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September 30, 2024

OESAC CEU Committee PO Box 577 Canby, OR 97013-0577

Dear members of the CEU Committee:

Please consider this request for your approval of the American Water Works Association (AWWA) Summer 2024 Webcasts for 0.8 CEU's.

DATE	AWWA Summer 2024 Webcasts	CEU's: 0.8
3/19/24	From Space to Earth: Revolutionizing Leak Detection with Satellite Technology for Water Management Efficiency	0.1
4/25/24	Insights to Prepare for and Succeed in Monitoring PFAS	0.1
7/17/24	Water, Wildfires, and Wisdom	0.1
7/24/24	Digital Twins for Emergency Management	0.1
8/13/24	Navigating BABA Products and Requirements	0.1
8/14/24	Legislative Activity in the Water Sector: Current State and Future Outlook	0.1
8/21/24	Navigating the Future: Water Reuse in a Water 2050 Paradigm	0.1
8/28/24	Wading Into Water Quality Modeling: Tackling Distribution System Challenges and Improving Decision-Making	0.1

Thank you in advance for your consideration.

Respectfully,

Brook E. Sardne

Brooke Gardner Portland Water Bureau brooke.e.gardner@portlandoregon.gov

Enclosures:

- 1. Letter of request to review
- 2. AWWA Webcast Summaries and Speaker Bios

The City of Portland is committed to providing meaningful access. To request translation, interpretation, modifications, accommodations, or other auxiliary aids or services, or to file a <u>complaint of discrimination</u>, contact **503-823-4000 (311)**, **Relay: 711, or 503-823-7770**. Traducción e Interpretación | Biên Dịch và Thông Dịch | 口笔译服务 | y ± t p@± ≠ 在pž∑rЁ∑p | Устный и письменный перевод Turjumaad iyo Fasiraad | Письмовий і усний переклад | Traducere și interpretariat | Chiaku me Awewen Kapas Translation and Interpretation: **503-823-4000 (311)**, **Relay: 711, or 503-823-7770** | **portland.gov/water/access** AWWA Webinar – From Space to Earth: Revolutionizing Leak Detection with Satellite Technology for Water Management Efficiency March 19, 2024

Overview:

As water scarcity becomes a pressing concern worldwide, proactive leak detection programs have become crucial. These programs are now at the forefront of water management strategies, combating challenges related to aging infrastructure, rising energy costs, and water affordability.

Attendees will learn the different methodologies of proactive leak detection usage, including cutting-edge satellite technology, best practices for collaboration, and real-world customer insights. You'll also hear about the different types of data other utilities are collecting regarding leaks, which can help identify the direct impact of a leak detection program on water loss levels.

Panelists will address several challenges faced by attendees in the field of water management and leak detection:

- Methodological dilemmas
- Reducing non-revenue water (NRW)
- Cost-effectiveness and efficiency
- Customer experience enhancement
- Knowledge gaps

This webinar aims to equip participants with the knowledge and tools needed to overcome obstacles in leak detection, improve operational efficiency, and enhance overall water management practices. Whether participants are seeking knowledge on the latest leak detection technologies, benchmarking methodologies, or real-world success stories, the panel will provide valuable insights for professionals at various levels within the industry.

Presenter Biography Information

Paul Gagliardo, Principal Consultant, Gagliacqua

Paul has over 25 years of experience in the water utility business, most recently serving as the Innovation Director at American Water. He currently runs his own consulting company, Gagliacqua. Paul also hosts the Water Entrepreneur Podcast.

Eric Trerotola, Sales Manager, North America, ASTERRA

Eric is a Senior Sales Manager at ASTERRA, responsible for managing strategic partnerships in North America. A seasoned professional with over 20 years of experience in business development and technical sales, Eric brings extensive expertise in marketing, project management, and customer relations.

Sabrina Dodos, Utility Service Engineer, City of Henderson

Sabrina is a Utility Services Engineer with the City of Henderson. She works on asset management for the City's two wastewater treatment plants. Sabrina has worked in the water/wastewater industry since her first internship and is passionate about being a

steward of water. She is a Professional Engineer in Nevada and California, and has worked with agencies throughout the southwest. Sabrina is currently President of the Nevada Water Environment Association.

Cynthia Baughman, PMP, BRMP, Water Utilities Technology Director, City of Garland, TX

Cynthia is a strategic technology leader with over 35 years' experience working in all aspects of IT and innovation. She has worked for the City of Garland, TX, for more than 26 years, as the IT Network Services Manager; IT Business Relationship Manager; and she currently serves as the Water Utilities Technology Director, overseeing Information Services and Water System Operations. She joined the Water Utilities division in 2014 to lead the cultural change and implementation of their asset management system. Cynthia champions innovation and she and her team implement and support technologies from GIS and asset management, to SCADA and Cybersecurity. She holds a Bachelor of Science from San Jose State University in Business – Information Systems and a minor in Cybernetic Systems. She holds several certifications, including NIMS, Business Continuity Planning, Project Management, and Business Relationship Management.

Michael Thomas, Water Loss Analyst, Portland Water Bureau

Michael is a Water Loss Analyst at the Portland Water Bureau in Portland, Oregon. He has over ten years' experience in drinking water sector focusing on water efficiency, supply resilience, and water loss reduction. For the past five-years Michael has worked to establish Portland's water loss reduction strategy. Before Portland Michael worked in San Diego and Denver in water efficiency and on water policy. He is passionate about ensuring we use our water resources wisely and have a safe, resilient supply for our communities and natural systems. Michael has a Master's degree in Public Policy from the University of Denver and a Bachelor of Arts from Franklin University Switzerland. When not chasing leaks, Michael climbs peaks as he is an avid mountaineer.

AWWA Webinar – Insights to Prepare for and Succeed in Monitoring PFAS April 25, 2024

Overview:

Will 2024 be the year when PFAS stops emerging in drinking water and becomes regulated? The U.S. Environmental Protection Agency sent the final rule for regulating PFAS in drinking water to the Office of Management and Budget for review in mid-December 2023. Hence, it is very likely that a Maximum Contaminant Level for selected PFAS will be established in 2024.

At the same time, UCMR5 is reaching its mid-point and we are understanding better the occurrence of these contaminants in our water supplies. A critical step in preparing your utility's response to the upcoming regulatory demands about PFAS is to ensure you own accurate and

reliable PFAS data that your team can use in a timely manner; whether you are collecting samples for UCMR, future regulation, or piloting a new treatment.

In this webinar, experts will provide the latest updates about PFAS monitoring and practical insights for ensuring that your utility and water quality laboratory succeed in PFAS analysis, in 2024 and beyond.

Learning Objectives:

- Learn about current PFAS monitoring results in UCMR5 and their link to their anticipated Maximum Contaminant Level.
- Apply lessons learned from other utilities routinely monitoring PFAS in-house.
- Update your understanding of the essential requirements for successfully analyzing PFAS.

Presenter Biography Information

Andy Eaton, PhD, BCES, Senior Consultant/Owner, Eurofins Eaton Analytical/Eaton Environmental Water Quality Consulting

Andy received a PhD in geochemistry from Harvard University and did postdoctoral work at CalTech before spending a 40 year career at what started as JMM labs, became MWH labs, and was purchased by Eurofins in 2012 to become Eurofins Eaton Analytical (EEA). Andy retired as Technical Director Emeritus in 2020. During his time with EEA he focused on potable water chemistry, in particular emerging contaminants. He continues to consult for EEA and also is the owner of Eaton Environmental Water Quality Consulting, still focusing on emerging contaminants. He is the author of numerous articles and has given well over 100 presentations on various aspects of potable water, including many related to the UCMR program.

Alicia Beauchamp, Water Quality Lab Director, Aqua

Alicia joined Aqua as a co-op student in 1998 and became a chemist with the company in 2001. During her tenure at Aqua, she's held numerous positions within the lab and has been a central leader in establishing the PFAS monitoring program in response to increasing regulations and to provide information to Aqua's customers. Since 2023, she is Aqua's water quality laboratory director. Alicia earned a Master's in chemistry from Villanova University and a BS in chemistry from Drexel University and is a 20-year veteran of Aqua Pennsylvania.

Ruth Marfil-Vega, PhD, Sr. Market Manager – Environmental, Shimadzu

Dr. Ruth Marfil-Vega has 20 years of experience in environmental chemistry and engineering in the US and Europe and is the current chair of AWWA's Organic Contaminants Committee. She has worked with the EPA and utilities industry to design and execute comprehensive solutions for addressing new environmental and water quality issues, including PFAS, regulated and unregulated DBPs, and other emerging contaminants. Ruth has continued working with environmental stakeholders since she joined Shimadzu five years ago to make sure that analytical instrumentation and workflows enable their success. She graduated from the University of Valladolid (Spain) with a BSc in Chemistry, and from the University of Cincinnati with a PhD in Environmental Science and Engineering.

AWWA Webinar - Water, Wildfires, and Wisdom July 17, 2024

Overview:

As the frequency and intensity of wildfires rise, so does the urgency to address the challenges communities face in preserving their drinking water and infrastructure. The tragedies that occurred in Hawaii, California, and Canada highlight the need for our nation's water infrastructure to be built to handle severe weather situations.

This hot topic webinar, "Water, Wildfires, and Wisdom," aims to bring together industry experts with diverse perspectives to explore the complex issues surrounding water security post-wildfire.

Learning Objectives:

- 1. Understanding how academic insights can be translated into practical risk mitigation strategies for water utilities and communities;
- Equipped with action steps on how water utilities can collaborate with insurance providers, legislators, and the fire service to develop proactive strategies for addressing water challenges post-wildfire;
- 3. Knowledgeable on ways insurance companies, legislators, and the fire service can work together to educate communities about the risk and promote active participation in resilience efforts; and
- Collaboration ideas for working with insurers and legislators to create incentives for water utilities and communities to invest in resilient infrastructure and sustainable water management practices.

Presenter Biography Information

Natalie Enclade PhD Executive Director, BuildStrong Coalition, BuildStrong America Natalie joined the BuildStrong Coalition as its Executive Director in 2021. Prior to joining BuildStrong, Enclade served as the lead for the Consumer Financial Protection Bureau's Financial Well-Being Program. In 2018, she was appointed as Director of Individual and Community Preparedness for the Federal Emergency Management Agency (FEMA), where she worked to increase citizen and community preparedness, and encourage the development of disaster resilience across the Nation. She served as a Chief Policy Advisor and Senior Program Analyst for the Federal government. Natalie was selected as a DHS Office of Inspector General Fellow and the subject matter expert in homeland security, cybersecurity, emergency management for the United States Senate Homeland Security and Governmental Affairs Committee. Andrew J. Whelton PhD Professor of Civil, Environmental, and Ecological Engineering, Lyles School of Civil Engineering, Environmental and Ecological Engineering Prof. Whelton is an internationally recognized environmental engineer with more than 20 years of experience in the infrastructure and public health disciplines. By leading innovative research teams, he has advanced and positively impacted the safety of communities and workers in and outside the nation. In recent years, his team has unearthed previously undocumented human health and environmental threats associated with plastic manufacture, use, and then innovated technologies and procedures to minimize those risks. He has often been called into nationally significant disasters to provide executive level support. Some disasters include the Freedom Industries Chemical Spill, Camp Fire, Marshall Fire, and fuel contamination in Hawaii, among others. At Purdue, he founded and leads the Center for Plumbing Safety, an industrial consortium, and several multi-institution research efforts. Prof. Whelton's leadership has positively changed how U.S. federal (EPA, CDC, NRC, NIOSH, NIST, FEMA, Army, Navy), state, county, and local government agencies act to protect health and safety. In 2022, his experience was sought by President Biden's Administration and previously by Canadian communities and the Ministry of Health in response to wildfires.

Karen Collins, Vice President, Property & Environmental, American Property Casualty Insurance Association

Karen Collins is VP, Property & Environmental at the American Property and Casualty Insurance Association, the largest insurance trade association focused on advancing private competitive insurance markets to protect consumers, businesses, and communities. She is a thought leader on property and catastrophe issues, with emphasis on risk mitigation and resilience to natural catastrophes and oversees the development and advocacy of public policy positions at the state, federal and international level, on behalf of association membership. Karen has a wide breadth of experience and deep knowledge of the insurance industry. Her previous background includes nearly 20 years of diverse insurance carrier experience, with roles and responsibilities spanning Product, Sales, I.T., Claims and Corporate Training, with Direct, Captive and Independent Agency channel carriers. Her primary expertise is in personal lines (auto, home, umbrella, and recreational products), with top and bottom-line management experience. She previously held insurance licenses in CA (Property & Casualty, Life & Health).

AWWA Webinar: Digital Twins for Emergency Management July 24, 2024

Overview:

In today's rapidly changing world, water utilities face unprecedented challenges when it comes to emergency management. From natural disasters to infrastructure failures, the need for effective and efficient response is paramount. This is where digital twins step in to support the way water utilities approach emergency preparedness and response. Join us for an insightful webinar that explores the power of digital twins in enhancing the emergency management capabilities of water utilities.

Learning Objectives:

- 1. Visualize and Monitor Infrastructure
- 2. Predict and Mitigate Risks
- 3. Optimize Response Planning
- 4. Enhance Communication and Coordination
- 5. Improve Resilience

Presenter Biography Information

Javier Cantu, Senior Product Manager, Water Platform Solutions, Autodesk

Javier serves as the Water Infrastructure Solution Architect with over ten years of experience in the water industry. He specializes in utilizing technology to deliver repeatable outcomes and solutions for the entire water cycle and has a background in engineering, planning, utility operations, intelligent water, and artificial intelligence.

Meghan Brown, Emergency Preparedness and Operational Resiliency Program, Louisville Metropolitan Sewer District (MSD)

Meghan Brown, GISP, CFM has 16 years of experience in the wastewater sector. She is the Emergency Preparedness & Operational Resiliency Program Administrator for Louisville MSD. Meghan is the former president of Kentucky Association of Mapping Professionals, current Kentucky Association of Mitigation Managers Region II Representative, a member of the AWWA: Emergency Preparedness Security Committee, a University of Louisville alumni, Mom of 2, volunteer, and bourbon enthusiast.

Sri Kamojjala, Senior Civil Engineer, Las Vegas Valley Water District

Sri is a Senior (Supervising) Civil Engineer at the Las Vegas Valley Water District. He has more than 25 years of experience in the areas of water, wastewater, stormwater, and software development. Sri's water distribution systems experience includes leading development of large full-system models and real-time hydraulic modeling tools. He is recipient of the AWWA Journal Engineering and Construction Division Best Paper award. He is a licensed Professional Engineer in Nevada and a Diplomate of the American Academy of Water Resources Engineers. He holds master's degrees in Civil Engineering and Computer Science from the University of Louisville and a master's degree in Environmental Engineering from the National Institute of Technology, Warangal, India.

Frank Kalenits, Systems Operations Manager, Las Vegas Valley Water District

Frank has worked at Las Vegas Valley Water District since 2017 and is currently the manager of Systems Operations. Las Vegas Water District, founded in 1954, is a not-for-profit government water supply agency that has been providing water to the Las Vegas Valley.

AWWA Webinar: Navigating BABA Products and Requirements August 13, 2024

Overview:

Join Mueller Water Products as we discuss maximizing the impact of federal funding, navigating the waters of BABA compliant products and using innovative solutions to improve the water infrastructure conditions in your communities. Discover new technologies that help water utilities improve customer satisfaction, manage operational spending and maximize return on capital investments.

Learning Objectives:

- Understanding of BABA
- Understanding federal funding and how to capitalize on funding opportunities
- How to maximize the impact of federal funding to improve the water infrastructure conditions in your community

Presenter Biography Information

Paul Gifford, Director of Product, Mueller Water Products

Paul Gifford has a wealth of experience in the water and gas distribution systems industry. Paul began their career as a Foundry Engineer and Product Engineer at Kennedy Valve Co. in 1990 before joining Mueller Water Products in 1996 as a Product Engineering Supervisor. At Mueller Water Products, Paul developed and implemented water distribution valve products and was responsible for design and budgeting. In 2006, they moved to ITT Industrial Products as the Engineering Manager, where they focused on new product development and worked with various departments to achieve corporate goals. Paul returned to Mueller Water Products in 2012, this time as the Director of Research and Development, where they spearheaded research into emerging technologies and advanced manufacturing processes. Paul aims to improve water quality, accessibility, distribution system integrity, and longevity. Most recently, in 2021, Paul assumed the role of Director of Product at Mueller Water Products.

Paul Gifford earned a Bachelor's Degree in Mechanical Engineering from Tri-State University, which they attended from 1987 to 1990. Paul later pursued a Master of Business Administration (M.B.A.) in the Management of Technology program at the Georgia Institute of Technology, from 2014 to 2015. Prior to that, they attended Corning Community College from 1985 to 1987.

Karli Peadro, Government Funding Specialist, Mueller Water Products

Karli has worked at Mueller Water Products for 7 years as Quotation Specialist and more recently as Government funding specialist.

AWWA Webinar: Legislative Activity in the Water Sector: Current State and Future Outlook August 14, 2024

Overview:

Essential policy updates from AWWA Governmental Affairs. This webinar will provide an overview of AWWA's legislative advocacy efforts on topics including PFAS and CERCLA liability, a permanent low-income water customer assistance program, cybersecurity in the water sector, and water infrastructure funding. Speakers will discuss the state-of-play for important legislation, what to expect from Congress in the final months of 2024, and how members can get involved in supporting AWWA's efforts through grassroots advocacy campaigns.

Moderated by:

Nate Norris, Manager of Legislative Affairs, AWWA

Nate currently serves as Manager of Legislative Affairs in AWWA's Government Affairs office. In this role, he supports implementation of AWWA's legislative priorities, with a particular focus on federal appropriations, water infrastructure, and emerging contaminants. Prior to AWWA, Nate worked at the White House Council on Environmental Quality and the White House Office of Legislative Affairs.

Presenter Biography Information:

Drew Griffin, Director, Invariant

Succeeding in the complex and rapidly changing policy landscape requires a steward like Drew Griffin. With extensive relationships across House leadership and the House Energy and Commerce Committee, Drew draws upon his deep understanding of policymakers and issues to meet client needs on Capitol Hill and beyond. Previously, Griffin served as chief of staff for Ohio Republican Representative Bob Latta, communications director for then-Rep. Erik Paulsen (R-MN), and press secretary for former Rep. Jaime Herrera Beutler (R-WA).

AWWA Webinar: Navigating the Future: Water Reuse in a Water 2050 Paradigm August 21, 2024

Overlook:

In this panel discussion, we will anticipate water reuse in the year 2050. The panel comprises a variety of water reuse professionals representing various sectors of the water community. This guided discussion will address the drivers of reuse, geographical and regulatory impacts, energy use implications, and technological advancements and research.

As the world's population continues to grow, water security will also become the most salient public health challenge facing future generations. Further, in the next 30 years, the most important environmental and social issues will involve water: who has it, who does not, whether it is safe, whether it is affordable and accessible, how it is managed, and by whom. Water will be central to pivotal governance decisions, intractable social debates, and climate initiatives. Water issues will impact economies, shift populations, and drive innovative technologies.

Consequently, a bold, collaborative initiative to envision the future of water and chart a course for future success and sustainability, called Water 2050, was established by the water community. An integral part of this initiative was the acknowledgment and need for additional water supply alternatives. As such, the water community must explore innovative solutions and embrace sustainable practices to enable future-proof means by which to secure our water future. Water reuse is key to addressing this challenge.

Moderated by:

Josh Fortenbaugh, Water Sector Program Manager – Engineering & Technical Services, AWWA

Panel Biography Information:

Joe Jacangelo, PhD, Vice President, Director of Research

Dr. Jacangelo is a VP and Director of Research for Stantec. He has over 30 years of experience in the field of environmental health engineering and has specialized in the areas of water quality and treatment, water and wastewater disinfection, membrane technology, water reuse and public health. He has served as Technical Director, Principal Investigator, Project Manager or Engineer for over 100 water and wastewater projects. Dr. Jacangelo has published over 200 peer-reviewed and proceedings technical papers and has held various positions within professional organizations. He is a Board Member, a past Chair of the Technical and Education Council, current Chair of the International Council, and Member of Executive Committee of the American Water Works Association (AWWA). He has served as either chair or member of over 25 of that organization's various committees. He has also participated on over 30 advisory or conference planning committees for various water and wastewater organizations. He is currently the Past President of AWWA. Dr. Jacangelo is also past Chair of the Board of Directors of the WasteReuse Research Foundation and a past member of the editorial advisory board for the Journal of Water Reuse and Desalination. In addition to his role at Stantec, Dr. Jacangelo is an adjunct faculty member in the Department of Environmental Health and Engineering at the Johns Hopkins University Bloomberg School of Public Health. Dr. Jacangelo is a past recipient of the AWWA Golden Spigot Award and two AWWA Best Paper Awards. He also received that organization's Volunteer of the Year Award, and is a winner of the George Warren Fuller Award for Distinguished Service to the Water Supply Field.

Daniel Nix, Executive Director – Texas Section, AWWA

Daniel is the Executive Director for the Texas Section of the American Water Works Association. Daniel has accumulated 38 years of experience in Water and Wastewater Treatment at the City of Wichita Falls, and has operated both Direct and Indirect Potable Reuse facilities. Daniel is very active within the American Water Works Association, serving as Texas Section Chair in 2017 and a National Director from 2022 to 2024. He has also served on numerous State and National level committees related to source water protection, water treatment, water quality and potable reuse. He has worked closely with State and Federal legislators on water initiatives, as well as regulatory agencies including the US Environmental Protection Agency, US Department of Agriculture, and the Texas Commission on Environmental Quality. Daniel graduated from Midwestern State University with a Bachelor of Science Degree in Environmental Sciences and holds professional licenses in both Water and Wastewater Operations from the State of Texas. He is a member of AWWA, serving on the Coagulation & Filtration Committee for Potable Reuse. Daniel has authored 2 award winning books for AWWA on Filter Evaluation Procedures.

Ashley Harper, Environmental Protection Specialist, USEPA

Ashley is a team member in the Water Reuse Program in the Office of Water at the United States Environmental Protection Agency, where she works to improve federal communications on water reuse and supports several actions in the National Water Reuse Action Plan. In 2018 she served as an U.S. Embassy Science Fellow in Mongolia; while there she worked to advance the public health priorities set by the Mongolian government. Ashley holds an MPH in Environmental Public Health from The George Washinton University.

Heather Collins, Director of Water Treatment, Metropolitan Water District of Southern California

Heather is the Director of Water Treatment for Metropolitan Water District of Southern California. Collins prior experience includes regulatory oversight for California's public water systems, where she managed drinking water regulations and promoted water reuse initiatives. A Registered Civil Engineer and licensed Water Treatment Operator, Heather currently serves as an AWWA Association President-Elect. Heather also leads regulatory & permitting efforts for Metropolitan's \$6.8 billion Pure Water Southern California, a water purification program to beneficially reuse water for groundwater recharge and potential raw water augmentation adding resiliency to Metropolitan's water supply portfolio.

AWWA Webinar: Wading into Water Quality Modeling: Tackling Distribution System Challenges and Improving Decision-Making **August 28, 2024**

Overview:

Maintaining water quality in water distribution systems is critical to utilities, but predicting water quality can be challenging. Water quality models can be utilized to help predict concentrations, and can provide insights that support informed decisions. Key components of maintaining water quality conditions will be discussed alongside these water quality models. Discussions will provide an opportunity to explore applications of water age, disinfection, and multi-species models.

Following this webinar, attendees will be able to understand critical water quality components in distribution systems and identify corresponding challenges and potential solutions that utilities may face. Attendees will also be able to understand water quality modeling and how to apply hydraulic water quality assessments like source traces and water age, constituents like disinfection and disinfection by-products, and multi-species modeling through advanced tools like MSX. These models can improve system understanding and improve decision-making and system improvements by utilities. It is also critical to understand how water quality conditions may change in the future and understand how water quality models could be used to help regulatory compliance.

Learning Objectives:

- Analyze critical water quality components in distribution systems and identify corresponding challenges and potential solutions that utilities may face.
- Review hydraulic water quality assessments like source traces and water age, and how these models can improve system understanding and support refined decision-making and planning efforts by utilities.
- Understand how constituents like disinfection and disinfection by-products can be predicted with a water quality model and potential approaches and applications that could be utilized by utilities to promote system improvements.
- Learn about applications of multi-species modeling through tools like MSX that can facilitate improved water quality modeling by allowing for customized and advanced representations.
- Discuss how water quality conditions may change in the future and understand how water quality models could be used to help regulatory compliance.

Panel Biography Information

Ben Chenevey, Senior Water Engineer, Arcadis

Mr. Chenevey has over 12 years of experience as an environmental engineer and serves as the Arcadis community of practice leader for water distribution system modeling and currently serves as vice-chair of the AWWA Engineering Modeling Applications Committee. His expertise includes water distribution hydraulic model development, calibration, field data collection, master planning, advanced water quality modeling, water loss control, and transient evaluations.

Meg Roberts, Distribution Systems Services Leader, Hazen and Sawyer, P.C.

Ms. Roberts has over 20 years of experience in water distribution system hydraulics and water quality. Her areas of expertise include master planning, hydraulic models, distribution system operations and water quality, and pipeline assessment and prioritization. Meg currently serves as Hazen's Distribution System Services Leader and as the Chair for the AWWA Water Quality and Technology Division.

Stephen Jackson, Senior Software Engineer, Bentley Systems

Stephen graduated from Cornell University with a bachelor's in Physics and received his master's in Civil Engineering from the University of Texas at Austin. After 10 years of

engineering design work in hydrology and hydraulics, Stephen transitioned to Bentley Systems where he can focus on his love of building analytical tools. Stephen is passionate about pushing the boundaries of automated analysis to solve old problems and bring new insights.

Melissa Brunger, Associate, Freese and Nichols, Inc.

Melissa received a BS in Civil Engineering from Texas A&M University and specializes in hydraulic modeling, planning, and asset management of water and wastewater systems. She has 17 years of industry experience and is the water and wastewater planning practice technical leader at Freese and Nichols, Inc. She is currently the chair of American Water Works Association's Engineering Modeling Applications Committee.