Friday:	Breakfast, 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.

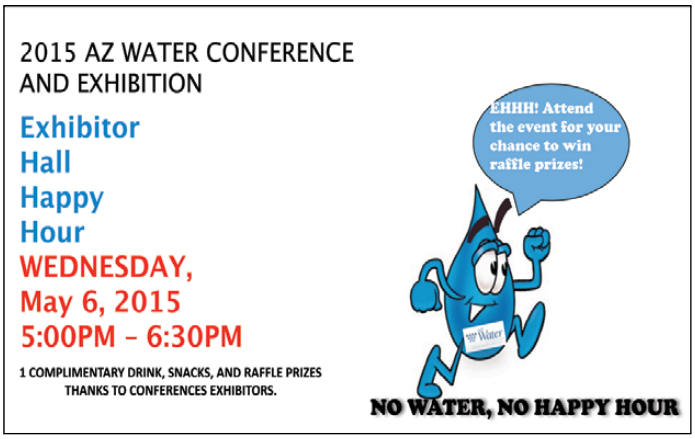
PROFESSIONAL DEVELOPMENT HOURS

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 (in the same vicinity as the meeting rooms & registration). Prize drawings and raffles will be presented during the dedicated exhibit hours on both days. Interested in exhibiting? Go to www.azwater.org and click on Events to download the Exhibition Package.



WEDNESDAY, MAY 6
Exhibit Hall Hours ..... 10:30am – 6:30pm
Exhibitor Happy Hour ..... 5:00pm – 6:30pm

THURSDAY, MAY 7
Exhibit Hall Hours ..... 8:00am – 3:00pm
Exhibits Close 3:00pm

EXHIBITOR HAPPY HOUR
WEDNESDAY, MAY 6
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. Admission to this event requires a ticket that is included in your full conference registration and for those of you who are registered for Wednesday.

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

This year we are moving the Annual Conference Party (BBQ) to a new location, The Saddle Ranch Chop House! The Saddle Ranch Chop House has STEAKS, BULLS, & ROCK N ROLL! With a rustic over-sized bar, mechanical bull (rides are free), and outdoor stone fire pits, Saddle Ranch will provide 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**
- **Keeping Operators up to date: Technology I**
  This session will bring in four different vendors that will present case studies and lessons learned about four different technologies.

THURSDAY
- **Wastewater Operator Panel**
  A panel of senior wastewater (treatment and collection) operators will answer questions and share their experiences.
- **Water Operator Panel**
  A panel of senior water (treatment and distribution) operators will answer questions and share experiences.
- **Keeping Operators up to date: Technology II**
  This session will bring in four different vendors that will present case studies and lessons learned about four different technologies.

FRIDAY
- **Mock Exam**
  To help operators prepare for taking certification exam, a mock exam will be given.
- **Keeping Operators up to date: Safety**
  We will be highlighting new products that are coming out to help the operator in their everyday work life to be a little bit more safety minded and safety aware.
- **Exam Review**
  This session will review the answers to the mock exam held in the morning.

2015 AZ WATER BEST OF THE YEAR AWARDS PROGRAM
WEDNESDAY, MAY 6
8:00am – 8:30am
Projects of the Year
- Water System
- Water Treatment
- Wastewater System
- Wastewater Treatment
- Water Reuse

11:30am – 1:00pm
- Engineer of the Year
- Operations Leadership Award
- Environmental Stewardship Award
- Kachina Award for Outstanding Service
- Quentin Mees Research Award
- Nathan Burbank Environmental Educator Award
- Plant and System Operations Awards
  - Plants
  - Operators
  - Operations Supervisor
  - Electrician
  - Maintenance Mechanic
  - Technology Professional
  - Laboratory Analyst
- Safety Awards

Evening BBQ Party
- Young Professional of the Year
- Gimmicks and Gadgets Awards

THURSDAY, MAY 7
11:30am – 1:00pm
- Arthur Sydney Bedell Award
- George W. Burke Award
- WEF Life Members
- President Award
- Water Environment Research Foundation
- Gift for the National Representative
- Select Society of Sanitary Sludge Shovelers

FRIDAY, MAY 8
12:00pm – 1:30pm
- AWWA Life Members and Gold Drop Awards
- George Warren Fuller Award
- WFP Kenneth J. Miller Award
- Gift for the National Representative
- Water Research Foundation
- AZ Water Scholarships
- AZ Water Life Members
- Outgoing Board Member Recognition
- Gavel Passing
- Kachina Pin (Past-President)

AZ WATER'S ANNUAL BUSINESS MEETING
THURSDAY, MAY 7
12:45pm
Agenda Items
- Approve 2015-2016 Arizona Section American Water Works Association Board of Trustees
- Approve 2015-2016 Arizona Water Environment Association Board of Directors
- Approve 2015-2016 AZ Water Association Board of Directors

CONTACT INFORMATION
General Information:
Debbie Muse.....928-717-9905

Registration:
Cindy Martinez 520-575-8100

Exhibits:
Dave Redman.....480-940-6923

Golf Tournament:
Jay Bailey.....602-275-4303

Web Site:..... **www.azwater.org**

WELCOME, KEYNOTE, PANEL SESSION

WELCOME

MAY 6 — 8:00 AM - 8:30 AM

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 SPEAKER

MAY 6 — 11:30 AM - 1:00 PM

HOW TO ENERGIZE WATER'S VALUE!

Communicating the value of water is really no different than conveying the value of anything. In any case, value is determined by the answer to the question of "Why?" With the "Why" being what sets any product apart from being merely a commodity. By revealing the predictability of human nature, this lively talk will provide insights, field-proven cases, and perhaps some new ways of looking at how to communicate the value of Arizona's water.

Melanie Goetz is an author, speaker, and consultant, specialized in helping municipalities, agencies, governments, and their stakeholders effectively convey the value of water to the public. With over two decades of public communications experience, she has been a driving force behind defining and implementing effective strategic public education, implementing rate changes, gaining voter support, and outreach campaigns. Melanie has successfully implemented Contingent Valuation research and leveraged Positive Deviance to educate the public about water conservation, wastewater, watersheds, groundwater, stormwater management, and the importance of water quality. Currently her list of clients includes watersheds, water and wastewater utilities, state government, and energy companies.

PANEL SESSION

MAY 6 — 3:00 PM - 5:00 PM

WATER PLANNING — PAST, PRESENT, AND SHAPING THE FUTURE

The Young Professionals' (YP) track will present a panel discussion that aims to ask, "What future challenges will be encountered as the next generation of water professionals take the reins and responsibility, and become the stewards of Arizona water planning?" Kathy Ferris, former Execute Director of AMWUA, will speak about her experiences as a young professional during the passage of the 1980 Groundwater management act and how the water arena has evolved. Pam Pickard, a member of the CAWCD board, will discuss the emerging issues facing our state and the possible challenges young professional will face ahead. Grady Gammage Jr., a senior fellow at ASU's Morrison Institute, will talk about the conversation that is happening about Arizona's water future and why it's important to be a contributor as a young professional. The insight on water resources in Arizona provided by these three dynamic professionals will help guide the next cohort of Arizona Water Professionals into the future.

Pamela Pickard

Pamela Pickard serves on the CAWCD Board Directors. During her time on the board Ms. Pickard has served as Board Vice President, President, chaired the Finance, Audit and Power Committee and the Captive Insurance Committees. She will continue her term through 2018. Recently Ms. Pickard was named by the Arizona Capitol Times as one of the 2014 Leaders of The Year in Public Policy for the area of Water and Natural Resources.

Kathleen Ferris

Kathy Ferris early career involved working with Governor Bruce Babbitt negotiating the passage of the 1980 Arizona Groundwater Management. In 1985 she was appointed Director of the Arizona Department of Water Resources. From 2012 -2015, Kathy served as the AMWUA Executive Director. Kathy was recently named as a Senior Research Fellow for the Kyl Center for Water Policy at Arizona State University.

Grady Gammage

Grady Gammage, Jr. is a part time academic, a practicing lawyer, an author, a sometime real estate developer and a former elected official. In his academic role, Mr. Gammage is a Senior Fellow at ASU's Morrison Institute; his work there focuses on urban growth and development. He has been practicing Law in Phoenix for nearly 35 years with an emphasis in landuse and real estate projects.

MAY 7 — 1:00 PM - 2:30 PM

THE VALUE OF WATER: BUILDING SUPPORT FOR INFRASTRUCTURE INVESTMENT

MODERATOR: MELANIE GOETZ

In recent years the water and wastewater industry has endeavored to communicate the value of the services it provides to its customers: the general public and elected officials. The messages have revolved around two key concepts:

1. Clarity regarding the value of water and utility services, and the
2. Importance of investing in water resources and water/wastewater infrastructure

In recent years, the public has been informed of the declining status of our utilities' infrastructure (e.g. transportation, water, ports) through the American Society of Civil Engineers (ASCE) Infrastructure Report Card and related news stories. ASCE's latest report card gave U.S. water and wastewater infrastructure a grade of D. A grade of D means that the "…infrastructure is in poor to fair condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration. Condition and capacity are of significant concern with a strong risk of failure." (2013 Report Card for America's Infrastructure, Executive Summary, ASCE).

At AZ Water's 2014 Annual Conference, the panel discussion titled, "A Unique Perspective – Effective Communication is Key to Our Industry's Future" added to the discussion.

For the 2015 Annual Conference, AZ Water is elevating the conversation by engaging recognized community leaders who communicate directly with policy makers on a variety of community issues with a panel session titled **"The Value of Water: Building Support for Infrastructure Investment"**. The conversation will center on how best to elevate the value of water and the importance of investing in water infrastructure, asking you and our panelists:

- What does "value of water" mean to you?
- Why is it important to invest and reinvest in infrastructure?
- What value does investing in water infrastructure provide to the rate payers?
- What message do policy makers, including rate setting bodies, need to hear to support water infrastructure investment?

Please join in this important and timely conversation.

RICHARD MORRISON — *Morrison Institute of Public Policy at Arizona State University*

Richard Morrison's practice has historically been focused on water law, environmental law, and issues facing special districts and agriculture. From 1985 through 2003 much of his work fostered negotiated settlements of Indian water rights claims. He worked on four completed settlements in Arizona. At the present time Richard serves as Special Water Counsel to the Town of Gilbert, negotiating water leases with Native American tribes. His commitment to water law and policy extends well beyond his practice into the work of universities, non-profit groups, and charitable trusts. As an example, he is a Trustee of the Farm Foundation in Chicago, Illinois, and a member of the Executive Committee of the Arizona Agribusiness and Water Council. He has served for 32 years on the Board of the Morrison Institute of Public Policy at Arizona State University, advising the Institute on matters of water policy, and he is currently chairman of that board. Similarly, he is on the external advisory board to the Arizona Water Resources Research Center at the University of Arizona. Richard has also taught water resources management at Arizona State University in the Morrison School for Agribusiness, where he is a faculty member for the school's water resources management professional development program. In addition to his legal work, Richard serves as an Episcopal priest. In that context Richard frequently speaks about the global water challenge and its relationship to food insecurity, as well as its corresponding cause of social and military conflicts.

DAVID IWANSKI — *Council Member, City of Avondale, Arizona*

David has almost thirty years of background and experience addressing issues related to water, energy, environmental regulatory compliance, agribusiness, and business development at the federal, state and local levels. David is currently a City of Avondale, Arizona Council Member and has nearly thirty years of background and experience addressing issues related to water, energy, environmental regulatory compliance, agribusiness and business development at the federal, state and local levels. He is also an active committee member of the Arizona Municipal Water Users Association (AMWUA). He is a former Captain in the U.S. Army and holds a Juris Doctorate from Pepperdine University School of Law and a Bachelor of Arts from Marquette University.

DIANE BROSSART — *President and CEO, Arizona Forward*

Diane Brossart enjoys a longtime connection with Arizona Forward, having first joined the non-profit business-based environmental public interest organization as a member 30 years ago when it was named Valley Forward and focused exclusively on Maricopa County. She served on the Board of Directors, and was appointed president in 1991. Leading its recent award-winning statewide expansion, Brossart was named President and CEO of Arizona Forward in 2013. In this role, she manages the organization's robust and holistic sustainability agenda to move the Grand Canyon State forward environmentally, economically and socially. Primary areas of focus foster healthy communities through advocacy for: smart growth and desert preservation, a balanced multi-modal transportation system, improved air quality, clean energy choices, sound water management, healthy forest ecosystems and environmental education.

Named by Arizona Business Magazine as one of the "Fifty Most Influential Women in Arizona" in 2013, Brossart also holds a "Champion of Sustainability Award" through the Phoenix Business Journal's Green Pioneers program. Brossart's diverse community involvement profile includes: Phoenix Sister Cities Commissioner; Phoenix Mayor Greg Stanton's Sustainability Advisory Task Force, Appointee; Director, Phoenix Community Alliance; and Director, Mountain States Employers Council.

CHRIS BRADY — *City Manager, Mesa, Arizona*

Chris Brady is the City Manager of Mesa, Arizona. With more than 25 years of public sector management experience, he is the Chief Administrative Officer of a municipality with approximately 3,500 employees, an annual operating and capital budget of $1.2 billion and a population of 450,000 residents. Working with the Mayor, City Council, business and community leaders and residents, he has been instrumental in improving the City's financial and budgeting models. These efforts included the passage of several capital bond initiatives for water infrastructure, streets, and public safety projects.

WEF LUNCHEON SPEAKER

THURSDAY, MAY 7

Board of Trustees (2014-2015) Water Environment Federation

Erin Mosley has more than twenty years of experience in the water industry and currently serves as Vice President and Director of Management Consulting for CH2M HILL. She has worked with more than 30 different clients in North America and beyond – both in the public (local, state and federal) and private sectors. With a background as a professional engineer and project manager, she is now part of a team of strategic consultants serving clients across the water, transportation, facilities, urban environments, and energy sectors -- providing management consulting, financial services, asset management, operations and maintenance consulting, and related technology integration.

Erin has held multiple leadership and committee roles within the Federation. She has served as a 2013-2014 Trustee, on Board-appointed task forces, and in roles within the House of Delegates, the Stockholm Junior Water Prize (SJWP) Program, the Sustainability Community of Practice, and other programs. She has also presented at WEFMAX meetings and worked with many Member Associations (MAs). Also an active member of the New England Water Environment Association (NEWEA), she has chaired many committees, received numerous awards and served on their Board of Directors, ultimately serving as President. Erin received a B.S. in Civil Engineering from Northeastern University (Boston, Mass.) in 1995, and completed graduate coursework at Tufts University (Somerville, Mass.) and the Harvard Extension School (Cambridge, Mass.) in 1999 and 2005.

AWWA LUNCHEON SPEAKER

FRIDAY, MAY 8

Vice-President (2014-2015) American Water Works Association

Stephen R. Shoaf is the Director of Water Resources for the City of Asheville, NC. He began his career performing water and wastewater research through the University of North Carolina. There he gained a strong background in treatment methods, sampling and analyses. He served the City of Burlington, NC as the Utilities Administrator / Utilities Director for 21 years overseeing water and wastewater utilities. Stephen has been with the City of Asheville for 5 years.

Stephen joined AWWA in 1989 and has been an active member of the North Carolina Section of AWWA. He has chaired and served on numerous committees, progressed through the chair positions, and is currently serving his third term on the NC Section Board of Trustees. He has been an instructor and speaker at seminars, workshops, and operator certification schools. Stephen is in his third year as the AWWA Director from North Carolina and was installed as a Vice President of AWWA at ACE 14. Stephen lives in Asheville, NC with his wife Carole.

JOB FAIR AND CAREER EXPLORATION DAY

Thursday, May 7 • 1:00 PM - 5:00 PM • Renaissance Glendale Hotel, Glendale, AZ

GET YOUR FEET WET!

Join us for the First AZ Water Industry Job Fair and Career Exploration Day.

AZ Water is proud to host the next generation of the water industry for an afternoon of networking, recruitment and outreach. We want to encourage a new excited crop of water professionals to get their feet wet (or their boots muddy!) and explore a career in the water industry.

For Career Seekers:

Join us at the Renaissance Glendale Hotel, Lower Level Conference Rooms - Cascade F & G. Bring your résumé and your questions! Representatives from Utilities, Contractors, Sales Firms, Labs, and more will be onsite to review resumes and discuss opportunities. RSVP to get a list of scheduled companies/agencies before the event!

For Representatives:

RSVP to get a table space and a preview of the candidates, space is limited so don't wait! AZ Water will help guide candidates to those agencies and firms that best match their career goals and skillsets making this a valuable opportunity to reach out and help build the next generation. Don't get caught by the 'silver tsunami' but instead ride the wave and take advantage of this opportunity. For Questions, or to RSVP contact: recruitment@azwater.org

AZ Water ASSOCIATION
Professionals Dedicated To Arizona's Water

SPONSORSHIP OPPORTUNITY

88th Annual Conference & Exhibition — May 6-8, 2015

A Vibrant Arizona Through Safe, Reliable Water

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. The theme for our 88th Annual Conference and Exhibition is "A Vibrant Arizona Through Safe, Reliable Water."

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 17** 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 approximately 2100 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 Security 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 928-717-9905 or by email musegroup@aol.com

Return completed form and payment to:
AZ Water, 1042 Willow Creek Rd., A101-510, Prescott, AZ 86301
928-717-9910 FAX

AZ Water Association

Professionals Dedicated To Arizona's Water

88th ANNUAL CONFERENCE GOLF TOURNAMENT

Join us, **Tuesday, May 5, 2015** at The Legend at Arrowhead for this year's Annual Conference Golf Tournament to benefit student scholarships. In 2014 the golf tournament raised $14,000 in scholarships for undergraduate and graduate students at Arizona colleges and universities pursuing studies related to water, wastewater, or environmental resources.

The Legend at Arrowhead is located at 21027 North 67th Ave., Glendale, AZ 85308 (golf course entrance is 0.4 miles north of the 101 on 67th Avenue on the east side of the road). **Registration deadline is Friday April 24, 2015.**

The field is limited to the first 216 entrants. Registration is at 6:30 AM with a 7:30 a.m. shotgun start. Awards presentation and lunch will directly follow play. This year's format will be a four person scramble. **Dress Code**: Soft spikes only, collared shirts with sleeves, shorts must be hemmed and no blue jeans. **Donations:** Firms wishing to donate prizes should contact Jay Bailey at 602-317-0333 or jay@coombshopkins.com.

Tournament sponsorships are $1,000.00 and **include** a foursome in the tournament and **one** hole sponsorship. All proceeds go to the AZ Water Scholarship Program. Individual hole sponsorships are available for $500.00. Hole sponsors are **NOT** responsible for making their own signs. Email your logo to jay@coombshopkins.com.

If you are exhibiting and wish to play in the golf tournament, you may register online with your exhibit registration.

Sponsor/Team_____

Address _____

Email & Phone_____

☐ **TOURNAMENT SPONSOR - $1000.00** (foursome included) **Make checks payable to: AZ Water**

☐ **HOLE SPONSOR - $500.00** (foursome not included)

☐ **FOURSOME $650.00 or ☐ $175 per player or ☐ $50 operator** **Total Amount** $_____

List Name(s) of Golfers

1._____ **2.**_____

3._____ **4.**_____

NEW: Operator Golf Discount - $50 includes golf, lunch, and 1 raffle ticket. Operator #_____

Credit Card (VISA, MC or AMEX) #_____ **Expires**_____

Cardholder Name_____ **Signature**_____

Email Receipt to:_____

E-mail, Fax or Mail your Sponsorship/Registration to: Jay Bailey, jay@coombshopkins.com
Coombs Hopkins, 668 N. 44th Street, Suite 251, Phoenix, AZ 85008
Phone: 602-317-0333 Fax: 602-636-2555

WANTED

2015 ANNUAL CONFERENCE BBQ

CELEBRATE 88 YEARS

Date: Wednesday, May 6, 2015
Time: 6:00 - 10:00 pm
Location: Saddle Ranch Chop House *(in the Westgate Entertainment District, near Gila River Arena)*
9375 W Coyotes Blvd
Glendale, AZ 85305

Fun:
- *Ongoing:* Meter Mania Contest
- *Ongoing:* Young Professionals Raffle and Awards
- *Ongoing:* Dance, dance, dance!
- *8:30 pm:* Free bull rides, with the chance to win a Saddle Ranch gift card

Grub:
- BBQ Ribs
- Choice of House Salad or Apple Pecan Salad
- Marinated Chicken Breast
- Tri Tip Steak
- Macaroni and Cheese

Drinks:
- Wine/beer on the house (1 per attendee)
- Soft drinks/iced tea/water on the house (all night)

Sweets served with coffee:
- Brownies
- Fireside S'mores
- Cotton Candy

YOUNG PROFESSIONALS
- COMMITTEE -

Fresh Ideas Contest

The Fresh Ideas winner will be sent to the 2015 AWWA Annual Conference & Exposition (ACE)!

AZ Water and AWWA have been sending a lucky Young Professional (YP) to ACE for the past 7 years and are excited to continue with this tradition.

Fresh Ideas contestants are identified during the conference. Contestants are judged by you, the audience.
Support YPs and attend these presentations.

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!

During the Exhibit Hall Happy Hour

At the Renaissance Glendale Hotel & Spa | Glendale, Arizona
Judging and Prizes on Wednesday May 6, 2015 | 5-6:00pm

METER MANIA Competition

AZ Water Annual Conference & Exhibition

May 6-8th, 2015

Awards & Prizes

Timed assembly of the Neptune T-10

At the center of almost every one of us 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 all around the United States all year long and are hugely successful. For years now Arizona was left in the dark regarding these competitions, but starting at last year's AZ Water conference Arizona stepped into the competition arena with a meter competition of our very own. Meter Mania was Arizona's first ever meter competition and it gave Operators, Engineers, and all other entities involved the chance to show that they have what it takes to be crowned the Meter Mania Champion.

The Meter Mania competition is a timed disassembly and reassembly of the Neptune T-10 water meter. We will once again have the grand opening of the competition at the AZ Water barbeque May 6th, 2015 at ***Saddle Ranch Chop House*** located at Westgate. The competition is open to anybody who would like to participate and will run through the second day of the conference. On the final day of the conference we will hold the championship round which will place our top competitors in a heads up face to face showdown to see who will be crowned the this year's **Meter Mania Champion**. Prizes will be awarded for the top three competitors and gloating rights given to the champion. All new this year will be the added **Team Competitions**, teams of 5 will compete for the lowest average time and for the chance to be named first ever AZ Water Meter Mania Team Champions.

It is our hope that this competition will stay successful and continue to be a mainstay at the AZ Water Conference every year, but we cannot be successful without you, the competitors. There is no entry fee and the Neptune T-10 5/8" meter can be purchased through various supply outlets. 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 88TH ANNUAL CONFERENCE PROGRAM – WEDNESDAY, MAY 6, 2015			
7:00 - 8:30	**BREAKFAST [Solana E]**			
8:00 - 8:30	**WELCOME REMARKS & AWARDS [Solana E]**			
8:30 - 5:00	**TECHNICAL PROGRAM .....Glendale Convention Center / Renaissance Hotel**			
8:00 - 5:00	**STUDENT POSTERS (ON-DISPLAY) .....In Front of Registration Desk**			
10:30 - 6:30	**MANUFACTURER'S EXHIBITION .....Exhibit Hall / Renaissance Hotel**			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER TREATMENT**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Modeling & Optimization *Moderator: Seth Fronk*	***Asset Management*** *Moderator: Jessica Marlow*	***Regulatory*** *Moderator: Kevin Chadwick*	***Energy Efficiency & Production*** *Moderator: Christine Nunez*
8:30 - 9:00	Staged Planning of Water and Wastewater Systems Based on Scenario Analysis Donghwi Jung	Faster, Smarter, Cheaper, Safer: Too Good to be True? Manhole Inspection and Rehabilitation in Chandler Robert Buss	Town of Florence v ADEQ - Could It Drive Changes in Arizona's Aquifer Protection Permit Program? Ronnie Hawks	Have You Seen Your Energy Bill? Jing Luo
9:00 - 9:30	Water Consumption Forecasting Using Artificial Neural Networks Harold Kidder	The City of Scottsdale's Data Driven Sewer Collection System Inspection and Renewal Prioritization Program Levi Dillon	Introduction to the Arizona Corporation Commission Steven Olea	PCRWRD Sub-Regional WRF Energy Audits – Results and Plan of Action Jonathan Boitano
9:30 - 10:00	No Data in the Desert: Making Advanced Modeling Techniques Work Olga Epshtein	Wastewater Collections Asset Management Prioritization Hondo Judd	Drinking Water Treatment Plant Inspections in Maricopa County Tom Heintzman	Siloxane Removal Technologies: The History and Current State of the Industry Jason Wiser
10:00 - 10:30	Can Complex Decision Making Become Simple Daily Life Routine? Case Studies of Collection System and Treatment Plant Operation Optimization Model Chao-An Chiu	Water Research Foundation Project 4480: Development of an Effective Program for Asbestos Cement Mains Dan Ellison	UCMR3 – The Expected and the Unexpected: Interpreting Two Years of Data Bradley Cahoon	Landfill Leachate Treatment: How to Turn Problems Into Opportunities Mohamed Mahmoud
10:30 - 11:30	**MANUFACTURER'S EXHIBITION GRAND OPENING [Media Center]**			
11:30 - 1:00	**LUNCHEON & KEYNOTE SPEAKER [Solana A,B,C,D,E]**			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER TREATMENT**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Direct / Indirect Potatle Reuse *Moderator: Charlie He*	***Odor Control*** *Moderator: Tom Braatelien*	***Energy*** *Moderator: Richard Sacks*	***Technological Advances*** *Moderator: Mike Weber*
1:00 - 1:30	The Role and Status of Potable Reuse as a Sustainable Water Supply Alternative Jeff Mosher	Smell Ya Later Theresa Muller	Water and (Solar) Energy DO Mix: Tempe's and Mesa's Solar Experience at Water Plants Janet Bunchman	City of Prescott Airport Water Reclamation Facility Design Through Operation Rob Bryant
1:30 - 2:00	Getting Operations Ready for Direct Potable Reuse Troy Walker	Field Testing of Odor Control Using Magnesium Hydroxide in Wastewater Collection System Jun Wang	Power Pile-On: One Good Outcome is Just the Beginning of the Hard Work Katosha Nakai	Pathogen and Nutrient Removal During Wastewater Treatment at a 21st Century Wastewater Treatment Plant Bradley Schmitz
2:00 -2:30	Expanding Tucson's Recycled Water Program from a Foundation of Past Success Wally Wilson	An Innovative Solution for an Air Scrubber Challenge Casey Sanchez	Greener Agriculture, Healthier Forests, Cleaner Waters? Feasibility Studies for Agricultural Biochar Amendment Steven Hart	Butler Water Reclamation: Five Years and Beyond – A Look at Current and New Technologies Robert Garcia
2:30 - 3:00	**MANUFACTURER'S EXHIBITION BREAK [Media Center]**			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER TREATMENT**
	Recharge & Recovery *Moderator: Andy Terrey*	***Asset Management & Modeling*** *Moderator: Tom Braatelien*	***Design & Evaluation*** *Moderator: Richard Sacks*	***Design & Operations*** *Moderator: Mike Weber*
3:00 -3:30	The Importance of Maintaining Constructed Basins in Colorado River Sourced Managed Aquifer Recharge Projects Margaret Snyder	Water Distribution Operations and Maintenance Programs Andrew Jackson	Calculating a Disinfection Log Credit for Surface Water Treatment and Groundwater Systems Dale Bodiya	Impacts of Upstream Processes on Meeting Disinfection Limits with Ultraviolet Light Andy Mally
3:30 - 4:00	Green Valley Lake Water Reuse/Recharge Project Dan Utz	Well Replacement Program Andrew Scott	Investigation of Alternatives to Optimize GAC Usage for TOC Removal in Scottsdale, Arizona Leo Zappa	Successful Ultraviolet Disinfection with Low UVT Water Taylor Reynolds
4:00 - 4:30	The Effects of Water Quality Changes on Infiltration at Tucson Water's Sweetwater Recharge Facility Laura Nakolan	Beyond the Paper Age: A Cost-Effective Way for Small Systems to Implement GIS Brad Cole	21st Century Water Engineering: A New Way to Conduct Treatment Alternative Evaluations Charlie (Qun) He	Why Getting Stronger Might Not Be Healthier Carlos Lopez
4:30 - 5:00	Pilot Test of Nanofiltration Membranes for a Novel Approach to Water Reclamation Robert McCandless	CFD Modeling for Baffle Factor Optimization for the New Deer Valley WTP Reservoir 1 Joshua Smith	Phoenix Historic September Monsoon Rainstorm Causes Unique Treatment Scenario at Tempe Water Treatment Plant Luiza Yordanova	Hydraulics – Not as Sexy as Process Design But Costly to Take Lightly Maria Brady
5:00 - 6:30	**EXHIBITOR HAPPY HOUR & STUDENT POSTER COMPETITION [Media Center]**			
6:00 - 10:00	**BBQ Party [Saddle Ranch Chop House]**			

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AZ WATER 88TH ANNUAL CONFERENCE PROGRAM – WEDNESDAY, MAY 6, 2015				TIME
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WELCOME REMARKS & AWARDS [Solana E]				8:00 - 8:30
TECHNICAL PROGRAM .....Glendale Convention Center / Renaissance Hotel				8:30 - 5:00
STUDENT POSTERS (ON-DISPLAY) .....In Front of Registration Desk				8:00 - 5:00
MANUFACTURER'S EXHIBITION .....Exhibit Hall / Renaissance Hotel				10:30 - 6:30
TRACK 5 – UTILITY MANAGEMENT	**TRACK 6 – CONSTRUCTION**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Planning *Moderator: Bob Hollander*	***Construction Case Studies*** *Moderator: Mauricio Ramos*	***Operator Training*** *Moderator: Doug Berschauer*	***Committee Meetings***	
Making the Transition from Where We Were to Where We Must Go in Utility Management Kenneth Morgan	Chandler AWRF: A Case Study in Collaborative Startup & Commissioning James Peterson	Operator Math I	Water Treatment	8:30 - 9:00
Integrated Management of Public Utilities Through Strategic Planning Jeff Biggs	Custom Wastewater Treatment Plant for Resort with High Nitrogen Loading and Highly Variable Flows Robert Archer			9:00 - 9:30
Advances in Utility Capital Program Planning, Funding, And Implementation Fair Yeager	City of Tolleson - Ammonia Removal Edmond Low			9:30 - 10:00
Water Pricing: A Hot Topic in Arizona Where Does Your Community Stand? Melanie Ford	Tempe Town Lake Downstream Dam Replacement – Dewatering, Force Majeure and Foundation Components Shane Banks			10:00 - 10:30
MANUFACTURER'S EXHIBITION GRAND OPENING [Media Center]				10:30 - 11:30
LUNCHEON / KEYNOTE SPEAKER [Solana A,B,C,D,E]				11:30 - 1:00
TRACK 5 – AZ WATER STRATEGIC PLAN	**TRACK 6 – SPECIAL TOPICS**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Outreach & Leadership *Moderator: Steve Wedwick*	***Safety*** *Moderator: Amy Baker*	***Operator Training*** *Moderator: Doug Berschauer*	***Committee Meetings***	
Strategic Arizona Water Plan Step #1: Building Hydro-literacy and a Community Conversation About Our Water Future and Wise Use Kerry Schwartz	Sound the Alarm! Stormwater Considerations During Emergency Fire Fighting Events Lisa Farinas	Operator Math II		1:00 - 1:30
Defining the Value of Water in Arizona: It Depends …. Susanna Eden	What is Arc Flash? Manika Gupta			1:30 - 2:00
Rocky Mountain Section AWWA/WEA Joint Supervisory Leadership Certification Program Richard Gerstberger	Confined Space Entry – Do's and Don'ts Lourdes Borrego-O'Brien			2:00 -2:30
MANUFACTURER'S EXHIBITION BREAK [Media Center]				2:30 - 3:00
TRACK 5 – UTILITY MANAGEMENT	**TRACK 6 – YOUNG PROFESSINOALS**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Utility Management *Moderator: Steve Wedwick*	*Moderator: Gretchen Baumgardner*	***Operator Training*** *Moderator: Tyson Glock*	***Committee Meetings***	
Cyber Security Considerations for Water and Wastewater Systems Manthou Tsiouris	The Young Professionals: Water Planning – Past, Present, and Shaping the Future Pam Pickard Kathy Ferris Grady Gammage, Jr.	Keeping Operators Up to Date: Technology I		3:00 -3:30
Use of Remote Data Logging to Monitor Isolated, Non-SCADA Sites at Tucson Water Dick Thompson				3:30 - 4:00
Regulatory Compliance Tracking Software Barbara Chappell				4:00 - 4:30
City of El Mirage – 2014 Water and Wastewater Master Plan Update Gustavo Lopez				4:30 - 5:00
EXHIBITOR HAPPY HOUR & STUDENT POSTER COMPETITION [Media Center]				5:00 - 6:30
BBQ Party [Saddle Ranch Chop House]				6:00 -10:00

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Renaissance Glendale Hotel

REGISTRATION 7:00 - 5:00

TIME	AZ WATER 88TH ANNUAL CONFERENCE PROGRAM – THURSDAY, MAY 7, 2015			
7:00 - 8:30	BREAKFAST [Solana E]			
8:00 - 3:00	MANUFACTURER'S EXHIBITION .....Glendale Convention Center / Renaissance Hotel			
8:00 - 5:00	TECHNICAL PROGRAM .....Glendale Convention Center / Renaissance Hotel			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER TREATMENT**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Aquifer Storage & Recovery *Moderator: Eric Braun*	***Asset Management*** *Moderator: Mike Ambroziak*	***Regulatory Updates*** *Moderator: Korissa Entringer*	***Facility Operations*** *Moderator: Sarah Gurule*
8:00 - 8:30	Aquifer Storage and Recovery Well Systems, Factory Pump Injection Testing: Is This Necessary? Nathan Nutter	Effective Fire Hydrant Maintenance and Operations Programs David Munoz	National Primary Drinking Water Regulation Updates US EPA Region 9 Representative	Thar She Blows! Foaming and Overflows Caused by Gas Holdup and Rapid Expansion of Digester Contents Tom Chapman
8:30 - 9:00	Part 2: Phoenix's ASR Well: Glass Beads Versus Silica Sand Filter Pack: Is There A Difference? Gary Gin, R.G.	Asset Management for Steel Tanks: Steel Tank Rehabilitation Program Rezaur Rahman	ADEQ Safe Drinking Water Program Regulatory Updates Daniel Czecholinski	Two-Stage Digester Operation: Multi-Phased or Multi-Phrazzled David Epperson
9:00 - 9:30	Entrained Air – Is Artificial Recharge To Blame Donald Hanson	Venting About Corrosion Michelle Marsh	ADEQ Water Quality Division Update Michael Fulton	Articulating the Case For Sidestream Nutrient Removal To Enhance WRRF Capacity; One Year Of Full-scale Operating Experience Lauren Zuravnsky
9:30 - 10:00	MANUFACTURER'S EXHIBITION BREAK [Media Center]			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER TREATMENT**
	Groundwater Quality *Moderator: Eric Braun*	***Scenario Planning*** *Moderator: Mike Ambroziak*	***Research*** *Moderator: Craig Caggiano*	***Process & Regulation*** *Moderator: Sarah Gurule*
10:00 - 10:30	Water Quality and Recharge Aspects of Dry Wells: An Evolving Point of View Chuck Graf	Arizona Value Integrated Model (ARVIN): Water, Energy, and Agriculture Planning Model Hwee Hwang	Electrochemical Ion Exchange Regeneration with Rapid Electrochemical Crystallization Softening James Farrell	Assessing Resource Recovery as a Component of Treatment Plants of the Future Wendell Khunjar
10:30 - 11:00	Investigations of Higher Than Expected Total Hardness as a Result of Recharging CAP Water Alyssa Miller	Capacity Expansion Model for Decision Makers in Ground Water-Dependent Watersheds Christopher Horstman	Light-Enabled Nitrate Removal to Nitrogen Gases Heather Stancl	New 40 CFR 441 Dental Industrial Users – What Does It Mean to POTWs? Lacey James
11:00 -11:30	Impacts on Groundwater Quality at the Sweetwater Recharge Facility Associated with Improved Effluent Source Water Grant Kornrumph	Asset Databases & Management – Planning for the Future Rudolf Ouwens	Sustainability Impacts for Treatment Technology Selection: Using Life Cycle Assessment to Compare Hybrid Sorbents Mac Gifford	Stormwater and Wastewater: Some Overlapping Concerns Robert van den Akker
11:30 - 1:00	LUNCHEON, WEF SPEAKER, & BUSINESS MEETING [Solana ABCDE]			
1:00 - 2:30	PANEL DISCUSSION [SOLONA F, G & H]			
1:00 - 5:00	INDUSTRY JOB FAIR & CAREER EXPLORATION DAY [CASCADE F & G]			
2:30 - 3:00	MANUFACTURER'S EXHIBITION BREAK [Media Center]			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER TREATMENT**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Policy & Procedure *Moderator: Carol Johnson*	***Planning & Coordination*** *Moderator: Fred Rouse*	***Water Quality & Monitoring*** *Moderator: Anupa Jain*	***Process & Disinfection*** *Moderator: Andy Mally*
3:00 - 3:30	Confronting Colorado River Challenges through Cooperation and Creativity Marie Pearthree	Pipeline Routing in Rural and Urban Corridors – Challenges and Benefits Ena Tucker	A Proactive Approach to Water Quality Assessment, Corrosion Control, and Plant Operational Optimization Rebecca Hamel	An Innovative Primary Treatment Using Cloth Media Filtration Technology Jack Ma, PhD
3:30 - 4:00	Transboundary Water Management and Mismanagement: Perspectives from Ambos Nogales Drew Eppehimer	Pipeline Route Selection: Applying a Quantitative Decision Framework Jason Fort	Guidance for Utilities Evaluating Chromium Treatment Options - Highlights from WRF Research Projects 4445 and 4516 Jacqueline Rhoades	The Membrane Challenge: A Case Study of a Conventional Activated Sludge Plant vs. Membrane Bioreactor Dana Trompke
4:00 - 4:30	Developing Municipal Water Policies in Flagstaff to Ensure Long-term Sustainability Brad Hill	Saving Money and Time in Litchfield Park Using Trenchless Technology John Malone	Compliance Strategies for Potential Hexavalent Chromium Regulations Chelsea Francis	Chasing Phosphorus (P) in a Biological Nutrient Removal Facility Jerry Bish
4:30 - 5:00	Water Management Challenges in Arizona's Small Towns: Report from the 2014 Small Town Water Forum Christopher Fullerton	Pasadena Fill Line Rehabilitation Edwin Muccillo	Electro-Chemical Analyzers: pH, ORP, and Chlorine Residual Measurement Tips Kenneth Chandler	Trihalomethane Control at the Tres Rios WRF Utilizing Centrate Jeff Prevatt
5:00 - 6:00	75TH ANNIVERSARY CELEBRATION OF 5S			
	HOSPITALITY NIGHT [DINNER AND NETWORKING ON YOUR OWN]			

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Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Strategic Plan *Moderator: Jeff Biggs*	***Research*** *Moderator: John Masche*	***Operator Training*** *Moderator: Doug Kobrick*	***Committee Meetings***	
Ecologically Regenerative Design for Water Supply Chuck Budinger	Sweeping Gas Membrane Distillation Through Flat Sheet Membrane Contactor Vasiliki Karanikola	Wastewater Operator Discussion Panel		8:00 - 8:30
Roadmap for Connecting Natural Areas to Arizona's Water Management and Planning Kelly Mott Lacroix	Highly Permeable Thin-Film Nanocomposite Membranes for Osmotic Recovery of Wastewaters Heather Jamieson			8:30 - 9:00
One Man's View of Arizona's Water Future Alan Forrest	Legionella Typing via MALDI-TOF MS Otto Schwake		Membership	9:00 - 9:30
MANUFACTURER'S EXHIBITION BREAK [Media Center]				9:30 - 10:00
TRACK 5 – AZ WATER STRATEGIC PLAN	**TRACK 6 – CONSTRUCTION**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Energy / Sustainability *Moderator: Jeff Biggs*	***Pre-Planning*** *Moderator: John Masche*	***Operator Training*** *Moderator: Lisa Jackson*	***Committee Meetings***	
Turning an Energy/Water Vision into Reality: Building Concrete Steps To the Utility of the Future Barry Liner	The Development of Process and Instrumentation Diagrams Gregory Fron	Water Operator Panel Discussion	Panel Discussion Meeting	10:00 - 10:30
First Steps for Improved Energy Efficiency Lisa Henderson	Dig It Till You Hit it: The Importance of Potholing for Design/Construction at an Existing Facility Shelby Dill			10:30 - 11:00
Beyond Changing Light Bulbs: Energy Efficiency Strategies in Water / Wastewater Treatment Michael Krebs	Pump Station Startup Procedures – Let's Get Things Moving! Chris Simko			11:00 -11:30
LUNCHEON, WEF SPEAKER, & BUSINESS MEETING [Solana ABCDE]				11:30 - 1:00
PANEL DISCUSSION [SOLONA F, G & H]				1:00 - 2:30
INDUSTRY JOB FAIR & CAREER EXPLORATION DAY [CASCADE F & G]				1:00 - 5:00
MANUFACTURER'S EXHIBITION BREAK [Media Center]				2:30 - 3:00
TRACK 5 – UTILITY MANAGEMENT	**TRACK 6 – AZ WATER STRATEGIC PLAN**	**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H	**Solana I**	**Aurora A - B**	**Asteria Boardroom**	
Outreach & Leadership *Moderator: Kim Caggiano*	***AZ Water Strategic Plan & 5S*** *Moderator: Vanessa Borkowski*	***Operator Training*** *Moderator: Tyson Glock*	***Committee Meetings***	
The City of Scottsdale's Approach to Effective Utility Management – Employee and Leadership Development Art Nunez	Minding Our Own Business - The Development of AZ Water's New Business Plan Timothy Thomure	Keeping Operators Up To Date: Technology II	Tap Into Quality	3:00 - 3:30
Tomato Tomato Potato Potato: The Evolution and Implementation of Sustainability Across Organizations David Eberle	AZ Water Association K-12 Outreach Initiative Michael Ambroziak			3:30 - 4:00
The City of Tempe Sample Training Campus: A Facility Designed to Assist the Industry with the Transfer of Knowledge from One Generation to the Next Richard Dalton	How to Avoid Being a Media Disaster Melanie Goetz		Young Professionals	4:00 - 4:30
Management, Leadership and Succession Planning; Understanding the Matures, Boomers, Xers, Yers and Millennials. James Courchaine	How Do I Get a Shovel? Paul Kinshella		Future Cities	4:30 - 5:00
75TH ANNIVERSARY CELEBRATION OF 5S				5:00 - 6:00
HOSPITALITY NIGHT [DINNER AND NETWORKING ON YOUR OWN]				

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

REGISTRATION 7:00 - 12:00 .....Renaissance Glendale Hotel

TIME	AZ WATER 88TH ANNUAL CONFERENCE PROGRAM – FRIDAY, MAY 8, 2015			
7:00 - 8:30	**BREAKFAST [Solana E]**			
8:00 - 3:00	**TECHNICAL PROGRAM .....Glendale Convention Center / Renaissance Hotel**			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – WASTEWATER TREATMENT**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Planning Tools & Techniques *Moderator: Gordon Thelin*	***Metering & Conservation*** *Moderator: Larry Hanson*	***Treatment & Operations*** *Moderator: Erin Pysell*	***Research*** *Moderator: Doug Kobrick*
8:00 - 8:30	How Low Can it Go? Patterns and Predictions for Residential Water Demand Gary Woodard	Water Meters Are Assets Too Stephen Davis	Compare and Contrast Sediment Removal Techniques in Water Treatment Practiced in Maricopa County Prabhat Chowdhury	Solar-UV/H2O2 Treatment of Trace Organic Contaminants in Secondary Effluent Tianqi Zhang
8:30 - 9:00	Decision Support Tool for Integrated Water Resource Planning Under Uncertainty Gwendolyn Woods	Utility Alchemy: Data as the Alloying Element for Increasing Revenue & Conserving Water Graham Symmonds	Leveraging the Use of CAP Water to Diversify the Apache Junction Water Resource Portfolio Lisa Snyders	Anaerobic Ammonium Oxidation (ANAMMOX) for Nutrient Nitrogen Removal Using High Rate Expanded Granular Sludge Bed (EGSB) Bioreactor David Vilcherrez
9:00 - 9:30	Addressing Growth, Change and Uncertainty – Tools for Water Resource Planning and Analysis in Central Arizona Jessica Fox	Installing AMI Without Busting the Budget or a Staff Revolt Ken Rock	Navajo Nation Solar Desalination Daniel Serwon	Surrogate Analysis Using Spectroscopic Methods to Predict Removal Efficacy of Advanced Oxidation Processes (AOPs) for Trace Organic Compounds (TOrCs) Minkyu Park
9:30 - 10:00	Inter-AMA M&I CAP Firming – A New Water Management Tool Mike Block	Effective Water Meter Maintenance Programs Angie Darnell	Pilot Testing of Nitrate Treatment with Minimal Brine Waste Ramesh Narasimhan	The EIB's Southeast Adaptive Bio-Skin Mohamed Elzomor
10:00 - 10:30	**BREAK**			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – AZ WATER STRATEGIC PLAN**
	Direct / Indirect Potable Reuse *Moderator: Gordon Thelin*	***Planning*** *Moderator: Larry Hanson*	***Energy Efficiency*** *Moderator: Erin Pysell*	***Outreach*** *Moderator: Doug Kobrick*
10:30 - 11:00	Potential Potable Reuse of Reclaimed Municipal Water in Tucson, AZ: A Pilot Study Joshua Campbell	Meter Box Critter Barriers Randy Gomez	Energy Optimization--- You Might be Surprised by What You Find! Dan Reuss	A Different Kind of Leaky Pipeline – Partnering to Support STEM Identity and Student Success Gale Beauchamp
11:00 -11:30	Water Quality Testing at the Raw Water Production Facility in Big Spring, Texas Paves the Road for Future Direct Potable Reuse Projects Guy Carpenter	Pump Around Contingencies: "Don't Wait Until It's Too Late" Bill Daskam	On-Demand Pump Condition Assessment and Optimization Jeff Miller	Getting Their Feet Wet: Recruiting and Retaining the Next Generation of Water Professionals Jeanne Jensen
11:30 - 12:00	Implementing Direct Potable Reuse in the Arid Southwest: El Paso's Advanced Purified Water Treatment Plant George Maseeh	Greenfield Road Sewer Force Main Failure – Gilbert's Response Mark Horn	Modifying Lake Pleasant WTP 6B-B2 Booster Pump Station Nikhil Parekh	Driving Water Conservation: A Conserve2Enhance Dashboard Road Trip Brittany Xiu
12:00 - 1:30	**LUNCHEON, AWWA SPEAKER, & GAVEL PASSING [Solana ABCDE]**			
	TRACK 1 – WATER RESOURCES AND REUSE	**TRACK 2 – DISTRIBUTION AND COLLECTION SYSTEMS**	**TRACK 3 – WATER TREATMENT**	**TRACK 4 – SPECIAL TOPICS**
	Cira A	**Cira B**	**Cira C**	**Solana F - G**
	Reuse & Climate Change *Moderator: Doug Berschauer*	***Optimization*** *Moderator: Jeanne Jensen*	***Emerging Contaminants*** *Moderator: Laura McCasland*	***Energy / Sustainability*** *Moderator: Curt Courter*
1:30 - 2:00	Case Study and Transferability Research on a Methodology for Linking Climate with Groundwater Management Susanna Eden	Maintenance Excellence Through Reliability – Centered Maintenance at Central Arizona Project Timothy Allen	The Advisory Panel on Emerging Contaminants Daniel Quintanar	Using Data Analytics to Monitor and Reduce Energy Consumption Jacques Brados
2:00 - 2:30	Integrated Water Resource Planning in Peoria, AZ: Planning for a Future of Economic Development Richard Humpherys	A Discussion About What Tucson Water Has Been Doing to Lower Unaccounted for Water Loss Maya Teyechea	Prions: A Problematic Contaminant of Emerging Concern William Kenning	Energy Recovery from Recharge Ric Traeger
2:30 - 3:00	Separating Science from Emotion in Perceptions of Recycled Water: A Case Study of Flagstaff, Arizona Channah Rock	Water System Optimization – Concepts and Case Studies Justin Rundle	Getting Ahead of the Regulations: Advanced Treatment Technologies for Dealing with Emerging Contaminants in Water Erik Rosenfeldt	Lighting and HVAC--- The Forgotten Energy Users Russ Fowler

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AZ WATER 88TH ANNUAL CONFERENCE PROGRAM – FRIDAY, MAY 8, 2015				TIME
BREAKFAST [Solana E]				7:00 - 8:30
TECHNICAL PROGRAM .....Glendale Convention Center / Renaissance Hotel				8:00 - 3:00
TRACK 5 – SPECIAL TOPICS		**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H		**Aurora A - B**	**Asteria Boardroom**	
Water For People *Moderator: Laura McCasland*		***Operator Training*** *Moderator: Doug Berschauer*	***Committee Meetings***	
Water For People – Working Towards Full Coverage Vicky Andersen		Mock Exam		8:00 - 8:30
Water For People: Making a Difference for Everyone, FOREVER Corin Marron				8:30 - 9:00
World Water Corps – International Travel With Purpose David Christiana				9:00 - 9:30
EWB - Carlos Pinto Community Water Distribution System Improvements – Disinfection System Installation Vanessa Borkowski			Energy & Sustainability	9:30 - 10:00
BREAK				10:00 - 10:30
TRACK 5 – SPECIAL TOPICS		**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Asset Management *Moderator: William McCarthy*		***Operator Training*** *Moderator: Jesse Black*	***Committee Meetings***	
Implementing Asset Management Programs Using the ISO 55501 Framework Mike Caruso		Keeping Operators Up To Date: Safety	Water For People	10:30 - 11:00
Phoenix Water Services Department Practical Application of Asset Management Kyry Tek				11:00 -11:30
Stray Current, Corrosion and VFD's G. Paul Schuitt				11:30 - 12:00
LUNCHEON, AWWA SPEAKER, & GAVEL PASSING [Solana ABCDE]				12:00 - 1:30
TRACK 5 – CONSTRUCTION		**TRACK 7 – OPERATOR TRAINING**	**TRACK 8 – COMMITTEES**	
Solana H		**Aurora A - B**	**Asteria Boardroom**	
Construction Case Studies *Moderator: Federick Tack*		***Operator Training*** *Moderator: Gary Whitten*	***Committee Meetings***	
Construction of a City of Phoenix Water Reservoir Incorporating a Public Art Project: aka "The Wall Project With a Tank" David Highfield				1:30 - 2:00
Pima County South Rillit Interceptor Sewer Rehabilitation Project Noel Ortiz		Exam Review		2:00 - 2:30
Large Diameter Pipeline Design and Constructability Challenges Ezra Page			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, MAY 6

TRACK 1 – WATER RESOURCES AND REUSE

Modeling & Optimization

8:30 AM - 9:00 AM

Staged Planning of Water and Wastewater Systems Based on Scenario Analysis

Donghwi Jung, University of Arizona

Discussed will be the staged planning of water and wastewater systems based on scenario analysis.

9:00 AM - 9:30 AM

Water Consumption Forecasting Using Artificial Neural Networks

Harold Kidder, EMA Inc.

The City of Scottsdale Water Resources Division has created an Optimization Program to envision and conceptualize new ways to operate the utility systems from a strategic "systems" perspective. Optimization minimizes various operational costs associated with energy, water supply, conveyance, and treatment while maintaining high quality water and meeting multiple operating constraints. A critical component of planning, scheduling and optimizing a water system is forecasting Water Consumption. Forecasts can be generated using a number of techniques including Heuristic (Operator Experience), Similar Day, and curve fitting. The Division utilizes Artificial Neural Networks (ANN) to create short-term (4 day) Water Consumption forecasts.

9:30 AM - 10:00 AM

No Data in the Desert: Making Advanced Modeling Techniques Work

Olga Epshtein, ARCADIS

While municipalities and wastewater authorities push towards using advanced modeling techniques and wastewater planning regulations grow more stringent, planners must account for an increasingly uncertain landscape as a result of changing population dynamics and the ramifications of climate change. A major challenge towards developing accurate, long-term wastewater projections are the data gaps inherited by current operators. In this presentation, we will discuss a local example for such a scenario, and the tips and techniques used to overcome the limitations and create a successful project.

10:00 AM - 10:30 AM

Can Complex Decision Making Become Simple Daily Life Routine? Case Studies of Collection System and Treatment Plant Operation Optimization Model

Chao-An Chiu, Carollo Engineers

How much to bypass and how much to pump? How much chemicals to add? How much flow to treat at each facility? Summer vs Winter demand? Capital and O&M costs? Daily operation of a large wastewater collection system with multiple treatment plants involves complex decision-making. A flow balancing model was developed for City of Chandler to optimize monthly operation of wastewater treatment facilities and reuse facilities. The model uses generic algorithm to distribute the wastewater and reclaimed water flows among the facilities to meet capacity constraints and demands at the lowest pumping energy and operational. The powerful real time optimization function is proven feasible to use a dynamic holistic system model to guide daily operation activities.

Direct / Indirect Potable Reuse

1:00 PM - 1:30 PM

The Role and Status of Potable Reuse as a Sustainable Water Supply Alternative

Jeff Mosher, National Water Research Institute

This presentation will provide the role and status of Indirect Potable Reuse (IPR) and Direct Potable Reuse (DPR) as a sustainably and reliable urban water alternative. Lessons learned and examples from current and proposed IPR and DPR projects in California, Arizona, Texas, and New Mexico will be discussed. Specific topics will include: treatment technologies, water quality and monitoring, criteria, and public acceptance. The presentation will provide the status of current state and national efforts on developing potable reuse guidelines. Lastly, the presentation will draw on direct experience by the author in running advisory panels for IPR and DPR projects.

1:30 PM - 2:00 PM

Getting Operations Ready for Direct Potable Reuse

Troy Walker, Hazen and Sawyer

Funded by the WateReuse Foundation and the Metropolitan Water District of Southern California as part of their Direct Potable Reuse initiative, two research projects are currently being undertaken to help answer these questions. WRRF-13-03, "Critical Control Point Assessment to Quantify Robustness and Reliability of Multiple Treatment Barriers of a DPR Scheme", is serving as an instrumental step in advancing the acceptance of direct potable reuse (DPR) by demonstrating the robustness and reliability of multiple barriers of treatment, and operational responses, to ensure the highest standards of water quality and assure protection of public health. WRRF 13-13 "Development of Operation and Maintenance Plan and Training and Certification Framework for Direct Potable Reuse (DPR) Systems" is focused on developing a framework for both O&M plans for DPR systems, and identifying the training and certification requirements to underpin the skills and knowledge for operations teams.

2:00 PM - 2:30 PM

Expanding Tucson's Recycled Water Program from a Foundation of Past Success

Wally Wilson, Tucson Water

Tucson Water has one of most successful reclaimed water systems in the country. This presentation will describe how Tucson Water plans to build upon the success over the past 30 years through master planning, public outreach, and phased implementation of a comprehensive Recycled Water Program to fully utilize all City of Tucson reclaimed water entitlements. As Tucson Water has been pro-active in planning and development of its diverse water supply portfolio, including banking of renewable Colorado River water through aquifer recharge, the Recycled Water Program will be carefully implemented over the coming years without pressures of near-term water shortage conditions.

Recharge & Recovery

3:00 PM - 3:30 PM

The Importance of Maintaining Constructed Basins in Colorado River Sourced Managed Aquifer Recharge Projects

Margaret Snyder, Tucson Water

An examination of three methods of recharge basin rehabilitation for maintaining favorable infiltration rates and basin integrity in managed aquifer recharge systems.

3:30 PM - 4:00 PM

Green Valley Lake Water Reuse/Recharge Project

Dan Utz, Town of Payson

Green Valley Lake was built in 1995-96 as a joint project between the Town of Payson and Northern Gila County Sanitary District for the purpose of providing a place to store reuse water, increase groundwater recharge and to serve as a park at the end of Main Street. This presentation summarizes the history of the Lake from construction to present, recharge estimates, current improvement projects and lessons learned in 19 years of Lake management.

4:00 PM - 4:30 PM

The Effects of Water Quality Changes on Infiltration at Tucson Water's Sweetwater Recharge Facility

Laura Nakolan, Tucson Water

The Roger Road Wastewater Treatment Plant, which has historically provided class B treated effluent to the Sweetwater Recharge Facility, has recently upgraded its technology to remove nearly 100 percent of nitrates and 50 percent of phosphates. This leaves many unanswered questions about the effects the new water will have on recharge, both in the 11 recharge basins at the Sweetwater Recharge Facility and in the Santa Cruz River. This presentation will focus specifically on the changes in infiltration rates of the old and new source waters, and will draw conclusions on whether water quality change is a practical method of improving recharge.

4:30 PM - 5:00 PM

Pilot Test of Nanofiltration Membranes for a Novel Approach to Water Reclamation

Robert McCandless, Brown and Caldwell

Elevated levels of sodium chloride in treated wastewater are a detriment to reclaimed water uses and exceed discharge water quality standards. Traditional application of reverse osmosis to reclaimed water removes all of the dissolved matter while only sodium chloride is the problem. This presentation covers a proposed membrane process that would remove mostly sodium chloride while retaining other innocuous dissolved salts. It is believed the process will result in reclaimed water quality that is fit for purpose, requires less chemical addition, generates less brine, and has a lower operating cost than traditional reverse osmosis systems. A pilot study was conducted to test key aspects of the process to confirm technical viability.

TRACK 2 – DISTRIBUTION & COLLECTION SYSTEMS

Asset Management

8:30 AM - 9:00 AM

Faster, Smarter, Cheaper, Safer: Too Good to be True? Manhole Inspection and Rehabilitation in Chandler

Robert Buss, Carollo Engineers

The City of Chandler has progressed from simply reacting to complaints and emergencies, to sleeping soundly at night because they know the condition of their sewer pipelines and manholes. They have moved with the technology, both for inspections and for rehabilitation of sewer manholes, and have arrived at the faster, smarter, cheaper, and safer way of doing business: non-entry manhole inspection using IBAK Panoramo digital imagery and non-corrosive manholes inserts, rather than manned entry and re-coating manholes over and over and over again.

9:00 AM – 9:30 AM

The City of Scottsdale's Data Driven Sewer Collection System Inspection and Renewal Prioritization Program

Levi Dillon, City of Scottsdale

The City of Scottsdale collection system consists of over 1,200 miles of sewer collection system pipelines ranging in diameter from 4-inch to 42-inch. The system contains over 33,000 manholes, and utilizes over 40 lift stations. 190 linear miles (15%) of the collection system pipelines are greater than 8-inches in diameter. The City's linear AM program utilizes a risk based methodology embedded within GIS software to prioritize camera inspections. Once the camera inspections are complete, NASSCO PACP/MACP defect data are processed using GIS software tools to identify the specific actions required and the timing of these actions.

9:30 AM - 10:00 AM

Wastewater Collections Asset Management Prioritization

Hondo Judd, Town of Gilbert

Wastewater Collection System infrastructure is aging along with other assets. Recently, a number of critical components failed or were at the point of failure without warning. The thought of not knowing what was going to fail next created anxiety for Town staff. The challenge service providers are consistently faced with is how to: Prioritize system components, Evaluate the existing infrastructure, Determine the criticality of assets, & Schedule the effective rehab, repair, and/or replacement of assets. The approach used by Town staff to perform the functions above provides value to the operation and maintenance effort as well.

10:00 AM - 10:30 AM

Water Research Foundation Project 4480: Development of an Effective Program for Asbestos Cement Mains

Dan Ellison, HDR Engineering

In a tailored collaboration project for EBMUD and the Water Research Foundation, the performance of AC pipe has been studied. The WaterRF 4480 project provides important insights into deterioration mechanisms, failure prediction, remaining useful life, condition assessment, and capital improvements. This work is particularly relevant in Arizona, where AC pipe is ubiquitous in potable water and force main service. Use of AC pipe ramped up in Arizona following World War II and continued through the Valley into the mid-1990s. As these mains gradually age and fail, cities across the Valley seek tools and methods to plan for replacement and rehabilitation

Odor Control

1:00 PM - 1:30 PM

Smell Ya Later

Theresa Muller, Brown and Caldwell

The 39th Avenue Interceptor is used to convey wastewater from primarily residential areas to the 91st Avenue WWTP. In response to complaints from nearby residents, the City initiated a comprehensive study to determine all potential causes of odor generation and release. This study included assessing the physical characteristics, researching existing treatment methods and complaint locations, understanding headspace air pressurization and hydrogen sulfide concentrations, studying liquid phase sulfide generation and evaluating various treatment options. This presentation will include a discussion of the sampling and testing efforts, an analysis of the results and the final recommendations for the 39th Avenue Interceptor.

1:30 PM - 2:00 PM

Field Testing of Odor Control Using Magnesium Hydroxide in Wastewater Collection System

Jun Wang, Carollo Engineers

Carollo Engineers conducted a field testing of dosing magnesium hydroxide (MgOH) into the wastewater collection system for odor control in conjunction with or in lieu of existing odor control chemicals (i.e., ferric chloride, hydrogen peroxide and Bioxide). Among the various tested strategies, it was demonstrated that 35 mg/L magnesium hydroxide with 37.5% of the baseline ferric and peroxide dosages can achieve the baseline level odor control at lowered annual chemical costs ($0.84M versus $1M). Additionally, the costs can be further reduced to $0.71M if shutting down magnesium dosing during the low flow period at midnight.

2:00 PM - 2:30 PM

An Innovative Solution for an Air Scrubber Challenge

Casey Sanchez, Town of Gilbert

The chemicals and equipment necessary to maintain an effective air quality at a remote wastewater collection system lift station are monitored and required by the regulatory agencies. One of our sites was not operating at a level of efficiency desired. A number of traditional approaches were considered, but Town of Gilbert staff decided to utilize a little innovative thinking to come up with a solution that: Utilized some of the existing infrastructure; Reduced the costs of chemicals and energy; Increased the efficiency rate of the unit. This effort provided value to the operation and maintenance using a cost-effective solution.

Asset Management & Modeling

3:00 PM - 3:30 PM

Water Distribution Operations and Maintenance Programs

Andrew Jackson, 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. Long range infrastructure planning must be utilized to effectively outline system necessities and to address complexities and concerns with aging infrastructure. Through the development of standardized operations and maintenance programs, a utility can effectively gauge long range infrastructure planning needs by identifying critical assets, assessing the functionality of each asset and prioritizing replacement needs based on factual data pertinent to the system. A utility must target program development in the following key areas to ensure optimal operability when demand is placed on the distribution system.

3:30 PM - 4:00 PM

Planning Overview for Replacement Wells in Arizona's Active Management Areas

Andrew Scott, Montgomery & Associates

An overview of key concepts related to replacement wells, including planning and evaluation of alternatives, permitting and limitations, and objectives for replacement well programs.

4:00 PM - 4:30 PM

Beyond the Paper Age: A Cost-Effective Way for Small Systems to Implement GIS

Brad Cole, CH2M HILL

The Pine-Strawberry Water Improvement District (PSWID) is a water system that provides service to the communities of Pine and Strawberry. To gain a better understanding of system deficiencies and potential capital upgrades, PSWID decided to embark upon its first ever water master plan. The master plan includes typical tasks such as system demand analyses, water resources portfolio reviews, and hydraulic system evaluation. However, the project also provided the opportunity to advance PSWID from overly-reproduced, hard to read paper maps of its distribution system to the computer age by digitizing its infrastructure using Geographic Information System (GIS) software.

4:30 PM - 5:00 PM

CFD Modeling for Baffle Factor Optimization for the New Deer Valley WTP Reservoir 1

Joshua Smith, Black & Veatch

As part of the new Reservoir 1 design at Deer Valley WTP, the City of Phoenix wanted to improve reservoir operational flexibility by increasing the effective disinfection contact time at various depths. Computational fluid dynamic (CFD) modeling was utilized to evaluate the impact that various baffle wall configurations had across a range of reservoir depths and production flow rates. The CFD model allowed for an easy comparison of disinfection contact times, baffling factors, design complexity and project cost for the various configurations, resulting in a final selection that balanced these considerations and a predicted baffle factor double the previous design.

TRACK 3 – WATER TREATMENT

Regulatory

8:30 AM - 9:00 AM

Town of Florence v ADEQ – Could It Drive Changes in Arizona's Aquifer Protection Permit Program?

Ronnie Hawks, Jennings, Haug & Cunningham, LLP

Review of recent developments in Arizona's Aquifer Protection Permit (APP) program that may change how ADEQ interprets statutes and regulations, and how these changes may drive greater agency scrutiny of permit applications. Session focuses on recent administrative decision in Town of Florence v. ADEQ that remanded a mining APP to ADEQ for additional review and changes. APP applicants, water providers, municipalities, and others must understand these potential changes to make sure future applications satisfy applicable standards. Also discussed will be recent agency efforts to produce permit checklists and guidance, and application of Lean Principles.

9:00 AM - 9:30 AM

Introduction to the Arizona Corporation Commission

Steven Olea, Arizona Corporation Commission

The Arizona Corporation Commission (ACC) is responsible for regulating water and wastewater utilities that are public service corporations. This presentation will introduce the water and wastewater community to the ACC and discuss key elements of the ACC's regulatory process including the issuance of a Certificate of Convenience and Necessity and how rate cases are processed and rate structures established for regulated utilities.

9:30 AM – 10:00 AM

Drinking Water Treatment Plant Inspections in Maricopa County

Tom Heintzman, Maricopa County Environmental Services Department

The MCESD Drinking Water program is responsible to inspect approximately 60-65 surface water and complex groundwater treatment plants annually. The inspections support the Sanitary Survey which is completed every 3 years for all systems in Maricopa County. The presentation will provide information on the regulatory framework for Sanitary Surveys, facility inspection process, and typical observations from treatment plant inspections.

WEDNESDAY

10:00 AM - 10:30 AM

UCMR3 – The Expected and the Unexpected: Interpreting Two Years of Data

Bradley Cahoon, Eurofins Eaton Analytical

UCMR3 is in its 3rd and final year, the first two years of monitoring completed. Eurofins Eaton Analytical has conducting monitoring for more than 400 PWS in Arizona and across the country. This presentation will provide information on UCMR3 data occurrence both in Arizona and nationally, sample collection and analytical challenges and interpretation as to the potential meaning of the data set for utilities in Arizona and the national water industry in general.

Energy

1:00 PM - 1:30 PM

Water and (Solar) Energy DO Mix: Tempe's and Mesa's Solar Experience at Water Plants

Janet Bunchman, City of Mesa

Installing renewable solar energy systems offers considerable savings and can offset rising electrical costs at water treatment plants which use millions of kilowatt hours annually. The cities of Tempe and Mesa planned and are installing nearly 4MW of solar at the South Water Treatment Plant, the Johnny G. Martinez Water Treatment Plant (Tempe); the Brown Road Water Treatment Plant and the SE Wastewater Treatment Plant (Mesa). This session offers a practicum on steps involved to implement solar – the RFP process; contracts for Solar Services Agreements (SSAs) and with the Utility; sizing, site evaluation and electrical interconnection; utility requirements; solar savings and ROI; and special project considerations for water plants. It also will touch on collaborative initiatives and policies involving solar with the Sustainable Cities Network of ASU; the State Office of Energy Policy and WIFA.

1:30 PM - 2:00 PM

Power Pile-On: One Good Outcome is Just the Beginning of the Hard Work

Katosha Nakai, Central Arizona Project

The Central Arizona Project (CAP) and its water, energy, environmental and Native American partners have been successfully working together to address U.S. Environmental Protection Agency (EPA) regulation of the Navajo Generating Station (NGS). However, continuing challenges to the longevity of NGS will require additional focus and cooperation as new EPA regulations are promulgated, National Renewable Energy Laboratory follow-up studies are conducted; and National Environmental Protection Act processes begin. The presentation will provide a broad update on the status of NGS and efforts undertaken by CAP to look to the future.

2:00 PM - 2:30 PM

Greener Agriculture, Healthier Forests, Cleaner Waters? Feasibility Studies for Agricultural Biochar Amendment

Steven Hart, Arizona State University

The toxicity of agricultural runoff is a concern in many parts of the world where soils are amended with pesticides and herbicides in an attempt to increase yield. The co-production of energy and biochar via gasification of biomass such as agricultural wastes and forest thinning residues stands to decrease the environmental burden of conventional waste disposal, while creating a potentially yield-boosting soil amendment. Approximating runoff generated in biochar amended soils will provide a first line of evidence for seeing how structural amendments can help mitigate water and soil pollution on a landscape scale.

Design & Evaluation

3:00 PM - 3:30 PM

Calculating a Disinfection Log Credit for Surface Water Treatment and Groundwater Systems

Dale Bodiya, Maricopa County Environmental Services Department

Calculating the disinfection log credit for surface water treatment and groundwater systems is based on the EPA's "LT1ESWTR Disinfection Profiling and Benchmarking Technical Guidance Manual". The log credit awarded for disinfection is based on the type of disinfectant being used, peak hourly flow rate, residual disinfection concentration, temperature, pH, the contact time, the inactivation calculation and the additive log removal credit for disinfection segment(s). The presentation will cover methodology for calculating the disinfection log credit with an emphasis on topics of specific interest to design, operations and compliance staff.

3:30 PM - 4:00 PM

Investigation of Alternatives to Optimize GAC Usage for TOC Removal in Scottsdale

Leo Zappa, Calgon Carbon Corporation

Granular activated carbon was adopted at the City of Scottsdale's drinking water treatment plants to remove TOC and minimize regulated disinfection byproducts formation, and maintain TTHM and HAA5 maximum contaminant limit compliance in the distribution system. This session reviews all considered strategies, and detail the approaches chosen for further investigation and implementation including: Chlorine Pre-oxidation, Change Coagulant Type & Dose, Reservoir Aeration, and Groundwater blending.

4:00 PM - 4:30 PM

21st Century Water Engineering: A New Way to Conduct Treatment Alternative Evaluations

Charlie (Qun) He, Carollo Engineers

When comparing treatment process alternatives, engineers traditionally have used Excel spreadsheets to perform flow and mass balance calculations based on manually created process flow schematics. Additionally, other spreadsheets are typically used to develop process performance projections, basis of design, cost estimates, and decision matrices. The analysis and results from the separate spreadsheets are then manually combined into tables that are used to compare the alternatives, and make decisions. This approach has served engineers and owners well over the years, however there is now a better tool that can be used to perform this analysis in a 21st Century manner. Using a language similar to C++, a tool was developed for water engineering on a non-proprietary platform called ExtendSim Simulation Software. It combines graphical process flow diagram and process calculations in one platform. By dragging and linking premade building blocks (e.g., canals, MBR, centrifuges), the user configures a base case process flow diagram and numerous alternative scenarios side by side. The tool generates reports for capital, O&M, and life cycle costs, basis of design, and predicated product water quality. Several case studies will be demonstrated during this presentation.

4:30 PM - 5:00 PM

Historic September Monsoon Rainstorm Causes Unique Treatment Scenario at Tempe Water Treatment Plant

Luiza Yordanova, City of Tempe

More than three-quarters of the rain that came in Arizona's 2014 monsoon season came from two days, on September 8 and 9, which set rainfall records and brought Phoenix its wettest September since 1939. The resulting incident that challenged treatment at the Johnny G. Martinez Water Treatment Plant is a lesson well learned. During this event, we experienced an unexpected raw water change of 60 NTU and alkalinity of 60. What we expected was dirty water and what we got was acid rain.

TRACK 4 – WASTEWATER TREATMENT

Energy Efficiency & Production

8:30 AM - 9:00 AM

Have You Seen Your Energy Bill?

Jing Luo, Pima County

According to US EPA, water and wastewater treatment represents approx. 3% of the nation's energy consumption. Energy costs represent 25-30% plant O&M. Since 2012, PCRWRD has embraced a systematic approach to integrate energy management into our daily operation and long-term planning. In April 2013, PCRWRD's first "Monthly Power Use and Cost Report" was published - a major milestone of our energy management efforts. In 2013, PCRWRD received a "green" grant from WIFA for an energy audit of all sub-regional WRFs. With the energy efficiency improvements by ROMP, the total energy used by the Department actually reduced by approx. 25%, while producing a much pure of reclaimed water. It is our goal to maximize the use of renewable energy. PCRWRD is currently under a Public, Private Partnership contract to clean biogas for pipeline injection. In FY 13/14, the two existing solar farms generated over 4,000,000 kWh. PCRWRD is also planning to use solar power at three sub-regional facilities.

9:00 AM - 9:30 AM

PCRWRD Sub-Regional WRF Energy Audits – Results and Plan of Action

Jonathan Boitano, HDR Engineering

In November of 2014 Pima County Regional Wastewater Reclamation Department (PCRWRD) initiated a study to review the energy usage and efficiency of their Sub-Regional Wastewater Reclamation Facilities (WRF). The scope of the study is to provide ASHRAE Level I and Level II audits of 6 Sub-Regional WRF's. The objective of the project is to identify opportunities to save 15% - 30% of the total energy consumed, and begin implementing the necessary improvements. Opportunities to save energy are categorized by cost, payback, impacts on process, and impacts on Operation and Maintenance. This presentation will outline the results of the study.

9:30 AM - 10:00 AM

Siloxane Removal Technologies: The History and Current State of the Industry

Jason Wiser, Brown and Caldwell

Siloxanes were first recognized as a digester gas contaminant over 20 years ago. During that time significant technological advances have been made to siloxane removal equipment and processes. This presentation will present that advances that have occurred over the past few decades aimed at improving siloxane removal efficiency.

10:00 AM - 10:30 AM

Landfill Leachate Treatment: How to Turn Problems Into Opportunities

Mohamed Mahmoud, Arizona State University

In this presentation, we will discuss whether or not different pre-treatment technologies –anaerobic digestion and chemical advanced oxidation – of recalcitrant landfill leachate enhanced energy recovery and organic matter stabilization in the microbial electrochemical cells (MXCs). We will also discuss how many environmental problems can lead to development of an innovative sustainable technology for electrical current production while cleaning water.

Technological Advances

1:00 PM - 1:30 PM

City of Prescott Airport Water Reclamation Facility Design Through Operation

Rob Bryant, WaterWorks Engineers

The project was designed and constructed between April 2011 and Sept 2014. A 3.75 MGD project designed for cold climate and expansion in the near future. A 3D design aided in avoiding conflicts and building system coordination. Hear about this project as a result of everyone's effort.

1:30 PM - 2:00 PM

Bradley Schmitz, University of Arizona

Pathogen and Nutrient Removal During Wastewater Treatment at a 21st Century Wastewater Treatment Plant

Two new 21st century wastewater treatment plants opened in Tucson; both supplied from the same influent water sources. This unique opportunity allowed for research to determine the most efficient wastewater treatment technologies for reducing viral, bacterial, and protozoan pathogens. Since the plants were commissioned, seasonal variations have impacted the amount of viruses present in the influent raw sewage and significant variation in virus detection from secondary effluent. These variations in virus enumerations are significant for analyzing treatment efficiency and quality control for effluent supplied as reclaimed water to the Tucson community and potentially direct potable reuse technologies in the near future.

2:00 PM - 2:30 PM

Butler Water Reclamation: Five Years and Beyond – A Look at Current and New Technologies

Robert Garcia, City of Peoria

Butler WRF has been in operation since 2008 and there have been several changes in operational techniques using technology and integration to enhance plant process control and how the plant makes process changes.

Design & Operations

3:00 PM - 3:30 PM

Impacts of Upstream Processes on Meeting Disinfection Limits with Ultraviolet Light

Andy Mally, Black & Veatch

Tertiary filtration has generally been thought of as the main driver behind achieving acceptable Ultraviolet (UV) transmittance levels for disinfection systems required to meet reuse standards. However, many other factors, some of which cannot be controlled by wastewater processes can impact water quality even when filters are running optimally. This presentation will provide a discussion of factors including treatment process upsets, industrial discharges, and other issues that impact UV disinfection processes.

3:30 PM - 4:00 PM

Successful Ultraviolet Disinfection with Low UVT Water

Taylor Reynolds, Enaqua

An introduction to non-contact UV systems and the basic differences between non-contact and contact (quartz based) systems will be presented. Additionally, a discussion will be held on the features of the technology that allow for successful disinfection even with low UVT applications. Data will be shared from Denison, Iowa where they are achieving successful disinfection with UVT values.

4:00 PM - 4:30 PM

Why Getting Stronger Might Not Be Healthier

Carlos Lopez, Carollo Engineers

Municipalities in Arizona are showing a trend of increasing wastewater constituent concentrations. Typical increases of 20 to 30 percent, and up to 250 percent are supported by a database with 10 years of historical data of 21 facilities. Reasons for these trends will be discussed, along with the effects on the capacity of specific unit processes of treatment facilities. Mathematical process modeling tools and statistically sound influent data analysis are tools that help utilities evaluate the actual capacity of their plants, and allow them to take a proactive approach to mitigating the detrimental effect of increased wastewater concentrations.

4:30 PM - 5:00 PM

Hydraulics – Not as Sexy as Process Design But Costly to Take Lightly

Maria Brady, Stantec Consulting Services Inc.

You get that call from the client. They have a problem at their facility. Some of the basins are not treating as well as other basins. We need to figure out what is going on. Can you help us? You run out there with your flashy process people and start analyzing the issues in the basins. Then the operator says, you know, we spend a lot of time every day adjusting the flow. Turns out, the problem is basic hydraulics. We will explore several scenarios where hydraulics, not process, was the problem and present some ideas to solve these problems.

TRACK 5 – UTILITY MANAGEMENT

Planning

8:30 AM - 9:00 AM

Making the Transition from Where We Were to Where We Must Go in Utility Management

Kenneth Morgan, Town of Gilbert

Managing the effort of providing utility services has transitioned greatly over the years. It used to be simple and somewhat straightforward considering the most important thing was to just give the customer the service they paid for. Today, that same task has been made more complex by the following: An increase in the regulatory requirements; A change in the complexities and demographics of workers; A greater demand for increased involvement in decisions on the part of communities; The realities of an aging infrastructure; The increase in the overall expenses associated with providing the service. A balanced assessment of the above challenges revealed some conclusions, warnings, and recommendations.

9:00 AM - 9:30 AM

Integrated Management of Public Utilities Through Strategic Planning

Jeff Biggs, Tucson Water

Water is Tucson's most important natural resource. Responsibility for providing a reliable water supply for the community rests with Tucson Water. For more than 110 years, Tucson Water has met these needs through effective planning and investment in critical infrastructure. Continued planning and investment activities must occur to meet the needs of a growing community, changes in water resources availability, and aging infrastructure. To meet these challenges, Tucson Water adheres to a set of key commitments that form a blueprint for the Utility's Strategic Plan.

9:30 AM -10:00 AM

Advances in Utility Capital Program Planning, Funding, And Implementation

Fair Yeager, CH2M HILL

Project 4493, Capital Funding Imperatives, has been funded by the Water Research Foundation to identify best practices for developing and financing utility Capital Improvement Programs (CIPs). This presentation highlights recent advances in this area through a combination of a literature review, analysis by the research team, and utility participant case studies documenting leading CIP practices. The case studies range across the following focus areas: balancing system development needs with system renewal, program implementation approaches and systems, business case evaluations, prioritization of projects and initiatives, increasing stakeholder involvement and customer research, and capital program funding approval and resourcing processes.

10:00 AM - 10:30 AM

Water Pricing: A Hot Topic in Arizona Where Does Your Community Stand?

Melanie Ford, Water Infrastructure Finance Authority of Arizona

Water and wastewater utilities face a constant struggle between the need to pay for infrastructure investments and the pressure from customers, council members and other local leaders to keep customer rates low. As a service to water and wastewater utilities around the state, WIFA conducts a rate survey each year to provide resources to help set rates appropriately. This year WIFA is pleased to offer two new and improved resources for communities who may be facing rate-setting decisions. Researching water rates data can be a daunting task for water utilities seeking to understand if their rates are set appropriately or how they compare to other communities. WIFA's easy-to-use online rates dashboard makes it easier. We've done the legwork, collected the data, and put it into a new interactive, online rates dashboard. Along with a dashboard demonstration, WIFA will provide a sneak peek into the results of their 2014 water and wastewater rates survey.

TRACK 5 – AZ WATER STRATEGIC PLAN

Outreach & Leadership

1:00 PM - 1:30 PM

Strategic Arizona Water Plan Step #1: Building Hydro-literacy and a Community Conversation About Our Water Future and Wise Use

Kerry Schwartz, University of Arizona

Arizona Water Festivals (AWFs), one of Arizona Project WET's flagship programs, specifically instill a deeper understanding of water in the earth system and Arizona's water resources through a community water festival event, teacher professional development that models the STEM curriculum unit, and extensive volunteer and community involvement. With a focus on interconnected water resources, real-world water management systems and water reliability our program engages students in understanding their world. Arizona Water Festivals have engaged 74,847 students, 2,773 teachers, 1,839 parents and 2,483 volunteers in 25 Arizona communities since 2000. Key to an engaged citizenry is community ownership. Each Water Festival Education Event develops ownership through festivities, fun, and collaboration. We rally community members from a variety of organizations to support education that impacts the socio-economic wellbeing of Arizona communities.

1:30 PM - 2:00 PM

Defining the Value of Water in Arizona: It Depends …

Susanna Eden, University of Arizona Water Resources Research Center

Defining the value of water creates a paradox because water is both priceless and free. Between these extremes lies a range of values dependent on complex interactions among multiple factors. Despite calls to price water based on its "real value", there exists no generally accepted formula for such a value. Price is a marker of value that generally does not include all the components of value. The presentation will discuss the components of price, the varying costs of water production, different mechanisms for buying and selling water in Arizona and values not generally captured in water transactions.

WEDNESDAY

2:00 PM - 2:30 PM

Rocky Mountain Section AWWA/WEA Joint Supervisory Leadership Certification Program

Richard Gerstberger, TAP Resource Development Group, Inc.

Many seasoned supervisors will be retiring in the near future and new leaders will be asked to step into those positions. Because very little training on supervisory and leadership skills is currently being offered at utilities, the Rocky Mountain Section created this program to fill that void by providing training to assist in the development of utility supervisors. Research was conducted which indicated a robust interest in the development of supervisory leadership soft skills. This presentation will discuss the design and delivery of the Rocky Mountain Section AWWA/WEA's Supervisory Leadership Certification Program along with its successes and lessons learned.

TRACK 5 – UTILITY MANAGEMENT

Utility Management

3:00 PM - 3:30 PM

Cyber Security Considerations for Water and Wastewater Systems

Manthou Tsiouris, EIC Engineers

This presentation on cyber-security describes incidents, best practices, the institutions and available information on the tools, techniques and services available to better secure water systems infrastructure from cyberattacks.

3:30 PM - 4:00 PM

Use of Remote Data Logging to Monitor Isolated, Non-SCADA Sites at Tucson Water

Dick Thompson, Tucson Water

Efficient water operations require reliable and real time information. Tucson Water has installed data loggers with internet phone modem connections that enable its hydrology group and operators to monitor remote sites. Tank level, line pressure, flow rates, and well level are measureable using simple, relatively inexpensive off-the-shelf devices that can record and transmit measurements via text or email to operators and water resource managers through internet connections. The systems discussed provide real time data to emergency response operations, as well as infiltration data, for three recharge projects with 31 recharge basins and associated monitor wells.

4:00 PM - 4:30 PM

Regulatory Compliance Tracking Software

Barbara Chappell, City of Avondale

Finding and implementing a comprehensive compliance management software program.

4:30 PM - 5:00 PM

City of El Mirage – 2014 Water and Wastewater Master Plan Update

Gustavo Lopez, Wilson Engineers

The City of El Mirage water and wastewater master plan update presentation will provide an overview of the methodologies used to prepare this master plan in coordination with the City of El Mirage and other related entities in the Phoenix Metropolitan Area. The presentation will highlight the development and use of computer simulation tools for the hydraulic analysis of the water and wastewater systems. The discussion will also include a summary of the project findings, as well as, recommendations for infrastructure improvement.

TRACK 6 – CONSTRUCTION

Construction Case Studies

8:30 AM - 9:00 AM

Chandler AWRF: A Case Study in Collaborative Startup & Commissioning

James Peterson, McCarthy Building Company

This presentation will feature a case study of the Chandler Airport Water Reclamation Facility and provide an in depth look into the processes used to commission the 7 MGD expansion of the Chandler AWRF facility.

9:00 AM - 9:30 AM

Custom Wastewater Treatment Plant for Resort with High Nitrogen Loading and Highly Variable Flows

Robert Archer, WestLand Resources, Inc.

Asked to bid on the construction of a wastewater plant for a resort, WRI Construction and WestLand Resources redesigned the plant to lower construction costs, improve ease of operation, and to handle highly variable flows and loadings. The new design allows operators to change the plant's configuration from a two-stage MLE for low flows during the resort's off-season, to four-stage secondary treatment with two anoxic zones to handle high nitrogen loading during the peak winter season.

9:30 AM - 10:00 AM

City of Tolleson – Ammonia Removal

Edmond Low, Brown and Caldwell

This presentation describes a case study of the recent upgrades and improvements to the City of Tolleson's Wastewater Treatment Plant. The improvements will allow the plant to meet more stringent ammonia limits in their AZPDES permit which becomes effective in February 2015. Working with a CM at Risk, the team was able to sequence work and maintain plant operations throughout construction to meet this deadline within eight months of beginning work.

10:00 AM - 10:30 AM

Tempe Town Lake Downstream Dam Replacement – Dewatering, Force Majeure and Foundation Components

Shane Banks, PCL Construction, Inc.

The City of Tempe is replacing the western dam at the Tempe Town Lake with a hydraulically-operated hinged steel gate dam. The steel gate system consists of eight fabricated steel gates mounted on a new concrete foundation approximately 100 feet downstream of the existing rubber bladders and offers high levels of reliability, durability and flow control. The early construction phase of the project presented multiple challenges related to subsurface water flows, historical weather events and installation of below-grade structural components. This session will review those challenges and summarize the early foundation construction.

TRACK 6 – SPECIAL TOPICS

Safety

1:00 PM - 1:30 PM

Sound the Alarm! Stormwater Considerations During Emergency Fire Fighting Events

Lisa Farinas, City of Phoenix Aviation Department

On Earth Day in 2014, a large industrial fire occurred in Phoenix. In an effort to save lives and property, fire-fighters discharged water and foam onto the fire at a rate of 4,000 gallons/minute! Some of the water evaporated, some was retained onsite, and the rest ran-off the property and eventually discharged into the Salt River - immediately upstream from the $85 million dollar Rio Salado Habitat Restoration Project. This event was a unique opportunity to observe how response activities unfolded, the importance of quick and capable response, and the challenges arising from remediating pollutant impacts.

1:30 PM - 2:00 PM

What is Arc Flash?

Manika Gupta, CH2MHILL

In any industrial, treatment plant or pump station operation, it is sometimes not feasible to take electrical equipment out of service for routine maintenance and troubleshooting. When workers interact with electrical equipment in an energized state, they are at risk of exposure to serious Shock and Arc Flash hazard. The Department of Labor's OSHA standard CFR 29-1910.335 requires employers, including municipal utilities to provide appropriate personal protective equipment (PPE), and post safety signs and arc flash labels to warn qualified workers of electrical hazards. This presentation describes arc flash and shock hazards and illustrates CH2MHILL's arc flash evaluation for City of Chandler's Water and Wastewater Infrastructure.

2:00 PM - 2:30 PM

Confined Space Entry – Do's and Don'ts

Lourdes Borrego-O'Brien, Tank Industry Consultants

Confined spaces are often present in water industry work places such as in the interior of tanks, tunnels, and/or meter and vault pits. Although OSHA is currently working on a construction industry version of the confined space entry standard, the general industry confined space standard has remained basically unaltered since its initial promulgation more than 20 years ago. OSHA does not require annual training for confined spaces, and some employers may not provide such training on a frequent basis. This presentation will review important definitions and access requirements for workers who enter confined spaces as well as a review of some of the previous fatal incidents that have occurred in the water industry.

TRACK 6 – YOUNG PROFESSIONALS

PANEL DISCUSSION

3:00 PM - 5:00 PM

Water Planning - Past, Present, and Shaping the Future

Pam Pickard, Kathy Ferris, and Grady Gammage, Jr.

Arizona has a turbulent and fascinating water history that tells a story of struggle, compromise, and innovative planning. An ability to plan effectively for the State's future water needs has given us flexibility and a sense of security. However, in the face of growing future demands, prolonged drought, and competition for alternative supplies, the future of water resources management in Arizona could become increasingly challenging. The Young Professionals' (YP) session aim to ask, "What future challenges will be encountered as the next generation of water professionals take the reins and responsibility, and become the stewards of Arizona water planning?"

TRACK 7 – OPERATOR TRAINING

8:30 AM - 10:30 AM

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 PM - 2:30 PM

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 PM - 5:00 PM

Keeping Operators Up To Date: Technology I

This session will bring in four different vendors that will present case studies and lessons learned about four different technologies. The Vendors and their products for this session:

- *Five Star Disk Filter: Disk Filter*
- *Poo-Gloo: Enhanced Lagoon Treatment*
- *Enaqua: Non-Contact Ultraviolet Disinfection*
- *Aerzen: Rotary Lobe Compressor - Delta Hybrid*

THURSDAY, MAY 7

TRACK 1 – WATER RESOURCES & REUSE

Aquifer Storage & Recovery

8:00 AM - 8:30 AM

Aquifer Storage and Recovery Well Systems, Factory Pump Injection Testing: Is This Necessary?

Nathan Nutter, Carollo Engineers

How do we estimate injection rates for an Aquifer Storage and Recovery (ASR) well? Why is factory injection testing for line-shaft turbine pumps critical? What have we learned over the years? This presentation will address these questions and summarize how the Cave Creek Water Reclamation Plant ASR well was designed and constructed.

8:30 AM - 9:00 AM

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

Gary Gin, R.G., 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, duration and rates of recharge sustainable over time) and well clogging (i.e., duration and ease of unclogging the well). This presentation will summarize our recent performance results and assess the differences between these two media.

9:00 AM - 9:30 AM

Entrained Air – Is Artificial Recharge To Blame

Donald Hanson, Clear Creek Associates

Artificial groundwater recharge (AR) is viewed by many as a panacea to offset groundwater mining in arid areas of the US and around the world. However, local hydrogeologic conditions can lead to undesirable side effects such as entrained air in groundwater pumped from wells within the recharge area. This talk presents a case study that investigates the relationship between entrained air in pumped groundwater and nearby AR. Aspects of hydraulics and groundwater chemistry are presented that show how the two may be linked.

Groundwater Quality

10:00 AM - 10:30 AM

Water Quality and Recharge Aspects of Dry Wells: An Evolving Point of View

Chuck Graf, Arizona Department of Environmental Quality

Drywells are holes bored into alluvial deposits above the water table to dispose of stormwater. Drywells first appeared in Phoenix in the 1930s. In the 1970s, Phoenix-area governments started requiring onsite retention of stormwater to flatten out flood peaks, typically mandating that no ponded water remain after 36 hours. Rapid use of drywells followed; more than 50,000 have now been drilled. This presentation will discuss Arizona's regulatory framework, where and how drywells are used, water quality aspects, and an evolving viewpoint that goes beyond stormwater disposal to consideration of drywells as a means of aquifer recharge.

10:30 AM - 11:00 AM

Investigations of Higher Than Expected Total Hardness as a Result of Recharging CAP Water

Alyssa Miller, Tucson Water

This presentation is about the presence of higher than expected concentrations of total hardness in recovered well water at Tucson Water's Clearwater storage and recovery project as a result of recharging Central Arizona Project (CAP) water for over fifteen years.

11:00 AM - 11:30 AM

Impacts on Groundwater Quality at the Sweetwater Recharge Facility Associated with Improved Effluent Source Water

Grant Kornrumph, Tucson Water

Secondary effluent has been recharged at the Sweetwater Recharge Facility (SRF) for over 20 years. In early 2014, the quality of effluent delivered to the SRF improved from Class B to Class A. This improved water quality is a result of a new wastewater reclamation facility that incorporates a biological nutrient removal process. The new effluent has significantly lower nitrogen, phosphorous, and organic carbon content, warranting interest in examining associated impacts to the groundwater quality below the recharge basins. This presentation will focus on temporal and spatial changes in groundwater quality after a significant change to source water quality.

Policy & Procedure

3:00 PM - 3:30 PM

Confronting Colorado River Challenges through Cooperation and Creativity

Marie Pearthree, Central Arizona Project

As the steward of the majority of Arizona's Colorado River allocation, Central Arizona Project has been deeply involved in efforts to address the challenges we face should these situations continue. CAP is leading or cooperating in a number of programs, projects and policy initiatives intended to increase supplies in the river, decrease local and regional use of river water, and otherwise positively impact the health of the river system.

3:30 PM -4:00 PM

Transboundary Water Management and Mismanagement: Perspectives from Ambos Nogales

Drew Eppehimer, Arizona State University

The Santa Cruz River Basin is a transboundary basin shared by Arizona and Sonora, in which Ambos Nogales is the most prominent community. Governed by international treaties with oversight from the International Boundary and Water Commission, Ambos Nogales provides a unique context for studying water management strategies. Past, present, and future issues facing the Santa Cruz River Basin include ground water overdraft, raw sewage flows, and dependence on uncertain effluent flows. The water management of Ambos Nogales blurs traditional lines and calls for the recognition of the intersectionality of (and often competition between) municipal, industrial, and environmental water claims situated within the social, legal, and political context of the region. As a result, future strategies must incorporate basin wide management approaches and promote communication and cooperation between the various actors, including the public and non-profit organizations.

4:00 PM - 4:30 PM

Developing Municipal Water Policies in Flagstaff to Ensure Long-term Sustainability

Brad Hill, City of Flagstaff

In response to the complexity of water resource management and continued population growth in Arizona communities, water professionals and elected officials often discuss and debate alternative ways to ensure growth and development is supported by a sustainable long-term water supply. The City of Flagstaff undertook the challenge of formally identifying a set of water policies that when adopted by City Council would preserve the public's trust in the City's water, reclaimed water, wastewater and stormwater systems. After ten meetings over a two year period, the City Council adopted achieved one of their priority objectives by adopting the Principles of Sound Water Management – Water Policies on April 1, 2014.

4:30 PM - 5:00 PM

Water Management Challenges in Arizona's Small Towns: Report from the 2014 Small Town Water Forum

Christopher Fullerton, Water Resources Research Center

In June 2014 the Water Resources Research Center and the Town of Clarkdale convened mayors and utility directors from small towns in Arizona and beyond to share their challenges and innovations around the unique challenges of water management in rural communities. This presentation will summarize discussions and recommendations from the communities that attended the Small Town Water Forum and suggest ideas for next steps to advance water management in Arizona's small towns.

TRACK 2 – DISTRIBUTION & COLLECTION SYSTEMS

Asset Management

8:00 AM - 8:30 AM

Effective Fire Hydrant Maintenance and Operations Programs

David Munoz, 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. Long range infrastructure planning must be utilized to effectively outline system necessities and to address complexities and concerns with aging infrastructure. Through the development of standardized fire hydrant operations and maintenance programs, a utility can effectively gauge long range infrastructure planning needs by assessing the functionality of each fire hydrant and prioritizing replacement needs based on factual data pertinent to the system.

8:30 AM - 9:00 AM

Asset Management for Steel Tanks: Steel Tank Rehabilitation Program

Rezaur Rahman, HDR Engineering

If left without routine maintenance and inspection, any asset will degrade and problems will arise. This presentation will discuss the City of Phoenix Steel Tank Improvement program that HDR is currently providing services for. This steel tank rehabilitation program is a structured program that assesses, prioritizes, schedules and executes repair, rehabilitation and maintenance work on welded steel potable water storage tanks. This presentation will discuss the goals and outline of the program, the scheduling methods, and the importance of the program.

9:00 AM - 9:30 AM

Venting About Corrosion

Michelle Marsh, HDR Engineering, Inc.

Potable water reservoirs are a crucial element of a municipality's water infrastructure and reservoirs. Metal roofed structures lacking sufficient ventilation are susceptible to costly corrosion. As municipalities work towards updating and rehabilitating this critical element of their potable water infrastructure, the need to provide sufficient ventilation is crucial. This presentation will discuss the process of determining the required amount of ventilation to mitigate corrosion. It will include examples of storage tank and concrete reservoir roof conditions that have been sufficiently and insufficiently ventilated, and conclude with design options to increase ventilation in these structures.

Scenario Planning

10:00 AM - 10:30 AM

Arizona Value Integrated Model (ARVIN): Water, Energy, and Agriculture Planning Model

Hwee Hwang, University of Arizona

Identification and development of long-term water supply alternatives is imperative for the sustainability and long term economic health for the state of Arizona. The question then becomes, what are the best strategies to meet water demands over time for municipal, agricultural, and industrial communities in the presence of uncertain future population growth, climate, individual and institution perception, and technological development. For this reason, this study focuses on creating and modeling an adaptive planning framework for the sustainable, robust, and resilient planning and management (P&M) of Arizona's statewide water infrastructure system. Consequently, Arizona Value Integrated Model (ARVIN) is developed in this study. ARVIN's objective is to maximize the net economic benefits of monthly water operations and allocations to the following sectors: agriculture, urban, recreational, power generation, environmental water use, and energy production.

10:30 AM - 11:00 AM

Capacity Expansion Model for Decision Makers in Ground Water-Dependent Watersheds

Christopher Horstman, University of Arizona

For the ground water dependent Upper San Pedro river basin, implementation of spatial water management viewed through the lens of decentralized infrastructure expansion, presents the opportunity to meet water demands while mitigating negative ecological consequences within the San Pedro River Conservation Area. Through a mixed-integer linear programming optimization scheme and informed identification of potential ground water withdrawal sites, spatial and temporal active management of the region's water resources by policy-makers can be significantly enhanced when coupled with scenario planning to quantitatively assess future policy implementation.

11:00 AM - 11:30 AM

Asset Databases & Management – Planning for the Future

Rudolf Ouwens, Wilson Engineers

This presentation will discuss the benefits of asset management, the items required to establish the database, then planning for equipment maintenance and replacement. It will also discuss extrapolating the information into plans for facility rehabilitation, and provide examples of successful projects.

Planning & Coordination

3:00 PM - 3:30 PM

Pipeline Routing in Rural and Urban Corridors – Challenges and Benefits

Ena Tucker, HDR Engineering

Water and sewer pipeline routing for both urban and rural alignments is a process that benefits from the appropriate level of research and analysis regarding several factors. These factors include existing utility locations, property ownership, required stakeholder agency review, environmental and other land clearance requirements, commercial and residential impacts, planned future projects, constructability, and cost considerations. This talk will discuss two case studies which will present the challenges associated with alignment planning for these projects and the apparent benefits to the pending design and construction will be discussed.

3:30 PM - 4:00 PM

Pipeline Route Selection: Applying a Quantitative Decision Framework

Jason Fort, Dibble Engineering

Deciding the optimal route for a new pipeline requires careful evaluation of many factors, both technical and non-technical. Tucson Water's initiative to improve water transmission network redundancy and resilience includes construction of a new pipeline to convey water from a new booster pump station located at the Hayden Udall Water Treatment Plant into the heart of the distribution system. The pipeline, planned to convey up to 95MGD under projected redundancy scenarios, and its appurtenant reservoir and pumping system infrastructure will have a major impact on distribution system operation. This presentation considers a method for analyzing and applying quantitative analysis to comparative alternatives that include both quantitative and qualitative decision factors.

4:00 PM - 4:30 PM

Saving Money and Time in Litchfield Park Using Trenchless Technology

John Malone, Carollo Engineers

Liberty Utilities has aging water and sewer infrastructure in their system, located in Litchfield Park. Liberty Utilities is being proactive in the repair and restoration of this infrastructure. The object is a 50-year design life. In lieu of dig and replace, an insitu-rehabilitation for both the water and sanitary sewer system was used to limit the construction schedule, impacts to the community and costs of improvements.

4:30 PM - 5:00 PM

Pasadena Fill Line Rehabilitation

Edwin Muccillo, Burgess & Niple, Inc.

A critical 42-inch PCCP water line, located through a residential area, had several sections of distressed pipe that needed to be rehabilitated. The City of Mesa tasked Burgess & Niple, Inc. with evaluating pressure pipe rehabilitation methods, drafting technical specifications, and providing design and construction phase services for the rehabilitation of the pipe in collaboration with a CMAR. From the review of the available pressure pipe rehabilitation methods, the structural rehabilitation methods evaluated to rehabilitate the water main were Close Fit Lining, Swagelining (Compressive Fit); and Sliplining. The materials available for water main rehabilitation are Fusible HDPE PE4710, Fusible PVC C905, Centrifugally Cast Fiberglass Reinforced Polymer Mortar, and Coated Steel. This presentation will include an overview of pressure pipe rehabilitation methods and materials, selecting feasible rehabilitation methods for existing conditions, and the CMAR delivery method.

TRACK 3 – WATER TREATMENT

Regulatory Updates

8:00 AM - 8:30 AM

National Primary Drinking Water Regulation Updates

US EPA Region 9 Representative

Come to learn about updates to the National Primary Drinking Water regulations. Gain perspective on the impact of upcoming Federal regulations from this presentation.

8:30 AM - 9:00 AM

ADEQ Safe Drinking Water Program Regulatory Updates

Daniel Czecholinski, Arizona Department of Environmental Quality

The presentation will provide information regarding existing and upcoming Safe Drinking Water Rules.

9:00 AM - 9:30 AM

ADEQ Water Quality Division Update

Michael Fulton, Arizona Department of Environmental Quality

This presentation will provide a broad update related to the operational changes at ADEQ and how it may affect our customers.

Research

10:00 AM - 10:30 AM

Electrochemical Ion Exchange Regeneration with Rapid Electrochemical Crystallization Softening

James Farrell, University of Arizona

This research investigates the feasibility of two novel electrochemical processes for removing hardness ions from water. The electrochemical ion exchange regeneration (ELIXR) process utilizes an electrochemical cell for producing acids and bases for the regeneration of ion exchange (IX) media. The acids and bases are produced using the ions present in the water, and thereby does not require the use of any chemicals. The rapid electrochemical crystallization softening (RECS) process employs an electrochemical cell and a fluidized bed crystallization reactor. The electrochemical cell is used to raise the pH of the water in order to promote the crystallization of carbonate mineral species. Combination of the ELIXR and RECS processes can eliminate the production of brine solutions that are normally generated during IX regeneration.

10:30 AM - 11:00 AM

Light-Enabled Nitrate Removal to Nitrogen Gases

Heather Stancl, Arizona State University

With nitrate as a priority contaminant and National Academy of Engineering Grand Challenge, finding viable solutions for aqueous nitrate reduction to innocuous nitrogen gases is a critical water treatment problem. Photocatalysis is an emerging technology that employs ultraviolet/visible light sources to activate semiconductor catalysts which enable oxidation-reduction reactions of aqueous contaminants. Nitrate, as a common and complex oxo-anion pollutant, may be reduced photocatalytically to nitrogen gas by-products with zero selectivity for aqueous ammonium utilizing a targeted light source. This presentation discusses different light-mediated solutions to provide desired selectivity to N-gases.

11:00 AM - 11:30 AM

Sustainability Impacts for Treatment Technology Selection: Using Life Cycle Assessment to Compare Hybrid Sorbents

Mac Gifford, Arizona State University

Environmental sustainability is vital to consider when selecting drinking water treatment technologies. We consider a hypothetical utility treating arsenic using sorbents that also wants to meet possible hexavalent chromium regulations. We compare using mixed beds to two nano-metal infused hybrid sorbents that simultaneously treat both pollutants. We use life cycle assessment to quantify nine environmental impacts of synthesis, use, and disposal of each treatment option. We find that the titanium-infused anion exchange resin has the lowest carbon footprint. Attendees learn the validity of selecting co-treatment technologies, see environmental tradeoffs in water treatment, and understand using LCA to inform decision making.

Water Quality & Monitoring

3:00 PM - 3:30 PM

A Proactive Approach to Water Quality Assessment, Corrosion Control, and Plant Operational Optimization

Rebecca Hamel, Town of Gilbert

In order to maintain optimum water quality at the lowest cost to the consumer, a three-phase system wide survey of LSI is used to determine optimum pH levels at the Town of Gilbert's two surface water treatment plants. With this information, a corrosion control program is developed and implemented with the goals of preserving ageing infrastructure, providing consistent water quality and reducing the frequency of customer complaints.

3:30 PM - 4:00 PM

Guidance for Utilities Evaluating Chromium Treatment Options - Highlights from WRF Research Projects 4445 and 4516

Jacqueline Rhoades, Hazen and Sawyer

Arizona utilities that rely on groundwater with naturally occurring chromium may want to develop a treatment strategy should a hexavalent chromium (Cr6) regulation be developed in the future. The Water Research Foundation Tailored Collaboration Projects #4445 and #4516 evaluated various treatment technologies that can be applied to Arizona. Removal technologies investigated included strong base anion exchange (SBA), weak base ion exchange (WBA), reduction/coagulation/filtration (RCF), and reverse osmosis (RO). This presentation will discuss the findings of these projects. Attendees will learn about available Cr6 treatment technologies, including treatment performance, residuals generation, and estimated costs and be better prepared to address chromium treatment should a national standard for hexavalent chromium be developed in the future.

4:00 PM - 4:30 PM

Compliance Strategies for Potential Hexavalent Chromium Regulations

Chelsea Francis, ARCADIS

A technology evaluation for the removal of hexavalent chromium was completed for WBA, SBA, and RCF/RCMF processes. All the information gathered from the technology evaluation was incorporated into a utility guidance strategy checklist for compliance planning. A tool was developed to aid utilities in organizing the pertinent information for their system, understanding the impact of the regulation, and options for complying with the regulation. The tool will take well field data and locations and organize them into treatment groups if possible and select a treatment strategy with high level costs associated with each treatment group or individual well head treatment. Once the well field information is compiled in the correct format the evaluation(s) can take minutes allowing for more high level thinking. An example compliance planning approach will be presented using the compliance tool developed during this project.

4:30 PM – 5:00 PM

Electro-Chemical Analyzers: pH, ORP, and Chlorine Residual Measurement Tips

Kenneth Chandler, Brown and Caldwell

Accurate and reliable process analysis measurement of water and wastewater pH, oxygen reduction potential (ORP), and chlorine residual are required for regulatory reporting, energy efficient process control, chemical usage efficiency, and/or public health. Many measurement systems are not accurate due to lack of sensor location and access considerations, grounding and interference issues, and expired sensors or analyzer required chemicals. Careful consideration of all aspects of the analysis measurement system application and maintenance are required for accurate reporting, desired control, economical chemical dosage, and operations confidence.

TRACK 4 – WASTEWATER TREATMENT

Facility Operations

8:00 AM - 8:30 AM

Thar She Blows! Foaming and Overflows Caused by Gas Holdup and Rapid Expansion of Digester Contents

Tom Chapman, Brown and Caldwell

The industry has recently identified some serious cases of digester "foaming" issues, and detailed investigations into these severe foaming cases have revealed that under some situations, the foaming event is actually caused by rapid expansion of the digester contents. These rapid volume expansion events have different characteristics than typical digester foaming, and rapid volume expansion can present a significant risk to digester and operator safety. Several cases of rapid volume expansion in the industry have now been documented, and research by Dr. Matt Higgins from Bucknell University has demonstrated this phenomenon in the laboratory. This presentation will describe the principles of rapid volume expansion, present a well-documented case study from the Brightwater WWTP in Woodinville, WA, and summarize the research findings of Dr. Matt Higgins.

8:30 AM - 9:00 AM

Two-Stage Digester Operation: Multi-Phased or Multi-Phrazzled

David Epperson, City of Phoenix

In December 2011, the City of Phoenix 91st Avenue Wastewater Treatment Plant switched from conventional anaerobic digestion to two-stage or Multi-Phase Digestion. The presentation will look at what changes were required within the system to facilitate Multi-Phase Digestion utilizing existing pancake style digesters, challenges we have faced in operating the system, and future considerations to further optimize performance. Data from start-up of the system through the first four years of operation will be presented and discussed. We will also discuss the impact Multi-Phase Digestion has had on related processes such as Digester Gas Utilization and Biosolids Handling.

9:00 AM - 9:30 AM

Articulating the Case for Sidestream Nutrient Removal to Enhance WRRF Capacity; One Year of Full-scale Operating Experience

Lauren Zuravnsky, Greeley and Hansen

A 45 MGD WWTP has implemented a side stream nitrogen removal process for post-digestion return centrate. The implementation of the process has yielded significant operational and cost savings to the Utility, relative to expanding the liquid side treatment processes. The benefits of the sidestream, in general, will be discussed in addition to operating data from a year of operation of a full-scale sidestream treatment system to support the value of additional treatment capacity provided.

Process & Regulation

10:00 AM - 10:30 AM

Assessing Resource Recovery as a Component of Treatment Plants of the Future

Wendell Khunjar, Hazen and Sawyer

Wastewaters are increasingly being viewed as a renewable resource whereby value added products can be extracted and reused. In this presentation, we will outline how leading edge technologies have been/are being incorporated into treatment facilities with the express goal of attaining energy neutrality and maximizing resource recovery. We will review full and pilot-scale case studies discussing: 1)Extractive nutrient recovery from WAS and digester sidestreams, 2)Onsite carbon recovery for denitrification and enhanced biological phosphorus removal using co-fermentation or focused pulse lysis technology, and 3)Co-digestion of high strength organic carbon wastes for enhancing biogas production.

10:30 AM - 11:00 AM

New 40 CFR 441 Dental Industrial Users – What Does It Mean to POTWs?

Lacey James, City of Avondale

EPA is proposing technology-based pretreatment standards for discharges of pollutants into publicly owned treatment works (POTWs) from certain existing and new dental practices. The proposal would require such dentists to comply with requirements for controlling the discharge of dental amalgam pollutants into POTWs. The requirements are based on the best available technology or best available control technology, amalgam separators, and Best Management Practices. This would require POTWs to regulate dentists that discharge into their wastewater treatment system. The monitoring of a new category could put hardship on municipalities and their workforce because it is unfunded.

11:00 AM - 11:30 AM

Stormwater and Wastewater: Some Overlapping Concerns

Robert van den Akker, Maricopa County Environmental Services Department

This presentation is to review municipal separate storm sewer system (MS4) requirements regarding illicit discharge detection and elimination and public outreach, and how the MS4 requirements overlap with pretreatment inspections and education concerns of their customers. New MS4 permit requirements on both illicit discharges and public outreach will be discussed.

Process & Disinfection

3:00 PM - 3:30 PM

An Innovative Primary Treatment Using Cloth Media Filtration Technology

Jack Ma, PhD, Aqua-Aerobic Systems, Inc.

To verify whether cloth media filtration (CMF) is suitable in primary treatment, a pilot study was conducted for nearly five months at Rock River Water Reclamation District, IL. CMF removed 80-90% TSS ranging from 104 to 526 mg/L, attaining a solids loading rate about 10 lbs/ft2-day at a hydraulic loading rate of 3.25 gpm/ft2. CMF is able to take less than 10% footprint of conventional primary settling basin while still providing better quality effluent.

3:30 PM - 4:00 PM

The Membrane Challenge: A Case Study of a Conventional Activated Sludge Plant vs. Membrane Bioreactor

Dana Trompke, Carollo Engineers

The City of Chandler is planning and designing a new 5 mgd wastewater reclamation facility (WRF). As part of the project development phase, the first task was to select the treatment process that will be utilized. A preliminary sizing and a detailed inventory of the components and equipment required for a conventional activated sludge (CAS) plant were developed and compared to those of a membrane bioreactor facility (MBR). Capital and life cycle costs were also developed for the evaluation. The session presents the head-to-head comparison of a 5 mgd CAS vs MBR facility.

4:00 PM - 4:30 PM

Chasing Phosphorus (P) in a Biological Nutrient Removal Facility

Jerry Bish, Greeley and Hansen

With recent upgrades to a biological nutrient removal facility, formation of struvite has become an O&M concern at Pima County's Tres Rios WRF. If unchecked, struvite buildup on the interior surfaces of the processing pipelines and equipment will require additional maintenance and frequent equipment shut down. The current struvite control strategy is to add ferric chloride at strategic points, which results in increased chemical cost and increased solids production. A study indicated that struvite recovery is feasible and advantageous to PCRWRD with a reasonable payback. To further verify the assumptions, field samples were collected at 14 locations throughout the treatment systems for laboratory analysis over a two-week period. After the field sampling, a bench scale test was performed. This presentation will provide the findings of the field investigations as well as the outcome of the economic analysis based on the efforts of chasing phosphorus throughout the system.

4:30 PM - 5:00 PM

Trihalomethane Control at the Tres Rios WRF Utilizing Centrate

Jeff Prevatt, Pima County

Advanced wastewater treatment will often include enhanced nutrient removal and disinfection processes necessary for meeting BADCT standards. While each of these processes dramatically improve the treated water quality, together they can combine to present challenges for wastewater operators through the generation of disinfection byproducts (DBPs). These challenges were recently demonstrated at the 2014 AZ Water conference where three different Arizona municipalities highlighted their agency's strategy for minimizing DBP formation. Pima County has participated in DBP research for the last two decades and the recent upgrades to our largest treatment plant presented an opportunity to track DBP formation and subsequent full scale pilot demonstrations for minimizing DBP formation.

TRACK 5 – AZ WATER STRATEGIC PLAN

Strategic Plan

8:00 AM - 8:30 AM

Ecologically Regenerative Design for Water Supply

Chuck Budinger, Arizona Department of Transportation

A discussion on how urban developments can be designed to integrate ecosystem habitats for improved water resource management affecting groundwater recharge.

8:30 AM - 9:00 AM

Roadmap for Connecting Natural Areas to Arizona's Water Management and Planning

Kelly Mott Lacroix, Water Resources Research Center

In an effort to more deeply understand the difficult issue of water governance in relationship to Arizona's riparian and aquatic ecosystems, the WRRC has been working to examine how, if, and where we should be considering water for ecosystems in statewide water management and planning decisions. This presentation will provide a summary of what we know and do not know about the water requirements for riparian and aquatic species in Arizona, perspectives from a diverse set of water users on how they think we should consider water for ecosystems and recommendations and tools for considering water for natural resources in our management and planning.

9:00 AM - 9:30 AM

One Man's View of Arizona's Water Future

Alan Forrest, Tucson Water

What does the future hold for Arizona's water supplies? This is a look at one possible future for Arizona, 50 years from now.

Energy / Sustainability

10:00 AM - 10:30 AM

Turning an Energy/Water Vision into Reality: Building Concrete Steps to the Utility of the Future

Barry Liner, Water Environment Federation

From the WEF/NACWA/WERF Water Resources Utility of the Future to the EPA Water Technology Innovation Blueprint to the DOE's Water Energy Tech Team Challenges & Opportunities, the vision of a more energy efficient and sustainable water sector is being touted from all corners. This presentation will present a current state of actual implementation efforts by WEF, its member associations, EPA, DOE and partner organizations to bring these visions to reality.

10:30 AM - 11:00 AM

First Steps for Improved Energy Efficiency

Lisa Henderson, Governor's Office of Energy Policy

Improving energy efficiency is at the core of measures to reduce operational cost for wastewater utilities. Energy represents the largest controllable operational expenditure, and many energy efficiency measures have payback periods of less than five years. Investing in energy efficiency supports quicker and greater expansion of clean water access by making the system cheaper to operate.

11:00 AM - 11:30 AM

Beyond Changing Light Bulbs: Energy Efficiency Strategies in Water / Wastewater Treatment

Michael Krebs, PACE

Hear about energy efficiency strategies that move beyond changing light bulbs in water and wastewater treatment. This presentation focuses on the process design, equipment usage, power plan options, proper operations and alternative power sources to reduce energy consumption in water and wastewater treatment plants.

TRACK 5 – UTILITY MANAGEMENT

Outreach & Leadership

3:00 PM - 3:30 PM

City of Scottsdale's Approach to Effective Utility Management – Employee and Leadership Development

Art Nunez, City of Scottsdale

This presentation will provide an overview of the City of Scottsdale's Water Resources Divisions approach to Effective Utility Management. Following the guidelines developed in the Effective Utility Management Primer the City's Water Resources Divisions Management team initiating what has become an ongoing effort to continually look at all aspects of how we manage our operation. While the effort focused on many areas within the City's Water Resources Division, this presentation will focus on the Employee and Leadership Development category and the development of unique recruitment approaches and a newly established Water & Wastewater Treatment Plant Operator Apprentice Program.

3:30 PM - 4:00 PM

Tomato Tomato Potato Potato: The Evolution and Implementation of Sustainability Across Organizations

David Eberle, ARCADIS

Unlike the pronunciation of tomatoes and potatoes, the term sustainability carries a different burden. While pronounced uniformly, the definition of sustainability varies widely, from individual to individual and organization to organization. Over the past decade, sustainability has gained momentum. As businesses continue to evolve and see the long-term value of proactively predicting and mitigating risks, the definition of sustainability too will grow. In much the same way as organizations saw value in safety awareness, innovative, large, multi-national organizations are beginning to see the economic value in protecting the environment, their employees, and society. This presentation will focus on sustainability as seen by large industrial and municipal clients across the nations and how their definitions and actions affect the way others do business.

4:00 PM - 4:30 PM

City of Tempe Sample Training Campus: A Facility Designed to Assist the Industry with the Transfer of Knowledge from One Generation to the Next

Richard Dalton, City of Tempe

The City of Tempe has constructed a multi-purpose 432 square foot sample training campus with a 50 feet loop of four inch clear PVC piping that contains several of the primary flume devices used in wastewater monitoring. In addition to the flow loop, the facility contains a drinking water well, groundwater monitoring well, and a surface water impoundment. The sample campus concept was derived to prepare sampling and monitoring staff with the knowledge and tools to effectively serve the needs of the water and industrial pretreatment community, and to assist in troubleshooting equipment by reproducing field conditions.

4:30 PM - 5:00 PM

Management, Leadership and Succession Planning: Understanding the Matures, Boomers, Xers, Yers and Millennials

James Courchaine, Tata and Howard

The Succession Plan will distinguish between Workforce and Succession Planning, including the understanding of the potentially five generations that might be working at the same utility.

TRACK 6 – SPECIAL TOPICS

Research

8:00 AM - 8:30 AM

Sweeping Gas Membrane Distillation Through Flat Sheet Membrane Contactor

Vasiliki Karanikola, University of Arizona

The demand for sustainable water supplies in arid and semiarid regions necessitates the inclusion of impaired water sources such as brackish and reclaimed water in regional water resource portfolios. Salts, the primary contaminants in brackish ground water, are conventionally removed via reverse osmosis (RO). However, RO is energy intensive and prone to membrane fouling. Membrane distillation (MD), which is driven by temperature-derived gradients in pressure, can mitigate these problems and may have additional advantages when applied for desalination in remote areas. In the work reported here, a sweeping gas, flat sheet MD reactor was manufactured and tested. The project focus was to examine the importance of the module and membrane configurations utilizing multiple types of membranes with different characteristics (material, pore size, porosity and thickness). MD performance was modeled as a function of membrane characteristics and operational variables.

8:30 AM - 9:00 AM

Highly Permeable Thin-Film Nanocomposite Membranes for Osmotic Recovery of Wastewaters

Heather Jamieson, Arizona State University

Solution casting methods demonstrate several manufacturing advantages over the more complex interfacial polymerization process currently used to produce polyamide reverse osmosis membranes. Our work is focused on determining effective solution deposition methods for producing nanocomposites of permeable, hydrophilic polymers with zeolitic nanoparticles. We determined the film thickness and pure water permeance of nanocomposites produced by four simple solvent casting methods: spin coating, dilute solution casting, spray deposition and dip coating. We will present our results on the ideal solvent-casting method and optimal conditions required for production of sub-micron nanocomposite films for osmotic recovery of potable water from wastewaters.

9:00 AM - 9:30 AM

Legionella Typing via MALDI-TOF MS

Otto Schwake, Arizona State University

Matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) has potential for use as a rapid and cost efficient method for molecular typing of bacterial strains. In this study, a MALDI-TOF MS sample preparation method involving agar based culturing and intercellular protein extraction was able to reliably produce high quality mass spectra from environmental samples, which were used to profile 28 Legionella isolates originating from two separate drinking water distribution systems. A dendrogram was constructed, with similarity between isolates of 90% used as a benchmark for strain differentiation. PCR analysis confirmed multiple species were detected, including L. pneumophila, and strain level characterization was achieved, with 12 unique prospective strains identified. In addition, the dissemination of two strains of L. pneumophila originating from a single water source was able to be traced throughout a sampling site.

TRACK 6 – CONSTRUCTION

Pre-Planning

10:00 AM - 10:30 AM

The Development of Process and Instrumentation Diagrams

Gregory Fron, WaterWorks Engineers

As Industrial systems are being designed and organized, the Process and Instrumentation Diagrams (P&IDs) have, in many cases, not been utilized effectively due to misunderstanding and inadequate process design management to be applied by a design team. Properly developed and organized P&IDs can save design firms and end users money as the P&ID was intended to be used as a "Map" for the various disciplines to design their associated portion of the coordinated detailed design package.

10:30 AM - 11:00 AM

Dig It Till You Hit it: The Importance of Potholing for Design/Construction at an Existing Facility

Shelby Dill, Wilson Engineers

As part of the Ocotillo WRF Process Improvements Project in Chandler, Wilson Engineers has used potholing extensively to verify the location of existing utilities within the 30-year-old facility. This presentation will focus on the general benefits of potholing and potholing procedures. It will explain how potholing sites were selected within the facility and will highlight some of the challenges involved to find all critical utilities. Finally, the presentation will go over several examples of utilities found that were different than shown on the record drawings and positive impact on design documents.

11:00 AM - 11:30 AM

Pump Station Startup Procedures – Let's Get Things Moving!

Chris Simko, Stantec

The brand new pump station has finally been completed after months, or maybe years, of planning, design and construction. The only thing left to do is turn it on. Easy, right? Well, it can be with the proper planning, coordination and preparedness. Then again, it can be a nightmare if any one link in the chain is broken. This presentation has something for anyone who designs, constructs, commissions or operates pump stations and is an educational experience on how to conduct a smooth startup.

AZ Water Strategic Plan & 5S

3:00 PM - 3:30 PM

Minding Our Own Business – The Development of AZ Water's New Business Plan

Timothy Thomure, HDR Engineering

In early 2014, AZ Water revealed an updated Strategic Plan that refreshed our organization's values, mission and vision of "A Vibrant Arizona Through Safe, Reliable Water." Next came the hard part, developing a Business Plan that advances the Association toward that vision. This presentation gives a "behind the scenes" view of the processes used to develop the current Strategic Plan and associated Business Plan for AZ Water.

3:30 PM - 4:00 PM

AZ Water Association K-12 Outreach Initiative

Michael Ambroziak, Construction Product Marketing

Included in the 2014 AZ Water Strategic Plan Update, one strategic objective is "For K – 12 students to foster interest in the industry". While this has always been one of the core values of AZ Water Association, with the baby boomer generation retiring, now as much as ever this is an initiative that requires input and support from many of the members of this great organization. This presentation will look at what is currently being done by AZ Water Association members to continue the programs and initiatives that have been implemented; but also look forward for what can be done to help "foster interest" as the objective states. AZ Water Association membership interest and interaction will be encouraged during this session to identify development and expansion of programs/curriculum to highlight the career paths that are available in this necessary and expanding industry.

4:00 PM - 4:30 PM

How to Avoid Being a Media Disaster

Melanie Goetz, Hughes & Stuart

Attendees will learn how to handle the eight toughest questions reporters ask, ways to build value for their services, how to establish trust in their leadership, and transitional phrases that help them to stay on message. The takeaway of this talk will be a better understanding of how to avoid the biggest media blunders and the surprisingly simple ways to leverage the media.

4:30 PM -5:00 PM

How Do I Get a Shovel?

Paul Kinshella, EPCOR Water

The Select Society of Sanitary Sludge Shovels started in our predecessor organization 75 years ago. The Society is made up of the people who have done the work of what is now the AZ Water Association. It is not must the leaders but those who have worked in the trenches or on the sludge piles to make our Association what it is.

TRACK 7 – OPERATOR TRAINING

8:00 AM - 9:30 AM

Wastewater Operator Panel

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. This session was created based on feedback from operators who attended last year's training.

10:00 AM - 11:30 AM

Water Operator Panel

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. This session was created based on feedback from operators who attended last year's training.

3:00 PM - 5:00 PM

Keeping Operators Up To Date: Technology II

This session will bring in four different vendors that will present case studies and lessons learned about four different technologies. The Vendors and their products for this session:

- *Hach Company: Load Based Process Controls for chemical and energy Savings*
- *EcoVerde: Improved Odor Control*
- *Hach Company: Collecting Good Flow Data - Data Delivery Services*
- *Huber Technology: RoS3Q inclined screw Press*

FRIDAY, MAY 8

TRACK 1 – WATER RESOURCES & REUSE

Planning Tools & Techniques

8:00 AM - 8:30 AM

How Low Can it Go? Patterns and Predictions for Residential Water Demand

Gary Woodard, Montgomery & Associates

Per household municipal water demand has been dropping throughout Arizona for decades. Negative consequences include: Construction of unnecessary system capacity; Increased water age resulting in greater use of disinfectant and more DBPs; and Serious financial problems. Water users and regulators in Maricopa and Pima counties supported research on the causes and likely impacts of these trends. Per-household demand dropped more than 2% annually between 2000 and 2013 across Maricopa and Pima counties, with similar declines forecast through 2020. Three sets of factors are driving the declines. They are, in order of importance: 1) declines in demand resulting from replacement of appliances, fixtures, and landscape plants with new, more water-efficient ones; 2) construction of new, more water-efficient homes; and 3) water conservation programs by municipal providers.

8:30 AM - 9:00 AM

Decision Support Tool for Integrated Water Resource Planning Under Uncertainty

Gwendolyn Woods, University of Arizona

Integrating reclamation and reuse within traditional potable water transmission and wastewater collection systems remains a challenge even when the need for water reuse is evident. A decision tool was developed to facilitate integrated water resources planning based on the optimal use of wastewater reclamation, nonpotable reuse, indirect potable reuse, and additional potable water supplies. The tool provides a preliminary design for major pipes, pump stations, and reclamation facility(ies) for undeveloped (greenfield) or partially developed study areas.

9:00 AM - 9:30 AM

Addressing Growth, Change and Uncertainty -Tools for Water Resource Planning and Analysis in Central Arizona

Jessica Fox, Central Arizona Project

The metropolitan areas of Phoenix and Tucson have experienced an unprecedented period of change in the past ten years as extremely rapid population and housing growth gave way to a near complete drop off in both. This has had a significant impact on CAP water use in all sectors. The recent changes in CAP water use are coupled with even larger uncertainties in future water supply, demand and reliability. To help address those uncertainties, CAP has been engaged in a systematic effort to expand its planning and analytical capacity. This presentation provides an overview of CAP's approach to planning and analysis, with specific examples of the technical tools that have been developed, particularly CAP:SAM, a service area supply and demand simulation model developed in-house by CAP staff.

9:30 AM - 10:00 AM

Inter-AMA M&I CAP Firming – A New Water Management Tool

Mike Block, Metropolitan Domestic Water Improvement District

The Arizona Water Banking Authority (AWBA) has a goal to firm Municipal and Industrial (M&I) CAP Water subcontractors during Colorado River water shortages. AWBA has stored excess CAP water in Phoenix, Pinal and Pima Active Management Areas (AMAs). By 2024, AWBA projects 69 percent completion of the Tucson AMA firming goal. As a way to get closer to the firming goal, Metro Water District and City of Tucson began discussions about an Inter-AMA M&I firming concept. This presentation describes the concept and the development of a pilot project between M&I CAP water subcontractors in the Phoenix and Tucson AMAs.

Direct / Indirect Potable Reuse

10:30 AM - 11:00 AM

Potential Potable Reuse of Reclaimed Municipal Water in Tucson: A Pilot Study

Joshua Campbell, University of Arizona

University of Arizona, in partnership with Tucson Water and CH2MHILL, is conducting a pilot study of the treatment of reclaimed water using soil aquifer treatment, nanofiltration, ozone and activated carbon. The study hopes to demonstrate the suitability of this low-cost, scalable treatment train in helping to ensure Tucson's potable water supply in the future.

11:00 AM - 11:30 AM

Water Quality Testing at the Raw Water Production Facility in Big Spring, Texas Paves the Road for Future Direct Potable Reuse Projects

Guy Carpenter, Carollo Engineers

When the Colorado River Municipal Water District's Raw Water Production Facility (RWPF) at Big Spring came online in April 2013, it connected advanced-treated recycled water directly to the raw water pipeline of a public water supply system, thus completing the nation's first direct potable reuse (DPR) cycle. The Texas Water Development Board has funded a research project to study the water quality throughout this advanced treatment facility to develop a robust database on which to build for future DPR projects across the state of Texas. This presentation will focus on the implications of the various data sets collected for future DPR projects (including for Arizona), and will give indications regarding where to monitor water quality, how frequently, and for what parameters.

11:30 AM - 12:00 PM

Implementing Direct Potable Reuse in the Arid Southwest: El Paso's Advanced Purified Water Treatment Plant

George Maseeh, ARCADIS

El Paso Water Utilities is advancing the first municipal-scale potable reuse project in the U.S. that will introduce purified water directly into the potable water distribution system, rather than via groundwater replenishment or blending into a surface water treatment plant's source water. This presentation will present the status of El Paso's Advanced Purified Water Treatment Plant (APWTP), including the permitting approach, design concept, pilot testing, public outreach, and full-scale implementation plans. The facility should be of "direct" interest to utilities considering or developing potable reuse projects and may offer a preview of future projects in Arizona and throughout the arid Southwest.

Reuse & Climate Change

1:30 PM - 2:00 PM

Case Study and Transferability Research on a Methodology for Linking Climate with Groundwater Management

Susanna Eden, University of Arizona, Resources Research Center

A new modeling framework links climate through precipitation, streamflow, recharge and groundwater response components to groundwater management decision making. A case study of the methodology was carried out for a series of small alluvial aquifers along the Upper Santa Cruz River, used by the City of Nogales for half its water supply. Research into the transferability of the methodology to other regions yielded a number of scenarios in which it could produce useful information for decision makers. The presentation will introduce the modeling framework and stakeholder process, describe the case study and delve into the results of the transferability research for other applications.

2:00 PM - 2:30 PM

Integrated Water Resource Planning in Peoria: Planning for a Future of Economic Development

Richard Humpherys, Carollo Engineers

Cities are increasingly viewing scarce water resources as an important part of the utility services needed to attract economic development to grow their cities. Integrated water, wastewater, and reclaimed water master plans are being used as the tool to plan ways to maximize the benefits of a City's water resource portfolio. This presentation discusses the City of Peoria's recent water resources integrated plan and how it supports economic development.

2:30 PM - 3:00 PM

Separating Science from Emotion in Perceptions of Recycled Water: A Case Study of Flagstaff

Channah Rock, University of Arizona Water Resources Research Center

Though water recycling is an attractive option for extending water supplies, concerns remain about potential public health risks. This case study examines the response of the City of Flagstaff to concerns raised after antibiotic resistance genes were detected in their municipal recycled water. An expert panel convened by Flagstaff's City Manager and representing a diversity of expertise and opinions compiled a consensus report that data do not exist to suggest that recycled water poses known health risk. The panel noted gaps in scientific knowledge, and identified a critical need for research. Thus, Flagstaff successfully addressed a complex scientific problem in a charged political environment using scientific expertise, public engagement and strong leadership. Other communities following this model may realize an increase in public trust as they pursue answers to critical health-related questions.

TRACK 2 – DISTRIBUTION & COLLECTION SYSTEMS

Metering & Conservation

8:00 AM - 8:30 AM

Water Meters Are Assets Too

Stephen Davis, Metering Technology Consultants

Accurate and reliable water meters provide the basis for utility revenue to adequately cover capital and operating costs which are ever increasing in response to regulatory, infrastructure sustainability, energy, and customer requirements. This presentation describes the evolution of water meter technology and desirable elements of a water meter asset database which can be used for accuracy prediction and replacement economics. Case studies of meter data use will be presented for predicting apparent water loss for AWWA M36 water audits and resulting value of lost water compared to meter replacement cost.

8:30 AM - 9:00 AM

Utility Alchemy: Data as the Alloying Element for Increasing Revenue & Conserving Water

Graham Symmonds, Global Water

Alchemists sought to convert ordinary metals into silver and gold. In our water utilities, alchemy is more than a metaphor; it is a financial imperative. The Utility Alchemist can meet this requirement using an alloying element of tremendous power: data. Providing customers with highly granular data allow them to make decisions to control their costs and water consumption. Combined with higher frequency and granularity of AMI data and proactive cost information, sustained per capita demand reductions of 14% can be achieved. Normally that demand destruction results in decreased revenue, but combining GIS-centric customer information systems, AMI data, and technology-agnostic MDM platforms, we have demonstrated increased revenue (7 – 9%) while reducing demand.

9:00 AM - 9:30 AM

Installing AMI Without Busting the Budget or a Staff Revolt

Ken Rock, City of Scottsdale

Advanced Metering Infrastructure (AMI) promises to allow for the water utility and its customers to access hourly flow rates and notifies when it appears that the customer has a leak. It can allow the utility to remotely shut off or turn on the water and can even listen for leaks in the distribution system.

The challenges for bringing in such a system are now not so much technical. There is, however, a budgetary consideration because AMI adds to the cost of every installation for labor and materials before one can hope to save money by erasing the need for traditional meter reading. There is also the human factor, with a major shake-up in the jobs for much of the meter group's staff. The City of Scottsdale has 88,000 meters and has tested 5 technologies in automated meter reading on 25,000 of those before recently settling on one system. In the last year we worked out a program that addresses the budget and personnel challenges while fitting the remaining 63,000 meters that do not have automation. We looked at value, cost and staff size impacts over 15 years with various time tables and strategies for a change-over. With graphs that depict these factors, this seminar explains how with some creative thinking a program was devised that gets the project completed in a reasonable time frame, minimizes the fiscal impact, and maximizes the desire to keep the goodwill and skills of the existing meter reading staff.

9:30 AM - 10:00 AM

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. Long range infrastructure planning must be utilized to effectively outline system necessities and to address complexities and concerns with aging infrastructure. Through the development of an aggressive water meter maintenance program, a utility can significantly increase financial viability by systematically addressing under-registering and old antiquated water meters.

Planning

10:30 AM - 11:00 AM

Meter Box Critter Barriers

Randy Gomez, City of Scottsdale

Around the estates in the northern part of the city, Scottsdale's Sonoran Desert teems with native creatures. Our meter readers and meter change-out people frequently find snakes, scorpions, and tarantulas inhabiting meter boxes there. Our most vexing varmint, however, is the ubiquitous and cute little antelope squirrel. These rodents are ambitious tunnelers, and they regard the meter box interiors as ideal places to pack the spoils of their burrows. In many neighborhoods we can clean out the meter boxes one month, only to come back the next to find them all backfilled again with dirt topping over the registers. To read these meters requires digging through the dirt, frequently inhabited with scorpions, ants, or spiders. This digging slows down our work and we end up with scratched, harder-to-read register faces, often resulting in premature replacement. Even our automatic meter reading (AMR/AMI)–equipped boxes have rodent issues because the antelope squirrels find the wire insulation to be tasty enough to chew through. We've tried various options in the boxes with varying effectiveness and difficulty. We ultimately devised a method that won 2nd prize in the 2014 AWWA Gimmicks and Gadgets contest.

11:00 AM - 11:30 AM

Pump Around Contingencies: Don't Wait Until It's Too Late

Bill Daskam, City of Mesa, Greenfield Water Reclamation Plant

An in-house approach to an often missed contingency plan will be presented. Designed, built and tested at the plant. This cost effective solution buys valuable time in the event of a catastrophic headworks loss.

11:30 AM - 12:00 PM

Greenfield Road Sewer Force Main Failure – Gilbert's Response

Mark Horn, Town of Gilbert

This presentation will highlight the response action related to a sewer force main failure that occurred in Gilbert Arizona in May, 2014. Two pressurized sewer force main pipes that run parallel and originate from a lift station in Gilbert Arizona deteriorated prior to the force main's discharge point. The pipe deterioration resulted in a sewer spill and a lengthy emergency response action. Following a condition assessment of both force main pipelines utilizing CCTV inspection equipment, the final quarter mile of force main pipe where it was at its worse condition had to be replaced with a new pipeline. The event also required the installation of a temporary emergency sewer by-pass pumping operation to a different service area throughout the duration. Prior to the by-pass pumping operation being activated, sewage collected at the impacted lift station had to be hauled away using semi tanker trucks on a continuous basis. The event lasted 49 days and cost $1.4 million.

Optimization

1:30 PM - 2:00 PM

Maintenance Excellence Through Reliability-Centered Maintenance at Central Arizona Project

Timothy Allen, Central Arizona Project

This presentation will detail Central Arizona Project's (CAP) launch of its Reliability Centered Maintenance program. Central Arizona Project is an Arizona municipal corporation responsible for delivering 1.6 million acre feet of Colorado River water annually to the metropolitan areas of Phoenix and Tucson. Over 300 miles of canal aqueducts, tunnels, pipelines and pump stations must be properly maintained to deliver life sustaining water 365 days per year. As CAP's 30 year old infrastructure ages, and Arizona's demand for water grows, enhanced reliability initiatives will be critical for CAP to achieve its mission obligations.

2:00 PM - 2:30 PM

A Discussion About What Tucson Water Has Been Doing to Lower Unaccounted for Water Loss

Maya Teyechea, Tucson Water

In order to stay in compliance with the mandated Municipal Conservation Program applied by the Arizona Department of Water Resources (ADWR), large municipal water providers such as Tucson Water must limit the amount of drinking water that can be lost from the potable distribution system. Immediately following the ADWR mandate Tucson Water implemented a Water Loss Control Program. This presentation will describe the collective efforts of the Tucson Water staff to not only adhere to state standards but actually achieve a lower than required water loss percentage.

2:30 PM - 3:00 PM

Water System Optimization – Concepts and Case Studies

Justin Rundle, Honeywell

Water distribution system optimization is a low cost, high payback measure to save energy. Almost all water system can benefit from optimization, yet few analyze their water systems to take advantage from optimization. This presentation will review water system equipment, water system complexity, system optimization concepts, and then show four case studies of communities who have benefited from optimization.

TRACK 3 – WATER TREATMENT

Treatment & Operations

8:00 AM - 8:30 AM

Compare and Contrast Sediment Removal Techniques in Water Treatment Practiced in Maricopa County

Prabhat Chowdhury, Maricopa County

Sediments in surface water play a major role in contaminating the water as well as aiding in water treatment process. Maricopa County Water Providers, Engineers, Consultants, and Construction firms adopt various approaches to take advantage of the sediments in treating surface water. This presentation will briefly compare and contrast with examples various sediment removal techniques, conventional and innovative, employed in water treatment prior to filtration. Filtration process is beyond the scope of this presentation.

8:30 AM - 9:00 AM

Leveraging the Use of CAP Water to Diversify the Apache Junction Water Resource Portfolio

Lisa Snyders, Carollo Engineers

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 conserve groundwater and expand its water resource portfolio, the District chose to utilize a portion of their CAP allocation and implement a new Surface Water Treatment Plant (SWTP). The SWTP utilizes a conventional treatment system with adsorption clarification and media filtration. The presentation will review the District's water resources portfolio, describe the design components of the new SWTP, and highlight the challenges that provided for a unique project.

9:00 AM - 9:30 AM

Navajo Nation Solar Desalination

Daniel Serwon, University of Arizona

Water scarcity, energy poverty and brackish groundwater on the Navajo Nation has motivated the research and application of Solar Membrane Desalination near Leupp, Arizona. Daniel Serwon and Sera Mirchandani are part of a team led by Drs. Wendell Ela and Robert Arnold to design a system to provide residents with affordable livestock water and eventually potable water. Daniel is creating a comprehensive manual and training curriculum to transfer the technology to the Navajo Department of Water Resources and Sera is designing a full-system process model for optimization of the system.

9:30 AM - 10:00 AM

Pilot Testing of Nitrate Treatment with Minimal Brine Waste

Ramesh Narasimhan, NCS

This presentation will provide a comparison study of two emerging nitrate treatment technologies for groundwater that are potentially more economical and environmentally sustainable than conventional methods.

Energy Efficiency

10:30 AM - 11:00 AM

Energy Optimization – You Might be Surprised by What You Find!

Dan Reuss, Brown and Caldwell

By doing an assessment and evaluation of your energy demands you might be surprised at the number of opportunities you might find throughout your facilities to significantly reduce your power consumption. We will also discuss the challenges faced in doing these studies and how to prepare. There are also rebate programs available to help pay for these assessments and upgrades. Examples will be presented of some real world findings.

11:00 AM - 11:30 AM

On-Demand Pump Condition Assessment and Optimization

Jeff Miller, Schneider Electric

This presentation discusses new automated pump assessment technologies and how they can reduce energy costs and equipment wear. These technologies determine the true health and efficiency of a pump or set of pumps in real time. Previously similar systems could only be implemented on an entire distribution system while using static data, but now these systems can be implemented cost effectively on a pump-by-pump or pump station basis in the collection, distribution, or treatment systems. Examples illustrate concepts and benefits.

11:30 AM - 12:00 PM

Modifying Lake Pleasant WTP 6B-B2 Booster Pump Station

Nikhil Parekh, Black & Veatch

Since construction of Lake Pleasant WTP Finished Water Pump Station (FWPS), the average water demand supplied by the FWPS has been nearly cut in half. Therefore the existing pumps currently do not operate at their rated conditions and best efficiency point. The presentation will focus on improvements to the FWPS and optimizing operation procedures to reduce energy consumption.

Emerging Contaminants

1:30 PM - 2:00 PM

The Advisory Panel on Emerging Contaminants

Daniel Quintanar, Tucson Water

The Arizona Department of Environmental Quality (ADEQ) directed the formation of the Advisory Panel on Emerging Contaminants (APEC) to advise ADEQ, water utilities and the public on emerging chemicals and pathogens found in Arizona's water sources and drinking water. There is a growing list of unregulated emerging contaminants, among them pharmaceuticals, personal care products, industrial chemicals, and pathogens. APEC offers a collaborative forum for sharing critical information about contaminants, research, monitoring, resources, and outreach that will help to ensure safe water sources and drinking water supplies in Arizona. APEC expects to release its final report this summer.

2:00 PM - 2:30 PM

Prions: A Problematic Contaminant of Emerging Concern

William Kenning, Maricopa County Environmental Services Department

Prions are a class of infectious proteins that have been implicated as a possible cause of a number of diseases including Creutzfeldt-Jakob, Kuru, Bovine Spongiform Encephalopathy (BSE - mad cow), Levy Body Dementia, Alzheimer's and Parkinson's. Prions are a contaminant of emerging concern that, from a water and wastewater treatment perspective, do not fit into the standard contaminant categories of metals, radionuclides, organics, inorganics, microorganisms and viruses, and the emerging contaminant categories of pharmaceuticals and personal care products, perfluorinated compounds and other types of chemical compounds. Proposed multi-barrier advanced treatment processes, such as membrane filtration or granular activated carbon followed by advanced oxidation and ultraviolet treatment, may not fully address the threat of prions. This presentation is an introduction to prions and how they might impact water, wastewater and reuse activities in the future.

2:30 PM - 3:00 PM

Getting Ahead of the Regulations: Advanced Treatment Technologies for Dealing with Emerging Contaminants in Water

Erik Rosenfeldt, Hazen and Sawyer

The term "emerging contaminants" is a vague statement which could deal with anything from new microbial pathogens of concern to endocrine disruptors and pharmaceuticals to yet-to-be identified disinfection byproducts. In addition, public perception and a new EPA strategy for regulating "contaminants as groups" may have broad implications impacting the concept of what constitutes "safe water" provided by utilities. The one constant in the concept of emerging contaminants is that as detection methods continue to improve there will always be new emerging contaminants to worry about. This talk will examine advanced treatment strategies, such as traditional and advanced oxidation processes, separation processes, and alternative disinfection, for dealing with current "emerging" issues of concern for water utilities. In addition, the processes will be evaluated for their flexibility and ability to provide barriers for the next generation of "emerging contaminants".

TRACK 4 – WASTEWATER TREATMENT

Research

8:00 AM - 8:30 AM

Solar-UV/H2O2 Treatment of Trace Organic Contaminants in Secondary Effluent

Tianqi Zhang, University of Arizona

Indirect photolysis under solar light by dissolved organic matter radicals in wastewater effluent is an effective process to attenuate alkylphenols and endocrine disrupters in wastewater matrices.

8:30 AM - 9:00 AM

Anaerobic Ammonium Oxidation (ANAMMOX) for Nutrient Nitrogen Removal Using High Rate Expanded Granular Sludge Bed (EGSB) Bioreactor

David Vilcherrez, University of Arizona

Anaerobic ammonium oxidation is a novel biological process which uses ammonium as an electron donor and nitrite as an electron acceptor. Anammox bacteria have been discovered about 20 years ago, and their metabolism and physiology are still being researched. As a motivation for our work, we investigated the performance of the anammox process and the potential removal efficiency possible operated in a small scale bioreactor. Our results indicate that anammox can remove nitrogen species from wastewater at a high efficiency. The other benefits of the anammox process include savings in aeration, external carbon substrate, and in greenhouse gas emissions.

9:00 AM - 9:30 AM

Surrogate Analysis Using Spectroscopic Methods to Predict Removal Efficacy of Advanced Oxidation Processes (AOPs) for Trace Organic Compounds (TOrCs)

Minkyu Park, University of Arizona

Advanced oxidation processes (AOPs) are proven treatment technology to remove trace organic compounds (TOrCs) such as endocrine disrupting compounds (EDCs) and pharmaceutical and personal care products (PPCPs) in wastewater. However, it is challenging to monitor such compounds in real time. Therefore, spectroscopic parameters such as fluorescence intensity and UV absorbance at a wavelength of 254 nm as surrogate indicators of TOrCs removal by AOPs are studied and have displayed good correlations with the removals of TOrCs regardless of seasonal variation in water quality.

9:30 AM - 10:00 AM

The EIB's Southeast Adaptive Bio-Skin

Mohamed Elzomor, University of Arizona

Energy and water are two harmonious pillars that form human civilizations. The authors proposed a design for the Engineering Innovation Building (EIB) at the University of Arizona, USA, by incorporating an algae wall to the southeast façade; the algae panels were adopted to foster the development of renewable energy's research, supporting the reuse of grey water and performing as an adaptive shading double skin. The algae panel predominantly is contingent on the flow of water, which EIB suggested the usage of grey water to act as a source to provide the algae panels with nutrients and CO2.

TRACK 4 – AZ WATER STRATEGIC PLAN

Outreach

10:30 AM - 11:00 AM

A Different Kind of Leaky Pipeline – Partnering to Support STEM Identity and Student Success

Gale Beauchamp, Maricopa County Education Service Agency

ARCADIS has teamed up with the Maricopa County Education Service Agency's STEM Role Model program and challenged its team to share with kids in their local communities how they became an engineer, scientist, or otherwise involved in STEM. This talk will include a presentation of the MCESA program and the involvement of ARCADIS, and highlight the positive impacts that can come from a large engineering firm doing its part to fix a different sort of "leaky pipeline."

11:00 AM - 11:30 AM

Getting Their Feet Wet: Recruiting and Retaining the Next Generation of Water Professionals

Jeanne Jensen, City of Tempe

The silver tsunami might have been held back by the economic recession but it is crucial we be looking at our employment pool for the future. The AZ Water Association's recent strategic planning update brings a focus to the importance of bringing in the best people to meet the growing needs of our industry. This presentation will focus on the recruitment and retention processes available across the industry, recent research into the forthcoming employment pool, and the gaps in skill-base anticipated as industry changes.

11:30 AM - 12:00 PM

Driving Water Conservation: A Conserve2Enhance Dashboard Road Trip

Brittany Xiu, University of Arizona Water Resources Research Center

The University of Arizona Water Resources Research Center (WRRC) Conserve2Enhance (C2E) program connects voluntary water conservation to community action. C2E does this by linking participant donations, based on their water savings, to funding for local environmental enhancement projects. Participating homes and businesses can create accounts on the new C2E Water Use Dashboard (www.conserve2enhance.org), a free online tool designed to promote water efficiency, track water use, and raise revenue for environmental enhancement. This presentation will showcase the Dashboard's suite of educational and interactive tools, as well as illustrate how these tools are educating water users, encouraging participation in C2E programs, and being applied at the utility and regional scales throughout the Southwest.

TRACK 4 – SPECIAL TOPICS

Energy / Sustainability

1:30 PM - 2:00 PM

Using Data Analytics to Monitor and Reduce Energy Consumption

Jacques Brados, Black & Veatch

This presentation will discuss the implementation of a pilot

project around energy management, their successes and failures, show the graphical interface, and discuss the benefits to plant operations. This presentation will benefit utilities that have copious quantities of "data", but have not developed a strategic program or approach to use the data to address energy management issues.

2:00 PM - 2:30 PM

Energy Recovery from Recharge

Ric Traeger, Brown and Caldwell

During a time when energy cost is continuously increasing and the trend for sustainability is on the rise, it is important to develop ways to optimize energy usage and energy recovery. In an effort to optimize energy use and decrease operational costs, we developed a concept to utilize hydropower turbines in recharge wells to convert hydropower energy into usable energy. There is a lot of energy that is wasted during the recharging process that can potentially be recovered and utilized.

2:30 PM - 3:00 PM

Lighting and HVAC – The Forgotten Energy Users

Russ Fowler, City of Phoenix

This presentation covers energy consuming equipment/devices that are often overlooked by water and wastewater utilities despite how much they cost to operate, and what can be done to make them more efficient. Several Phoenix Water Services Department case studies will be discussed, demonstrating how improvements can significantly lower operating costs.

TRACK 5 – SPECIAL TOPICS

Water For People

8:00 AM - 8:30 AM

Water For People - Working Towards Full Coverage

Vicky Andersen, Water For People

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, Water For People's Community Engagement Manager will talk about the recent Impact Tour to Uganda, EF Accelerator (WFPs latest initiative) and the numerous ways that Water For People is fulfilling its mission and goals.

8:30 AM - 9:00 AM

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.

9:00 AM - 9:30 AM

World Water Corps - International Travel With Purpose

David Christiana, AZ Department of Water Resources

World Water Corps is the volunteer arm of the international development organization, Water For People. Many opportunities are available for individuals for all aspects of the water industry to use their expertise to assist a community in a developing country.

9:30 AM - 10:00 AM

EWB - Carlos Pinto Community Water Distribution System Improvements - Disinfection System Installation

Vanessa Borkowski, Black & Veatch

Carlos Pinto is a community in the San Cristobal Province of the Dominican Republic with 400 community homes. Community members reported gastrointestinal and dermatological issues from using water in the distribution system. Engineers Without Borders' Phoenix Professional Chapter adopted this community project to improve the water quality and reliability within the existing distribution system. The Chapter has made three trips to the community (October 2012, July 2013, and September 2014). This presentation discusses the progress made during the last trip, during which a disinfection system was installed, as well as the design efforts before, during, and after the trip.

Asset Management

10:30 AM - 11:00 AM

Implementing Asset Management Programs Using the ISO 55501 Framework

Mike Caruso, Black & Veatch

The implementation of formal asset management programs is a fast-growing trend in the water and wastewater industry, but few utilities are using asset management frameworks to implement their programs. This presentation will discuss current asset management trends, and the benefits of using frameworks, including an explanation of the new international asset management standard ISO 55001 with examples of how utilities are using frameworks to implement asset management programs.

11:00 AM - 11:30 AM

Phoenix Water Services Department Practical Application of Asset Management

Kyry Tek, City of Phoenix Water Services Department

The presentation will give an overview of Phoenix Water Services Department's Asset Management Program core elements and how those components are to be executed. The elements include the asset registry database, a computer maintenance management system (CMMS), work and asset reporting/analytics, and asset life cycle forecasting. Executing this program requires an overall asset management plan that will serve as a roadmap to guide the process of asset management, an asset management policy to set expectations for best practices for all employees, and operational asset management strategic plan to ensure consistent asset maintenance strategy and risk management.

11:30 AM - 12:00 PM

Stray Current, Corrosion and VFD's

G. Paul Schuitt, City of Avondale

The City of Avondale Wolf Water Reclamation Facility is a 9 MGD BNR facility experienced a catastrophic failure of one of three 400hp multi stage VFD controlled centrifugal pumps after five years of operation. A root cause analysis of the severe corrosion and failure of the pump case led to the hypothesis it may be have been caused by stray currents generated by VFD and transmitted through the pump shaft. The presentation is designed to open discussion on other utilities' experiences operating high hp motors with VFD's and unexpected or unexplained corrosion.

TRACK 5 – CONSTRUCTION

Construction Case Studies

1:30 PM - 2:00 PM

Construction of a City of Phoenix Water Reservoir Incorporating a Public Art Project: aka "The Wall Project with a Tank"

David Highfield, Wilson Engineers

The City of Phoenix 7A-GS2 3 MG Concrete Reservoir Project is located in the Desert Ridge Planning Area. For this reason, the Water Services Department desired to enhance the aesthetic appearance of the facility. Through the Pinnacle Peak Water Reservoir Public Art Project, a pair of artists (Nina Solomon and Heidi Dauphin) were commissioned to work with the overall project team, which included the City of Phoenix Water Services Department, design engineer Wilson Engineers, structural engineer NSB Engineers, landscape architect C.F. Shuler, Inc., and contractor Felix Construction to develop design enhancements for the new 3 million gallon concrete reservoir site. This presentation will focus on the design, coordination, and construction process and will specifically discuss the lessons learned and challenges overcome.

2:00 PM - 2:30 PM

Pima County South Rillito Interceptor Sewer Rehabilitation Project

Noel Ortiz, Pima County RWRD

Our Mission: Rehabilitate almost 4 miles of a failing 48 - 54 inch sewer system located within densely-populated 50 year-old neighborhoods and a popular business center surrounded by schools, fitness centers, an animal shelter and "The Loop" trail. Create a project specific informational website; deliver detailed up-to date information to emergency responders, residents and businesses; provide one-on-one contact and issue resolution – and complete it all five months ahead of schedule and under budget. Impossible? Not at all when you have the right team, the right attitude and the right approach.

2:30 PM - 3:00 PM

Large Diameter Pipeline Design and Constructability Challenges

Ezra Page, Dibble Engineering

The new 72-inch water transmission main delivers 90 MGD of water from the Val Vista Water Treatment Plant to three reservoir and booster pumping facilities and serves the City of Mesa's largest pressure zone. Design and constructability challenges associated with the construction of this project will be discussed. This was a CMAR project with the construction cost of Phase 1 of $13.2 million. The following items will be discussed; pipeline material selection (CCP, PCCP, and Steel), surge protection of pipeline, and innovative approach to 90-inch trenchless pipe installation.

TRACK 7 – OPERATOR TRAINING

8:00 AM - 10:00 AM

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 AM - 12:00 PM

Keeping Operators Up To Date: Safety

We will be highlighting new products that are coming out to help the operator in their everyday work life to be a little bit more safety minded and safety aware. There have been many great advances in the field of workplace safety and we are not always privy to the information about them. This is a chance for the Operator, Supervisor, Utilities Manager or anyone else who works in the field of Water/WasteWater to get a jump start on some new and great products so that they can help to take their Utility/Team to the top of the list when it comes to a Safety minded culture.

1:30 PM - 3:00 PM

Exam Review

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

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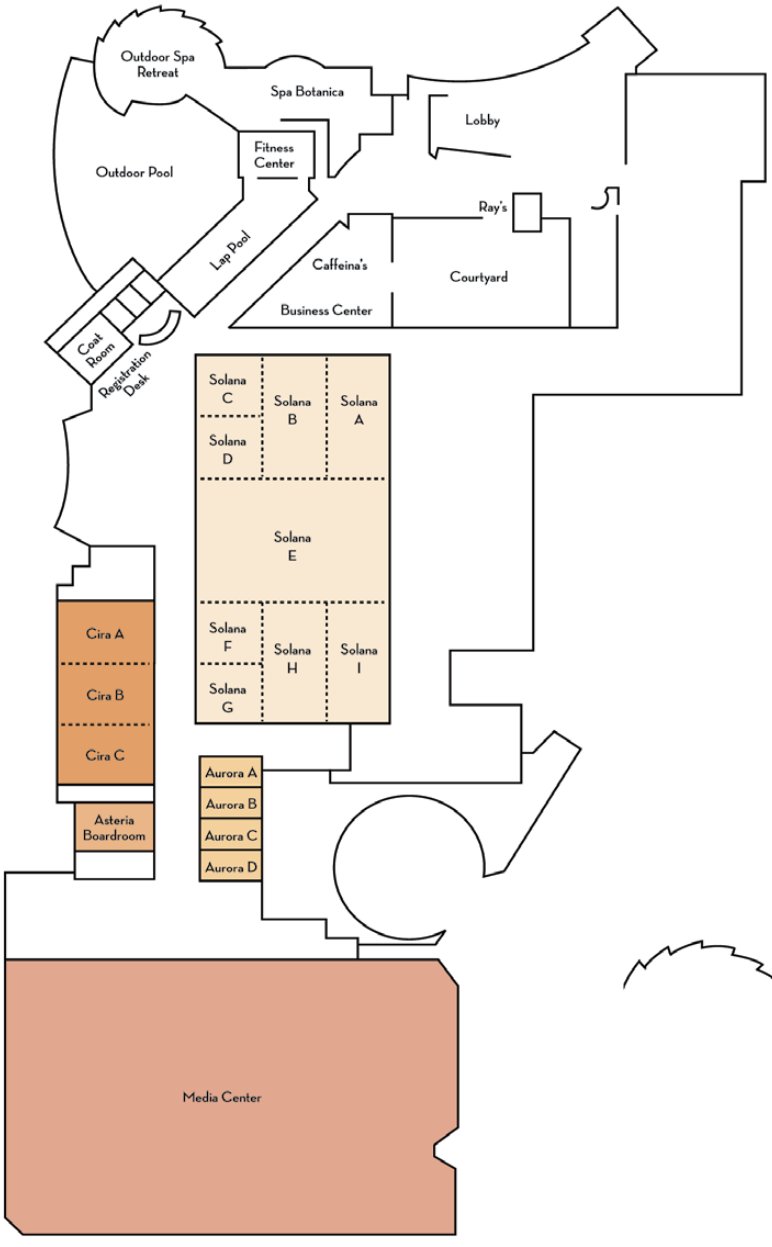

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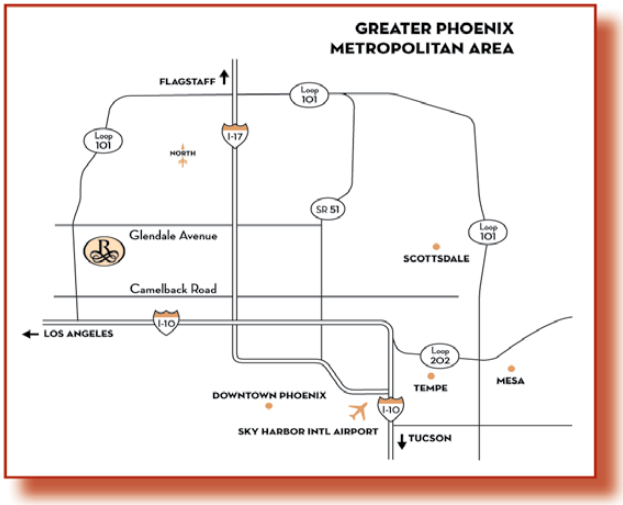
- Head northwest on E Sky Harbor Circle S toward E Buckeye Rd.
- Turn left
- Take ramp to I-10 W
- Keep left at the fork to continue toward I-10 W and merge onto I-10 W
- Take exit 133B to merge onto AZ Loop 101 N
- Take exit 7 for Glendale Ave.
- Keep right at the fork, follow signs for Glendale Ave.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



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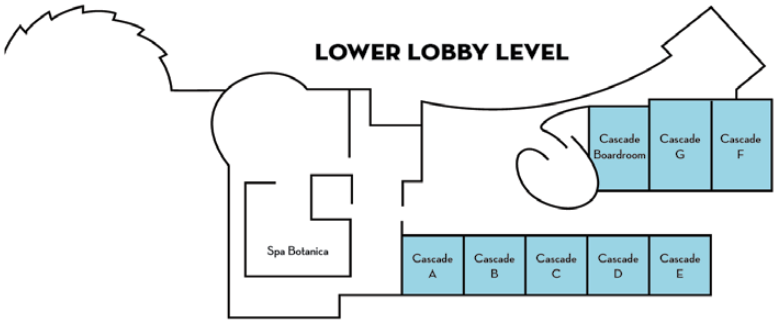

A Vibrant Arizona
Through Safe, Reliable Water

REGISTRATION FORM

88TH ANNUAL CONFERENCE & EXHIBITION — MAY 6-8, 2015

One Registrant Per Form

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 4/15/15	NON-MEMBER Early Bird	NON-MEMBER After 4/15/15	TOTAL
FULL ANNUAL CONFERENCE May 6 - May 8, 2015		$345	$385	$395	$435	_____
Includes Sessions/Exhibits	Breakfast 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 6		$170	same	$200	same	_____
Includes Sessions/Exhibits	Breakfast • Breaks • Lunch					
Exhibitior Happy Hour						
BBQ Party						
Are You Attending the BBQ Party?	Yes No					
Thursday, May 7		$160	same	$190	same	_____
Includes Sessions/Exhibits	Breakfast • Breaks • Lunch					
Friday, May 8		$150	same	$180	same	_____
Includes Sessions	Breakfast • Break • Lunch					

STUDENTS ..... Sessions & Exhibits Free (meals extra) _____

OPTIONAL EVENTS

Golf Tournament — Tuesday, May 5 — Use enclosed registration form

EXTRA MEAL TICKETS

Keynote Luncheon Program	Wednesday, May 6	$35.00	Quantity _____	_____
Barbecue (*children 5 and under free*)	Wednesday, May 6	$35.00	Quantity _____	_____
Barbecue (children 6 to 12)	Wednesday, May 6	$10.00	Quantity _____	_____
Luncheon Program	Thursday, May 7	$35.00	Quantity _____	_____
Luncheon Program	Friday, May 8	$35.00	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:

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Online registration is preferable at www.azwater.org and click on Events.

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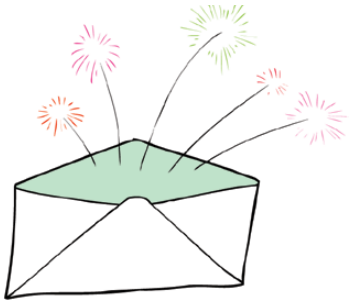

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Credit Card Payment and Purchase Order

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