

Session Descriptions

Session Code	Session Title	Details	Date	Start Time	End Time	Speaker 1	Speaker 1	Speaker 1 Title	Speaker 1 Company	Speaker 1 Email
PCW01	PCW01 - From Data Management to Data Analysis - A Technical Deep-Dive	PCW01 - From Data Management to Data Analysis—A Technical Deep-Dive - Dive into the intersection of water engineering and data science in this comprehensive workshop. From breaking down data silos to implementing machine learning models, you'll gain practical skills for turning operational data into actionable insights. Perfect for professionals of all backgrounds seeking to learn data analysis techniques for water—no advanced coding experience needed.	11/09/25	8:00 AM	5:00 PM	Yoko	Koyama	Engineer	Carollo	ykoyama3@alumni.ncsu.edu
PCW02	PCW02 - Adding Utility Benchmarking to Your Continuous Performance Improvement Toolbox	PCW02 - Adding Utility Benchmarking to Your Continuous Performance Improvement Toolbox This workshop shows utilities how to use benchmarking data from AWWA’s Utility Benchmarking Survey (UBS) to improve performance. Using results from UBS, utilities can focus their efforts on areas with gaps and set improvement targets. This workshop will educate attendees on how to utilize the UBS data as a part of their continuous performance improvement process.	11/09/25	8:00 AM	12:00 PM	Frank	Roth	Program Manager - Benchmarking	AWWA	froth@awwa.org
PCW03	PCW03 - Using ATP to Monitor Microbial Regrowth in the Drinking Water Distribution System (Offsite Workshop)	PCW03 - Using ATP to Monitor Microbial Regrowth in the Drinking Water Distribution System: Adenosine Triphosphate (ATP) testing could be an excellent tool for monitoring microbial water quality and inform decision making but confusion still exists around where and how it can be used effectively. Join us at the CDM Smith Bellevue Research and Testing Microbiology Laboratory to learn more about potential ATP uses, sources of contamination and types of tests available.	11/09/25	1:00 PM	5:00 PM				CDM Smith Bellevue Research and Testing Microbiology Laboratory	
PST01	Insights into Dissolved Organic Matter Redox Character via Spectroelectrochemical Titrations	Dissolved organic matter (DOM) influences drinking water treatment processes, impacting contaminant transport, membrane fouling, and disinfection byproduct formation. This study investigates the redox behavior of six DOM isolates through electrochemical reduction/oxidation, tracking changes in fluorescence and absorbance. Comparing electrochemical reduction to NaBH4 reduction reveals differences in reducibility, reversibility, and optical transformations. Insights gained can inform water treatment strategies aimed at improving water quality by understanding DOM's redox-active functional groups.	11/10/25	9:30 AM	10:30 AM	Ahmad	Beyhaqi	Graduate Research Assistant (GRA)	Texas A&M	abeyhaqi@tamu.edu
PST01	Optimization of Sargassum Derived Activated Carbon Cathodes: A Novel Approach to the Treatment of Phthalates in Drinking Water	This work investigates the application of biomass-derived activated carbon from invasive Sargassum as a cathodic material in electrochemical advanced oxidation processes (EAOPs) for the removal of di-2-ethylhexyl phthalate (DEHP), a persistent plasticizer and emerging contaminant in drinking water. Batch and flow-through electrochemical systems were evaluated under varying operational parameters, including electrode configuration, current density, pH, and carbonization conditions. Results demonstrate the material’s potential for DEHP removal, offering a sustainable approach to drinking water remediation using low-cost, waste-derived electrode materials.	11/10/25	9:30 AM	10:30 AM	Amanda	Thomas		Northeastern University	thomas.man@northeastern.edu
PST01	Enhancing UV Disinfection of Drinking Water Using Sonication	As UV doses increase, disinfection efficacy reaches a plateau known as the tailing phase, this phenomenon is primarily attributed to microbial aggregation, where clusters of bacteria shield internal cells from UV penetration, preventing complete inactivation of the population of cells. Sonication, sound energy waves that can break apart microbial clusters, can be used for disinfection of common waterborne opportunistic pathogens. Integrating sonication with UV disinfection could significantly enhance microbial inactivation, providing a more effective and sustainable strategy for improving drinking water treatment.	11/10/25	9:30 AM	10:30 AM	Melanie	Gamboa		University of Colorado Boulder	mega4207@colorado.edu
PST01	Totalizing Iron and Trace Contaminant Release During Pipe Loop Testing Using a Periodic Passive Sampler	Pipe loop studies (PLSs) typically rely on grab or composite sampling to evaluate water quality. These methods, while simple, miss release events due to unforeseen water quality changes, sample frequency, or low sensitivity to capture differences relative to controls. This presentation details an innovative PLS operation and sampling approach using semi-batch recirculation with a periodic passive sampler (PPS) consisting of a peristaltic pump, cartridge filters, and ion exchange resin. Pipe loop water is periodically flushed to the PPS to capture total and dissolved iron, and trace constituents such as arsenic. Through periodic cartridge filter and resin digestion, composite release is quantified with magnified analytical detection limits.	11/10/25	9:30 AM	10:30 AM	Leah	Flint		CU Boulder and Bureau of Reclamation	lefl1061@colorado.edu

Session Code	Session Title	Details	Date	Start Time	End Time	Speaker 1	Speaker 1	Speaker 1 Title	Speaker 1 Company	Speaker 1 Email
PST01	Monitoring Lead and Copper in Drinking Water with Point-of-Use Filters	Concentrations of lead and copper in tap water are not constant over time, and they depend on aspects of water use patterns such as stagnation time and on the materials in which a specific parcel of water stagnated. This presentation will examine the ability of point-of-use (POU) filters to serve as both treatment and monitoring devices for lead and copper. POU filters can be used to quantify volume-averaged lead and copper concentrations if all accumulated lead and copper can be extracted. Our extraction methods were able to completely recover retained lead and copper. We demonstrated that POU filters are promising passive samplers for monitoring the efficacy of corrosion control and service line replacement activities and for quantifying	11/10/25	9:30 AM	10:30 AM	Zehua	Wang		WashU	w.zehua@wustl.edu
PST01	Do Surfactants Enhance the Electrocatalytic Degradation of Per- and Polyfluoroalkyl Substances?	It is challenging to eliminate PFAS, which are dangerous chemicals, from water. This study examines a novel technique termed electrochemical advanced oxidation (EAOP) for removing PFAS from wastewater. Understanding the removal of PFAS-laden foam that results from the use of dissolved air flotation in wastewater treatment operations employing the Electrochemical Advanced Oxidation Process (EAOP) is the primary objective of this study. Therefore, this study suggested a novel technique for quickening the breakdown of PFAS by employing an electrochemical advanced oxidation process (EAOP) supported by defoamers.	11/10/25	9:30 AM	10:30 AM	Mohamed	Ali		University of North Dakota-Chester Frtz Lib	mohamed.ali.4@und.edu
PST01	Pilot-scale Comparison of IX Resins and GAC for Removal of PFAS with Competing Iron and Organics in Surficial Aquifer Groundwaters	The City of Deerfield Beach is planning to implement alternative treatment best suited for the West WTP. One of the treatment trains, the 7.5 mgd lime softening system is at the end of its useful life and produces treated water that does not meet PFAS MCL. Jacobs performed treatability testing to remove iron, TOC and PFAS in different configurations to extend the life of IX and GAC media. The study was conducted over a five-month period using pilot-scale 2- and 4-inch columns operated in continuous-flow mode. The results are utilized to develop design criteria and provide benchmark performance of various iron removal media, and TOC and PFAS removal IX and GAC media which can benefit other utilities to plan PFAS treatment systems.	11/10/25	9:30 AM	10:30 AM	Bingjie	Zhao		Jacobs	bingjie.zhao@jacobss.com
PST01	Intact Cast Iron Tubercule Isolation Techniques for Drinking Water Distribution System Coupon Tests	Coupon tests evaluate the corrosion of new materials to changing water matrices. Cast iron (CI) pipes, a historic drinking water distribution system (DWDS) material, are still present in many DWDSs and can form tuberculated scale layers (TSLs) that differ in reactivity from new CI. Currently, there are no established methods to test intact TSLs. This presentation details an isolation technique for intact CI TSLs using marine epoxy, including the overlooked considerations of introducing a new material containing silica, calcium, organic compounds, and other potentially passivating or confounding variables to controlled coupon tests. This work focuses on CI, but methods are applicable to intact copper or lead pipes.	11/10/25	9:30 AM	10:30 AM	Leah	Flint		CU Boulder and Bureau of Reclamation	lefl1061@colorado.edu
PST01	Machine Learning-Based Insights on Carbon-Based Anodes for Electrochemical Oxidation in Contamination Removal	Electrochemical degradation of contaminants is a preferred method for water purification due to its efficiency and ability to generate reactive oxidants in situ, like hydroxyl radicals. This study leverages machine learning, specifically LightGBM, to optimize carbon-based anodes in removing pollutants. Analyzing over 1400 datasets under various conditions, we identified key factors influencing efficiency, with reaction time and pollutant type as significant. Results underscore the minimal impact of anode material relative to operational parameters, enhancing predictive accuracy and system design.	11/10/25	9:30 AM	10:30 AM	nima	sakhaee		Northeastern university	sakhaee.n@northeastern.edu
PST01	Streamlining Compliance Reporting with SQL Automation: Lessons from the Los Angeles Reservoir Ultraviolet Disinfection Plant	The Los Angeles Reservoir Ultraviolet Disinfection Plant project aimed to optimize the generation of monthly compliance reports for the Los Angeles Department of Water and Power (LADWP), essential for monitoring drinking water quality. Previously, the process was lengthy and tedious due to strict security restrictions on data collection. To address this, SQL automation was introduced, streamlining the reporting process. Reports that once took 12+ hours to produce can now be generated automatically in less than an hour. This innovation improved efficiency, accuracy, and reliability, ensuring timely compliance with water quality standards.	11/10/25	9:30 AM	10:30 AM	Ashley	Choy		Arcadis	ashley.choy@arcadis.com
PST01	Navigating Data Through Time with Machine Learning— A Case Study in Flood Prevention for a Reclaimed Water System	This presentation explores key considerations in treatment of time series in data-driven modeling applications such as ML. A case study for flood prediction under climate change is used to illustrate the proposed considerations.	11/10/25	9:30 AM	10:30 AM	Yoko	Koyama		Carollo	ykoyama3@alumni.ncsu.edu
PST01	Fate of UV-Inactivated Pathogens in Biofilm Formation	This study investigates whether UV-inactivated Pseudomonas aeruginosa can integrate into pre-established biofilms in drinking water distribution systems. Understanding the fate of inactivated pathogens in the presence of existing biofilm communities will provide insight into post-UV treatment biofilm dynamics.	11/10/25	9:30 AM	10:30 AM	Matthew	Helms		University of Colorado Boulder	matthelms21@gmail.com

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PST01	Water Treatment System Modernization - Compliance Locations Project	Sonoma Water is currently relying on aging chlorination and corrosion control infrastructure at the Mirabel, Wohler, and River Road facilities. With systems ranging from 40 to 65 years old, key challenges such as chlorine gas supply risks, seismic vulnerabilities, outdated controls, and unreliable corrosion control dosing pose significant operational and safety concerns. This project presents a comprehensive infrastructure upgrade plan to enhance safety, resiliency, and operational efficiency. Key improvements include converting chlorine gas facilities to sodium hypochlorite, constructing new corrosion control and chlorination facilities, and new compliance sampling points at strategic locations to optimize chlorine dosing.	11/10/25	9:30 AM	10:30 AM	Parastou	Hooshialsa	Water Agency Engineer	Sonoma County Water Agency	parastou.hooshialsadat@scwa.ca.gov
PST01	Biofilm Removal from Granular Media Filters for Microbial Analysis	The characterization of microbial communities in biofilters requires efficient removal of the biofilm. The study presented focuses on optimizing DNA extraction kits and low-frequency sonication for DNA and intact cell quantification, respectively. Both water reuse biofilter media and drinking water biofilter media were considered. Additional parameters included media age, type, and filter runtime at collection.	11/10/25	9:30 AM	10:30 AM	Andrew	Black		University of South Florida	andrewblack@usf.edu
PST01	Modified Biochar and Hydrochar for Disinfection Byproduct Removal in Drinking Water: Synthesis, Characterization, and Efficacy	This presentation explores adsorption strategies to mitigate health risks from disinfection byproducts (DBPs) in drinking water. DBPs, including trihalomethanes (THMs) and haloacetic acids (HAAs), pose significant risks and often exceed safety levels in emergency water treatments. Our study focuses on using biochar (BC) and hydrochar (HC) derived from walnut shells for DBP removal. We discuss the synthesis of BC via pyrolysis and HC through hydrothermal carbonization, alongside their physicochemical characterization and adsorption performance. The findings highlight the potential of chemically modified biochar as an effective treatment for enhancing water quality.	11/10/25	9:30 AM	10:30 AM	Ahmadreza	Khatamgoc	Mr.	University of Nevada Las Vegas	khatamgo@unlv.nevada.edu
PST01	Adsorption of PFAS on Activated Carbon: Intraparticle PFAS Distributions and PFAS Adsorption Capacities in Bi-Solute Systems	Per- and polyfluoroalkyl substances (PFAS) are synthetic chemicals that occur widely in drinking water sources. Granular activated carbon (GAC) adsorption is commonly used to treat contaminated water, but mechanisms of PFAS sorption remain poorly understood. An important goal of this research is to determine how GAC and contaminant properties affect accessibility of adsorption sites within GAC particles in single and multi-solute systems. This presentation will summarize results from (1) novel imaging techniques to visualize PFAS distributions inside of GAC particles and (2) single- and bi-solute adsorption isotherm experiments and associated models that predict bi-solute adsorption equilibria from single-solute isotherm parameters.	11/10/25	9:30 AM	10:30 AM	Sarangi	Joseph	PhD Candidate	NC State University	sarangi.madhavij@gmail.com
PST01	Evaluating the Efficiency of Powdered Activated Carbon in Quenching Hydrogen Peroxide following UV-H2O2 Advanced Oxidation	Powdered activated carbon (PAC) can potentially be used to quench H2O2 following UV-H2O2 advanced oxidation as it has been shown to quench other oxidizing agents, including Cl2 and KMnO4. However, the reaction between PAC and H2O2 has not been previously reported. This study evaluates the effectiveness of four PACs (wood, coal, and coconut shell) in quenching H2O2 using bench-scale jar tests in pure and raw water at pH 6.0 and 8.0. The reaction kinetics were observed to be slow, requiring high PAC doses and long contact times. These findings suggest that the tested PACs may not be suitable for full-scale application in water treatment where lower PAC doses and shorter contact times are required.	11/10/25	9:30 AM	10:30 AM	Maeva	Che Manka		University of Toronto	maeva.chen@mail.utoronto.ca
PST01	Untargeted PFAS Screening in Southern Nevada Wastewater, Storm Water and Drainage Channels Using LC-HRMS	Per- and polyfluoroalkyl substances (PFASs) are common environmental pollutants that can be transported from acute contamination sources through waterways into the aquatic environment. Wastewater, storm water, and drainage channel water samples were collected around southern Nevada during dry and rain events that included sampling sites with possible AFFF contamination and were analyzed by LC-HRMS. Data was processed with Compound Discoverer for untargeted PFAS compounds that search detected features (m/z) against mass lists, chemical databases, and mass spectrum libraries. In addition to 14 PFAS compounds that are part of traditional targeted LC-MS/MS methods, more than 30 PFAS were tentatively identified in various water samples.	11/10/25	9:30 AM	10:30 AM	Rebecca	Trenholm	Research Chemist	Southern Nevada Water Authority	beck.trenholm@snwa.com
PST01	Advancing Sorption Models to Describe PFAS Adsorption/Desorption Behavior in GAC Contactors	Granular activated carbon (GAC) adsorption is widely used for PFAS removal from drinking water. While longer-chain PFAS are effectively removed, shorter-chain PFAS are prone to desorption and displacement by dissolved organic matter (DOM), longer-chain PFAS, and/or other strongly adsorbing micropollutants. This presentation will highlight experimental data from GAC column systems exhibiting competitive displacement of shorter-chain PFAS as well as associated efforts to implement the multi-solute pore and surface diffusion model (PSDM) from the US EPA GitHub site with fictive components to simulate complex DOM effects and predict PFAS breakthrough and displacement behavior.	11/10/25	9:30 AM	10:30 AM	Diyuan	Wang	Postdoctoral research scholar	North Carolina State University	dwang28@ncsu.edu

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MON01	MON01 - Water 20250 Shaping a Sustainable, and Resilient Future for the Water Sector (Part 1)	Metropolitan Water District of Southern California faces significant challenges due to the impacts of climate change. The agency delivers approximately 1.5 billion gallons of water daily to its 26 Member Agencies, who serve the 19-million-person service area. To remain resilient and reliable into the future, Metropolitan’s Climate Adaptation Master Plan for Water (CAMP4W) planning process seeks to institutionalize climate adaptation across all aspects of the agency and integrate climate, infrastructure and water resources planning with operations and financial planning. Integrating climate adaptation throughout an agency of this magnitude presents unique challenges necessitating robust coordination, collaboration, and transparency. Presentation 2: Urban water services are highly energy-intensive, contributing to the water-energy nexus challenge. Climate change and decentralized water systems will further impact energy demand, yet their combined effects remain uncertain. This NSF-funded study develops a holistic modeling framework to assess life cycle energy use in urban water systems, integrating hydrologic modeling, water balance analysis, and life cycle assessment. Using Boston, MA, as a case study, findings indicate that climate change may increase centralized system energy use by 2%, while integrating decentralized systems can enhance sustainability, reduce costs, and improve resilience.	11/10/25	10:30 AM	12:00 PM	Meg	Roberts		Hazen and Sawyer	mroberts@hazensawyer.com
MON02	MON02 - Innovations in Direct and Indirect Potable Reuse (Part 1)	As communities increasingly turn to potable reuse to secure sustainable water supplies, this session explores the latest innovations and operational insights driving success in indirect potable reuse projects. Topics include the application of biofiltration in Colorado, the impact of GAC backwashing practices on PFAS and TOC breakthrough, and advanced carbon-based treatment strategies shaping the future of reuse in the Midwest. Attendees will gain a deeper understanding of the treatment technologies, performance challenges, and regional solutions advancing the next generation of water reuse.	11/10/25	10:30 AM	12:00 PM	Meagan	Lundgren		CDM Smith	lundgrenma@cdmsmith.com
MON03	MON03 - Legionella - History and Current Research	Legionnaires’ disease (LD) was first reported fifty years ago (July 1976) in a large outbreak in Philadelphia. Much research has been done on Legionella pneumophila, the causative agent, but much remains unknown. LD is considered the number one waterborne disease in the US, with cases continuing to increase annually. The bacteria occur naturally in water and soil and become a problem and lead to disease when the colonize surfaces of water fixtures and are disseminated as aerosols. This talk will discuss where we’ve come and challenges still faced in managing LD.	11/10/25	10:30 AM	12:00 PM	Sherry	Parker		Provo Water Company Ltd.	s.bell-parker@provowater.tc
MON04	MON04 - Lead and Copper Sampling, Find, and Fix	Under the LCRI, there are a variety of situations where utilities may conduct distribution system sampling. While the Rule does specify a fixed-volume approach for compliance sampling, it more often gives utilities the flexibility to choose the best method for their system. Given this freedom, a simple and more informative approach would be valuable. The objectives of this presentation are to: (1) describe the benefits, drawbacks, and best-use cases for lead sampling methods, (2) outline the required LCRI requirements and suggestions (and other reasons to sample for lead), and (3) describe a novel Lead Sampling Framework that addresses the original question while considering exposure, public health and messaging challenges. As part of the revised Lead and Copper Rule Improvements, drinking water utilities will need to fulfill the Distribution System and Site Assessment. This provision includes monitoring corrosion control performance near residences that exceed the Action Level for lead and offering additional lead profile testing at these residences. In 2022, the Massachusetts Water Resources Authority, a wholesale water supplier for the Greater Boston area, adopted a pilot program in accordance with the Massachusetts Department of Environmental Protection to initiate distribution site assessments ahead of the start of the LCRI. The new requirements will represent a significant effort for many communities that requires advance planning and bookkeeping.	11/10/25	10:30 AM	12:00 PM	Shannon	Evanhec			shannon@truepani.com
MON05	MON05 - Advancements in Real-Time Monitoring and Analytical Methods for Potable Reuse	This presentation will highlight the first successful use of an online N-nitrosodimethylamine (NDMA) monitoring system in a pilot-scale advanced water purification system. NDMA, a carcinogenic disinfection byproduct, poses challenges in potable reuse systems using chloramine or ozone. The novel online analyzer, based on HPLC-PR-CL, measures NDMA at concentrations below 1 ng/L every 20 minutes. Results from a pilot-scale system demonstrate the analyzer’s utility for monitoring NDMA in UF-RO-UV AOP and ozone-BAC treatment trains, offering a practical solution for process control and enhanced water quality management in potable reuse applications.	11/10/25	10:30 AM	12:00 PM	Christophe	Bellona			

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MON06	MON06 - PFAS: Occurrence, Sources, Variability, Fate and Transport	This project aims to identify the factors affecting the presence and variability of PFAS and precursor compounds in the Potomac River and to serve as a model for regional source water monitoring to inform mitigation strategies. To address this objective, 10 utilities partnered with regional organizations, universities, and a consultant to develop a tailored collaboration with the Water Research Foundation. Initial results indicate that tributaries, river stratification, and highly urbanized areas influence PFAS/precursor detections. Also, seasonal trends and environmental/hydrological changes may have influences on PFAS levels, highlighting that variability in source waters should potentially be considered by regulatory agencies.	11/10/25	10:30 AM	12:00 PM	Erik	Rosenfeldt		Hazen and Sawyer	erosenfeldt@hazenandsawyer.com
MON07	MON07 - Evaluating and Optimizing Powdered Activated Carbon for PFAS Removal	This presentation examines the potential of PAC as an applied treatment technology for PFAS in drinking water treatment. While the USEPA has not defined PAC as a best available technology (BAT) for PFAS treatment in drinking water, empirical full-scale performance data and bench-scale jar testing results from multiple surface water treatment plants and groundwater lime softening facilities illustrate its applicability in addressing low to moderate concentrations of PFAS in drinking water supply. The application of PAC as an interim PFAS treatment approach also allows utilities more time to make informed decisions on long-term PFAS control strategies before committing to significant capital investments. In 2023, the Orange Water and Sewer Authority (OWASA) initiated a jar testing program to optimize the PFAS-treatment performance of their existing PAC feed system. From this testing, two more effective, alternative PAC products were identified. In late 2023, OWASA implemented an alternative PAC product for full scale use at their Jones Ferry Road Water Treatment Plant. Through further refinement and optimization of the PAC system, as well as source water blending, OWASA has been able to achieve >90% reductions in PFOS and PFOA. This presentation will cover the PAC testing protocol, results from the bench scale evaluation, as well as nearly two years worth of full scale results.	11/10/25	10:30 AM	12:00 PM	Alice	Fulmer		Water Research Foundation	afulmer@waterrf.org
MON08	MON08 - Innovative Strategies for 1,4-Dioxane and PFAS Removal: From Source to Concentrate	This presentation will highlight pilot and bench-scale results from a novel application of UVAOP for 1,4 dioxane treatment of RO concentrate. This study tested both mercury-based UV and novel UV-LED technology for 1,4-dioxane destruction. UV-LED is an emerging technology that is gaining popularity due to its ease of operation, better dose control, and lower energy demands compared to the mercury-based system. This presentation will provide lessons learned from operating the UV-LED systems and draw attention to the complex challenges involved in treating RO concentrate with high organics loading and low UV transmittance. What if addressing PFAS didn't require a brand new, capital-intensive treatment process? With the new Federal PFAS regulations, many surface water treatment facilities are considering their path to compliance in 2029 and examining reuse of their existing infrastructure versus construction of new treatment processes. We will examine several case studies of full-scale pilots utilizing GAC in the existing filters, evaluating the impact of elevated organics and other water quality parameters on the media life for PFAS mitigation, but also the simultaneous compliance considerations for the Surface Water Treatment Rule. The differing results of each study will illustrate the importance in system-specific data and testing.	11/10/25	1:15 PM	3:15 PM	Keisuke	Ikehata	Assistant Professor	Texas State University	kikehata@txstate.edu
MON09	MON09 - Innovations in Direct and Indirect Potable Reuse (Part 2)	The performance of individual treatment processes used in reuse is challenging to predict because of variations in effluent water quality from site to site. Piloting can confirm the site-specific performance and optimal design and operation of advanced processes. However, improved modeling based on effluent water quality alone could (1) provide better cost estimates much earlier in the project life cycle and (2) inform the pilot experimental design. This presentation describes the use of machine learning (ML) tools to predict the removal of key contaminants based on effluent quality and design or operational parameters. In a case study, biofiltration and GAC ML models were used in tandem to cost estimate carbon-based reuse.	11/10/25	1:15 PM	3:15 PM	David	Pernitsky		Stantec Consulting Services	david.pernitsky@stantec.com
MON10	MON10 - Strategic Management of Opportunistic Pathogens	Waterborne outbreaks and infections in the US, caused by opportunistic premise plumbing pathogens (OPPPs) such as Legionella spp., Pseudomonas aeruginosa, and non-tuberculosis mycobacteria, have been on the rise over the last 15 years. These organisms are known to form biofilms, making them difficult to treat upon colonization. They are often associated with amoeba, which may offer protection from typical water treatment. This project aimed to characterize the microbial water quality and determine the efficacy of four residential activities against OPPPs by studying their occurrence in a model home plumbing system. The results suggest that a combination of treatments may be necessary to achieve the highest level of microbial water quality.	11/10/25	1:15 PM	3:15 PM	Bina	Nayak	Research Project Manager	Pinellas County Utilities	bnayak@pinellas.gov

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MON11	MON11 - Lead Release Research	Lead release from drinking water distribution systems presents a significant challenge for utilities and is influenced by factors such as pH, natural organic matter (NOM), and residual disinfectant. This study explores how NOM concentration and type, at different pH and dissolved inorganic carbon (DIC) levels, affect lead release. Bench-scale corrosion cells simulating partial lead service line replacements were used to assess NOM characteristics, concentration, pH, and DIC under an initial chloramine concentration of 2 mg/L as Cl ₂ . Findings highlight the critical importance of considering NOM characteristics and concentration in managing lead release, especially in systems facing changing water sources or extreme events.	11/10/25	1:15 PM	3:15 PM	Colin	White			White.Colin@epa.gov
MON12	MON12 - Operational Challenges Faced by Water Treatment Utilities	Washington State has four unfiltered surface water treatment plants; three that continue to meet the eleven criteria to remain unfiltered and one that meets the limited alternative to filtration criteria. Watershed control is the first barrier in the multi-barrier approach and each system has unique challenges and methods for maintaining this crucial piece of protection. This presentation will cover what success looks like at each utility; concerns over climate change impacts, wildfires, and emerging contaminants; and how maintaining the vigilance and support needed to continue to meet the unfiltered criteria is important not just for unfiltered treatment plants, but all surface water treatment plants. This presentation describes initial process optimization efforts at Denver Water's new 75 MGD Northwater Treatment Plant. Following coagulation challenges during startup, operations and optimization engineers worked closely together to conduct an extensive polymer study and identify a new flocculant aid. Changing the floc aid has led to reduced doses for coagulant aid, floc aid, and filter aid, resulting in 79% polymer cost savings improving filter performance.	11/10/25	1:15 PM	3:15 PM	Amlan	Ghosh		Corona Environmental Consulting	aghosh@coronaenv.com
MON13	MON13 - PFAS: Bench- and Pilot-Testing	A framework for approaching permit/plan approval for various PFAS treatment evaluation approaches was developed as part of a WITAF project for the AWWA. This framework reduces uncertainty that may drive some primacy agencies to default to the most conservative approaches, particularly in consideration of the tight compliance schedule and health impacts from delayed PFAS treatment solution implementation. This document facilitates uniform approaches to optimize monetary and time investments. This presentation will provide an overview of the contents of the PFAS Piloting Framework Document to arm the industry with permitting best practices that will reduce risk while protecting our water supplies for years to come.	11/10/25	1:15 PM	3:15 PM	Brock	Emerson	Chief Executive Officer	Intuitech	bemerson@intuitech.com
MON14	MON14 - Alternative Treatment Technologies and Innovative Solutions for PFAS	Nanofiltration (NF) and reverse osmosis (RO) are effective water treatment technologies for removing per- and polyfluoroalkyl substances (PFAS). Although the rejection rates obtained from coupon tests provide insights into a membrane's instantaneous performance, overall PFAS removal efficiency inevitably decreases in a full-scale system operating at high water recovery targets. This study investigated the influence of operational conditions on membrane's effectiveness for PFAS removal. Our findings highlight the critical impact of operational strategies on overall PFAS removal efficiency for commercial NF and RO membranes from various product categories.	11/10/25	1:15 PM	3:15 PM	Kenan	Ozekin		Water Research Foundation	kozekin@waterrf.org
PST02	PST02 - Monday Afternoon Poster Session		11/10/25	3:15 PM	4:15 PM					
PST02	Field Demonstration of a Novel System to Manage Ion Exchange Brine by Integrating Forward Osmosis	Ion exchange (IX) is a best-available technology to meet many drinking water treatment objectives, including hardness, nitrate, arsenic, chromium and PFAS removal. This study presents the first-ever field test of a novel process testing forward osmosis (FO) at a full-scale IX process and demonstrated a 69-76% decrease in waste brine volume for a facility designed to remove hexavalent chromium. The benefit of integrating FO will consider membrane rejection performance and strategies for operational sustainability.	11/10/25	3:15 PM	4:15 PM	Julie	Korak		University of Colorado Boulder	julie.korak@colorado.edu
PST02	Predicting Contaminant Infiltration and Accumulation in a Distribution System Using Hydraulic and Water Quality Data	Contaminant infiltration and accumulation are important transport pathways for distribution system contamination, which may lead to compromised water quality at the consumer even if water exiting the treatment plant meets regulations. Mobilization of arsenic-rich aggregates in a Hungarian water distribution system was investigated along with pressure transient-induced infiltration. The results indicate pressure transients, maintenance, and water quality variations yield arsenic spikes as high as 14 µg/L. The results hold implications for 1) predictive modeling of contaminant transport, 2) mass balance considerations for distribution system water quality, and 3) feedback loops alarming for dubious water quality.	11/10/25	3:15 PM	4:15 PM	Jonathan	Clayton			jgclayton@crimson.ua.edu

Session Code	Session Title	Details	Date	Start Time	End Time	Speaker 1	Speaker 1	Speaker 1 Title	Speaker 1 Company	Speaker 1 Email
PST02	Optimizing De-chlorination by Altering Sodium Bisulfite Dosing Strategy: A Computational Fluid Dynamics Study	This presentation is relevant to utilities that have de-chlorination requirements and those who design them. Some of the complexities of operating wet weather treatment facilities will be reviewed, as well as discharge requirements in Puget Sound. The information is useful for planning and operation of wet weather facilities that discharge to impaired water bodies. The model results provide insights for consideration when operating in a tidal environment, as well good mixing design and good sampling design.	11/10/25	3:15 PM	4:15 PM	Ed	Wicklein			ewicklein@carollo.com
PST02	Engineering the Invisible: Microbial Community Insights for Ozone-Biofiltration Performance	The effectiveness of ozone-biofiltration systems is dependent upon the microbial communities that are promoted to grow and remove contaminants. To better understand these communities, this study utilizes cutting-edge tools to assess microbial community data spanning 18 months for a drinking water ozone-biofiltration system. Findings reveal associations between microbial composition, water quality, and operational parameters, suggesting that biofilters may selectively enrich bacteria essential to treatment performance. Better understanding the impacts of operations and water quality on biofiltration systems is important for advancing water treatment technologies and promoting high-quality, biostable drinking water.	11/10/25	3:15 PM	4:15 PM	Kara	Cunningha		West Virginia University	karaa41@gmail.com
PST02	Shallow GAC Caps Improve the Performance of Conventional Sand-Anthracite Filters	Using a shallow GAC cap with conventional sand/anthracite filters could provide a meaningful boost in organics removal. This study evaluates whether GAC caps are effective in removing DOC, DBP FP, and taste and odor (MIB and geosmin) compounds, even after many years in service. Results showed that 10 cm of GAC improved THM FP and HAA FP reduction by 20-40%, with diminishing returns at greater depths. DOC removal increased by 10–25%. There was minimal biological activity within the caps, suggesting that adsorption remained the dominant removal mechanism, even after 9 years of operation. This suggests that shallow GAC caps could enhance filter performance, providing long-term benefits without the high costs of full media or GAC replacement.	11/10/25	3:15 PM	4:15 PM	Maeva	Che Manka		University of Toronto	maeva.ch e@mail.ut oronto.ca
PST02	Comprehensive Monitoring of Lead Contamination in Water Systems: A Sensor-Based Approach	Lead contamination in drinking water and stormwater is a significant environmental and public health issue, particularly in regions with deteriorating infrastructure. Conventional monitoring techniques are limited by delayed lab-based analysis. This presentation introduces an enhanced lead detection sensor—originally developed by the University of Michigan and further refined at NJIT—that enables Wi-Fi connectivity for real-time monitoring. The sensor applies Anodic Stripping Voltammetry (ASV) for high-sensitivity lead detection in both drinking water and stormwater. Key findings will determine the sensor's efficacy under diverse water quality situations, facilitating the development of more intelligent and adaptive water infrastructure.	11/10/25	3:15 PM	4:15 PM	Maryam	Talebidalou	PhD Candidate	New Jersey Institute of Technology	mt588@nj it.edu
PST02	Effect of Environmental and Operational Conditions on Solar-driven Photodegradation of MC-LR using Au/Ni-MOF in Surface Water	Microcystin-LR (MC-LR) is a growing concern in cyanobacterial harmful algal blooms (cyanoHABs). Current treatments are costly and generate waste, necessitating the need for sustainable, cost-effective solutions. This study developed a solar-driven photodegradation method using a gold-decorated nickel-based metal-organic framework (Au/Ni-MOF) for MC-LR removal. The Au/Ni-MOF achieved 100% removal of 20 ppb MC-LR in 4 hours in Milli-Q water. One-way ANOVA test showed that the degradation was significantly influenced by turbidity, pH, and the test volume. Real water testing validated 66–76% removal of MC-LR (20 ppb) in 4 hours, and the catalyst remained stable over 10 days, showing its applicability for MC-LR removal in real water systems.	11/10/25	3:15 PM	4:15 PM	Samuel	Adjei-Nimc		University of Central Florida	sa275724@ucf.edu
PST02	Quantitative Stable Isotope Probing Identifies Active Degradors of Caffeine and Formaldehyde in Biofilters	Microbial taxa involved in active degradation of caffeine and formaldehyde in drinking water biofilters were identified by quantitative stable isotope probing (qSIP). After spiking media microcosms with either labeled or non-labeled forms of each contaminant for four weeks, DNA was extracted and ultracentrifugation was performed to separate out labeled DNA. Comparing density shifts between labeled-contaminant media microcosms and non-labeled control microcosms enabled the identification of taxa utilizing contaminants for growth. This research illustrates the role of individual microbial taxa on the functioning of biofilters for the removal of micropollutants.	11/10/25	3:15 PM	4:15 PM	Andrew	Black		University of South Florida	andrewblack@usf.edu
PST02	AI-Driven Approaches for Predicting Commercial Water Usage in Austin	The study investigates the commercial water consumption patterns of urban area. For this, 12 years of monthly consumption data of Austin, Texas is utilized. Furthermore, prediction model for predicting monthly commercial water demand is developed using different machine learning algorithm. The developed prediction model will assist the engineers to predict water demand and to plan sustainable water resource management.	11/10/25	3:15 PM	4:15 PM	tanvir	ahmed	Graduate Research Assistant	The University of Texas at Tyler	tahmed2@patriots. uttyler.edu

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PST02	Evaluating Microplastic Contamination and Treatment in Drinking Water Systems	Microplastics (MPs) are plastic pieces smaller than 5 mm that can harm aquatic life. They enter drinking water treatment plants (DWTPs) through various processes, including fragmentation of larger plastics and use of cosmetics. Studies show MPs exist in both tap water (TW) and bottled water (BW), with higher concentrations in BW. DWTPs are effective at removing MPs, especially with advanced treatments like nanofiltration and ultrafiltration. A 2018 study found MPs in 93% of BW samples, with an average of 325 MP particles per liter. Plastic waste from BW obstructs water bodies and poses a threat to human health. Water suppliers should prioritize removing MPs and other contaminants from TW.	11/10/25	3:15 PM	4:15 PM	Viraj	deSilva		Freese and Nichols, Inc.	viraj.desilva@freese.com
PST02	Evaluation of 222 nm Far-UVC for Microbial Disinfection: A Comparative Study with LP Mercury UV and UV-LEDs	Far-UVC (222 nm) is an emerging alternative to conventional UV disinfection, gaining attention for its potential safety advantages while effectively inactivating microorganisms. This study compares the efficacy of Far-UVC with low-pressure UV (254 nm) and UV-LEDs (265/276 nm) against waterborne pathogens. While Far-UVC showed slightly lower inactivation rates, it primarily damages proteins rather than DNA, making it particularly effective for viral disinfection. Future work will explore combining wavelengths to target both DNA and proteins for enhanced inactivation. This research provides valuable insights into the potential of Far-UVC for next-generation water treatment applications.	11/10/25	3:15 PM	4:15 PM	Yoontaek	Oh		Pegasus Technical Services, Inc.	oh.yoontaek@epa.gov
PST02	Adaptation to Water Shortage and Its Barriers in Water-scarce Rural Settings of Ethiopia: a Qualitative Study	Water shortage is a critical public health and developmental issue, particularly in rural low- and middle-income regions like Ethiopia, where pipeline distribution is limited. This study examines community adaptation strategies and barriers to water scarcity in rural Ethiopia, using qualitative methods. Focus Group Discussions and Key Informant Interviews explored water use experiences, complemented by observations and field notes. Thematic analysis identified key strategies, including constructing water sources, storing water, purchasing water, point-of-use treatment, and water sharing, alongside six barriers. Economically disadvantaged households face greater adaptation challenges, underscoring the need to address barriers.	11/10/25	3:15 PM	4:15 PM	Haileyesus	Girma		Ghent University	hailejesus22@gmail.com
PST02	An Empirical PFAS-GAC Breakthrough Curve Model for Treatment Planning	This presentation will walk through breakthrough curve model development and capability for predicting removal of per- and polyfluoroalkyl substances (PFAS) from drinking water using granular activated carbon (GAC) at the treatment planning level. Such predictions are commensurate with those obtained from anion exchange modeling and are useful for evaluating which alternative is most appropriate for a specific treatment scenario without testing. Most importantly, the presentation will highlight the model's ease of use and applicability to most drinking water treatment scenarios. A case study will be presented demonstrating the applicability of the model to an evaluation performed for a drinking water utility in Washington.	11/10/25	3:15 PM	4:15 PM	Anthony	Kennedy	senior process engineer	Brown and Caldwell	anthonymkennedy@gmail.com
PST02	Fate and Transport of PFAS and Other Stormwater Contaminants in Green Infrastructure	Few studies have investigated the fate and transport of PFAS in stormwater runoff from urban areas. In addition to traditional stormwater contaminants, recent concerns have been raised about the presence of PFAS in urban runoff as a source of PFAS pollution. Green infrastructure offers an affordable, low-maintenance option to help protect natural waters from runoff. One of the most commonly used forms of green infrastructure are rain gardens which are installed between roadways and sidewalks. Typical rain gardens are composed of a layer of engineered soil with gravel beneath to promote water infiltration. This study is investigating the removal of PFAS in rain gardens through laboratory experiments to understand the fundamental removal mech	11/10/25	3:15 PM	4:15 PM	Cameron	Oden	Assistant Professor	University of New Haven	coden@newhaven.edu
PST02	Case Study: Pilot Testing of PFAS Removal in three Surface WTPs: Media Selection, Performance Evaluation, and Challenges	In response to the EPA's finalized NPDWR for six PFAS in April 2024, water utilities must comply with new MCLs. Monitoring starts in 2024, with full compliance by April 26, 2029, requiring effective PFAS removal solutions. Many surface WTPs, including those who previously compliant with less strict state MCLs, now need treatment. A nine-month pilot study was conducted at three surface WTPs in 2024 tested eight media types, including Ion Exchange (IX), GAC, and novel adsorptive media, for removal performance, media longevity, and hydraulic behavior. This presentation covers pilot-scale design, key findings, media performance, challenges, and lessons learned, providing guidance for utilities on PFAS treatment strategies.	11/10/25	3:15 PM	4:15 PM	Siyang	Wang	Project Engineer	Jacobs Engineering	yicosing@gmail.com

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PST02	The Use of Adsorbable Organic Fluorine As A Screening Method in Aqueous and Biosolids Samples of a Wastewater Treatment Plant	PFAS occurrence is an unknown and underestimated burden due to the thousands of PFAS compounds that exist. This study evaluated PFAS and adsorbable organic fluorine (AOF) occurrence, fate, and transport throughout the liquid and solid streams of an advanced wastewater treatment plant (WWTP). Methods used included a non-target analysis for adsorbable organic fluorine and a targeted analysis for 48 PFAS compounds. This study 1) provided a comprehensive dataset for AOF and target PFAS at 19 locations throughout a WWTP, 2) analyzed PFAS and AOF fate and transport, and 3) evaluated AOF as a PFAS screening tool.	11/10/25	3:15 PM	4:15 PM	Sarah	Ortbal		The University of Alabama	skortbal@crimson.ua.edu
TUE01	TUE01 - From Lithium to Chloronitramide: New Challenges in Drinking Water Quality	The removal of lithium from drinking water is becoming a major requirement due to its increasing environmental concentration, arising from natural sources, industrial activities, and specifically from the increased use of lithium-ion batteries. Elevated lithium levels in drinking water have shown potential health risks, making effective removal approaches essential. Among the many different techniques used for lithium removal, the most cost-effective and convenient approach is the use of sorbents when low levels are involved. In this context, various sorbents, particularly those derived from titanium, manganese, and aluminum oxides, layered double hydroxides, as well as iron-based metal-organic frameworks (MOFs), have been studied. 6PPD and its byproduct 6PPD-quinone (6PPD-q) have recently been identified as contaminants of emerging concern (CECs) and have been nominated for the Environmental Protection Agency's sixth Contaminant Candidate List. Acutely toxic to coho salmon at low concentrations and potentially widespread in the environment, 6PPD-q poses concern to the water industry as a CEC. The presentation will bring industry members up to speed on 6PPD and 6PPD-q and prompt us on how we can stay ahead of the contaminants through discussing: 1) the current state of the science and research completed to date, 2) an overview of industry news and state-level actions taken towards these contaminants, and 3) what is on the horizon and key takeaways for utilities.	11/11/25	8:15 AM	12:00 PM	Christine	Owen	Director of Water and Reuse Innovations	Hazen and Sawyer	cowen@hazenandsawyer.com
TUE02	TUE02 - BAF Piloting: Macro Lessons Learned	This special topic session will focus on case studies and lessons learned during biologically active filtration (BAF) piloting. The session will include lessons learned during BAF piloting in conventional water treatment and direct potable reuse.	11/11/25	8:15 AM	9:45 AM	Melina	Bautista	Staff Professional	Carollo Engineers, Inc.	mbautista@carollo.com
TUE03	TUE03 - Proactive Approaches for Cyanobacteria and Cyanotoxins: Detection and Monitoring	Bacterial community analysis is a highly valuable method to assess drinking water quality. However, these methods aren't typically used until there is noticeable risk in the source water, such as when a cyanobacterial bloom occurs. This is a more reactive approach to monitor drinking water quality, rather than a proactive approach. In this study, bacterial communities were analyzed from water and sediment within oligotrophic drinking water reservoirs to characterize the taxa present, monitor community dynamics, and demonstrate the usefulness of molecular methods in proactively assessing drinking water quality, and how it can be applied to water treatment and risk management. This presentation will highlight the impact that cyanobacteria and common phytoplankton have of producing water quality issues, beyond cyanotoxins, at a drinking water facility. Looking into a phytoplankton monitoring program; it will discuss the importance of identification of common and harmful phytoplankton and the different water quality issues they can cause. Using 5 years' worth of data from flow imaging microscopy, phytoplankton community composition profiles of the water supplies can be made in order to anticipate when specific phytoplankton & cyanobacteria are likely to occur and cause water quality issues that impact the plant's production of drinking water and customer faith in receiving safe drinking water.	11/11/25	8:15 AM	12:00 PM	Tracy	Kump		Greater Cincinnati Water Works	tracy.kump@gcww.cincinnati-oh.gov
TUE04	TUE04 - Corrosion Control Optimization	Regulatory Lead and Copper Rule sampling alone is too infrequent to inform operational decisions during a corrosion control treatment (CCT) change. The Portland Water Bureau recently upgraded its CCT to further increase pH and intentionally control alkalinity. Four supplemental lead and water quality monitoring programs were implemented to inform operations of the new treatment facility. Measuring pH with routine distribution system coliform sampling and monthly in-home lead sampling were found to be particularly helpful. Ultimately, the CCT reduced lead in water by more than half. Attendees will learn utility insights useful for implementing CCT changes, especially in systems where premise plumbing is a key component of lead exposure.	11/11/25	8:15 AM	12:00 PM	Kira	Smith		USEPA Office of Water	smith.kira@epa.gov
TUE05	TUE05 - How Do We Know What We Know? Environmental Sensors: Research to Reality.	This session addresses environmental sensors, from research and development, all the way through to installation, implementation within sensor network, validation of models, and sensor operations and maintenance. This session will include 4 presentations and 2 round robin discussions of 30 minutes each - one between the second and third presentations and one at the end of the session.	11/11/25	8:15 AM	12:00 PM	Bina	Nayak	Research Project Manager	Pinellas County Utilities	bnayak@pinellas.gov

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TUE06	TUE06 - PFAS Analytical Challenges and Successes	Ultrashort-chain PFAS were historically overlooked because scientists assumed they posed low toxicity, had minimal bioaccumulation potential, and were challenging to measure. Despite the initial assumptions, recent reports show ultrashort PFAS appear in water at concentrations that often exceed those of longer-chain PFAS. The primary goal of the research described in the abstract is to develop and validate a novel LC-MS/MS method that can simultaneously analyze ultrashort-, short-, and long-chain PFAS (C1–C14) at very low concentrations (ng/L range). The new method addresses the retention and background contamination problems that historically complicated ultrashort PFAS detection.	11/11/25	8:15 AM	9:45 AM	Chris	Moody		Fairfax Water	cmoody@fairfaxwater.org
TUE07	TUE07 - Challenges and Advancements in PFAS Degradation and Destruction Technologies	Owners and practitioners are bombarded with headlines touting solutions to PFAS contamination that typically end up being positive developments that may be over exaggerated in their relevance to the municipal water sector. This presentation combines over a decade of experience researching, developing, and tracking PFAS-Relevant Destruction (PRD) technologies with institutional knowledge of technology deployment at the municipal scale. No single technology will be promoted. Instead, the understanding and applicability gap between PRD technologies and needs/demands at the municipal scale will be discussed. Our goal is to contextualize PRD technologies at the municipal scale pragmatically to educate owners/practitioners.	11/11/25	8:15 AM	12:00 PM	Brent	Alspach	VP & Director of Applied Research	Arcadis U.S., Inc.	brent.alspach@arcadis.com
PST03	PST03 - Tuesday Poster Session		11/11/25	9:45 AM	10:45 AM					
PST03	Microplastics Analysis Using Flow Imaging Microscopy	The presence of microplastics in a lake can lead to the adsorption of algal toxins and other biopharmaceuticals of concern to the particle surface, leading to bioaccumulation in the lake ecosystem. Techniques such as FT-IR and Raman Spectroscopy can provide detailed microplastic speciation. However, there is a need to develop a rapid screening method that can provide rapid total microplastic concentrations as part of a tiered approach to testing. This presentation will highlight key studies using FIM for microplastic analysis. It will also summarize steps like digestion, staining, and data acquisition, and offer preliminary laboratory results from samples collected in collaboration with academic and industrial partners.	11/11/25	9:45 AM	10:45 AM	Polly	Barrowman		Yokogawa Fluid Imaging Technologies, Inc.	polly.barrowman@fluidimaging.com
PST03	Finding and Fixing: Piloting Distribution and Site Assessment Procedures for LCRI Compliance	The LCRI requires utilities to conduct distribution and site assessment (formerly referred to as ‘find-and-fix’) activities at locations where compliance samples exceed the action level for lead. These requirements can be challenging for utilities to complete in the timeline specified by the new rule. To prepare for these upcoming requirements, TVWD piloted the procedures necessary to meet the LCRI obligations. This presentation will describe the background analysis conducted to support the distribution and site assessment investigations, notification and communication activities, and on-site sampling activities conducted. Through sharing TVWD's experience, the team will present unexpected challenges, what worked well, and lessons learned.	11/11/25	9:45 AM	10:45 AM	Mia	Varner		Brown and Caldwell	miavarner@gmail.com
PST03	Field Surveys Confirm Lead Can Attach to Copper & Plastic Pipes. What Does That Mean for Validations of Knowns & Unknowns?	Over the last 20 years, plastic water pipes such as high-density polyethylene (HDPE) and polyethylene (PEX) pipes have been widely used to reduce costs and ameliorate water quality concerns caused by corrosion of metallic pipes. Previous research had focused on assessing lead in metallic pipe surfaces, such as galvanized pipe, rather than plastic or polymer. This led to a new replacement category in the LCRR & LCRI of galvanized requiring replacement (GRR) pipe. Nevertheless, recent research shows that lead can accumulate on plastic & copper pipes. This session discusses research findings, field surveys, and the implication on validations of known, copper & plastic pipes designated as non-lead, and the inspection of unknown pipe materials.	11/11/25	9:45 AM	10:45 AM	Chuck	Hansen		Electro Scan Inc.	chuck@electroscan.com
PST03	A Multi-Faceted Corrosion Control Treatment Optimization Study for a Water System with Unique Magnesium Silicate Scale	A unique magnesium silicate scale was found in a PWS' distribution system with three unique water quality zones. This presentation will provide results from a multi-faceted CCT study which included pilot and bench scale testing on various distribution system pipe materials under multiple operational conditions. We will also discuss how a holistic final recommendation was developed from the results of the study.	11/11/25	9:45 AM	10:45 AM	Jerry	Yan	Staff Professional	Carollo Engineers	jyan@carollo.com
PST03	Leveraging AI to Identify Unknown Service Lines	Service Line Inventory development is a perfect opportunity to utilize AI or predictive modeling to remove unknown service lines (SL). These unknown SLs materials require that utilities notify customers of the potential risk for lead annually until the SL is classified. The uncertainty in these notifications create a public relations concern and a communication hassle to get the notifications prepared, printed, and distributed. Predictive modeling can estimate the SL material and probability. This presentation will focus on the development of a predictive model, calibration of a model to minimize bias, evaluation of model accuracy, and the interactive dashboards developed to assist with visualization and prioritization of SL replacements.	11/11/25	9:45 AM	10:45 AM	Emily	Tummons	Senior Process Engineer	Black & Veatch Corporation	tummons@bv.com

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PST03	Heterotrophic Place Count (HPC) What Every Water Professional Should Know	‘Aerobic, mesophilic viable bacteria’, ‘colony count’, ‘standard plate count’ are all terms for Heterotrophic Plate Count or HPC. This presentation provides information on this very useful bacteriological test method including history from its origins at the 1883 German Congress of Physicians in Berlin by Robert Koch (and how to pronounce his name), the various test methods, it’s uses in the water industry and possible answers to the question what level of HPC is ‘safe’ or appropriate in drinking water. (It is not 500 cfu/ml). HPC offers insights into distribution water quality and an ability to quantify microbial activity that is not possible with coliform sampling. This presentation is a learning module for WA DOH staff.	11/11/25	9:45 AM	10:45 AM	Stephen	Deem		Retired (WA State Department of Health)	deemgrec o@comcast.net
PST03	DBP Regulations and Compliance: Evidence and Strategies for Protecting Public Health in a “Stage 3” Era	Disinfection byproducts have been regulated in the US since the 1970s, yet there remains significant uncertainty about which DBPs are causative agents of human health risks and whether all compliance strategies effectively achieve the intended public health goals. This presentation will summarize the regulatory implications of the state of the science in epidemiology, toxicology, occurrence/monitoring, and treatment/compliance, and will propose actions toward meaningful changes in regulations and treatment paradigms despite ongoing DBP-associated uncertainty.	11/11/25	9:45 AM	10:45 AM	Eric	Peterson		Hazen and Sawyer	eric.peterson@colorado.edu
PST03	Design Considerations and Insights on Leading High-Recovery Desalination Alternatives	This presentation will focus on the limiting factors (water chemistry, hydraulics, performance and cost) to consider while selecting the best available technology for high recovery RO applications in brackish groundwater desalination and advanced wastewater reuse. This segment will include findings of feasibility studies performed in California using both proprietary and non-proprietary technologies along with lessons learned. The presentation will be valuable to utilities for selecting the best available technology and also understand the key limiting factors that needs to be considered before full-scale implementation.	11/11/25	9:45 AM	10:45 AM	Daniel	ten Bosch	Process Engineer	Black & Veatch Corporation	tenboschd@bv.com
PST03	Leveraging Machine Learning & Molecular Simulations to Advance Mixed Metal Oxide Electrodes for PFAS Remediation	This presentation highlights how data-driven machine learning, molecular dynamics simulations, and density functional theory can be integrated to optimize mixed metal oxide (MMO) electrodes—particularly antimony- and nickel-doped tin oxides—for PFAS electro-oxidation. By systematically adjusting synthesis parameters that govern surface morphology and catalytic performance, we demonstrate how ML-driven insights guide electrode design to exceed conventional materials. Attendees will learn a synergistic approach that accelerates PFAS degradation while offering broad potential for advanced oxidation applications in water treatment.	11/11/25	9:45 AM	10:45 AM	Hiroki	Fukuda	Postdoctoral Researcher	University of Massachusetts Amherst	hfukuda@umass.edu
PST03	Photolysis at the Speed of Light: High-Intensity UV LED Photolysis for Water Treatment: Chemical-Free Degradation of Trace Organic	UV LED technology has advanced significantly over the last decade, evolving from a research tool to a commercialized point-of-use solution and now to full-scale municipal water treatment for disinfection. Breakthroughs in material design and electrical efficiency have enabled high-intensity UV C LED delivery, expanding its role beyond disinfection to the targeted remediation of organic contaminants. This work explores the effectiveness of 275 nm UV C LEDs at for driving direct photolysis reactions and investigates the utility of UV light emission tailoring on the photodegradation dynamics of select aqueous trace organic compounds (TrOCs).	11/11/25	9:45 AM	10:45 AM	Carolina	Ontiveros		Dalhousie University	carolina.ontiveros@dal.ca
PST03	Dynamics of Microbial Communities and Filter Design: Effects on Point-of-Use Filters in Chloraminated Water Systems	This abstract evaluates the impact of activated carbon block (ACB-POU) filters on the quality of chloraminated drinking water. It highlights risks, including increased microbial growth and exposure to pathogens, with findings indicating rising risks of nitrites, nitrates, and microbial contamination during the first month of use. The filter membrane's presence, absence, and characteristics significantly influence consumer exposure risks. The research emphasizes addressing microbial and chemical contamination in ACB POU filters, particularly in chloraminated drinking water, to reduce health risks. It supports a strict certification process for ACB POU filters to ensure consumer safety protection.	11/11/25	9:45 AM	10:45 AM	Horace	Jakpa		University of South Florida	hsjakpa@usf.edu
PST03	How to HABs- Using Real Time Quantitative PCR to monitor and track HABs Impacting Water Supplies.	This presentation will use Passaic Valley Water Commission (PVWC) as a case study giving an inside look to their Cyanotoxin Monitoring Program. Specifically highlighting their utilization of Real Time Quantitative PCR and Phyttoxigene Inc. assays within their monitoring program, where HABs pose a threat to the facility’s water supplies in Northern New Jersey.	11/11/25	9:45 AM	10:45 AM	Evan	Cruz		Passaic Valley Water Commission	ecruz@pvwc.com
PST03	Spatiotemporal Analysis of Microbial Community Composition in Drinking Water Distribution Systems Across the USA	This presentation focuses on our analysis of microbial communities in drinking water samples collected across different seasons and sites within distribution systems across the United States. While microbial community profiling is one component, the broader project investigates various dynamics within drinking water distribution systems (DWDS) that influence the growth of microbial communities, including opportunistic pathogens. Our team is examining the occurrence of key pathogens such as Legionella pneumophila, Pseudomonas aeruginosa, and Mycobacterium avium. In addition, we measure assimilable organic carbon (AOC) to assess the availability of nutrients that may support bacterial regrowth in the presence or absence of disinfectants. This	11/11/25	9:45 AM	10:45 AM	Apoorva	Goel		University of Minnesota	agoel@umn.edu

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PST03	Surfing the PFAS Tidal Wave - Transformational PFAS Mitigation for 190 Public Water Supply Wells	Aqua North Carolina (Aqua) owns and operates 190 wells that require mitigation to meet the Federal PFAS standards. While Aqua already operates advanced groundwater treatment systems, they will have to install approximately 47 treatment systems per year compared to the typical 10 systems per year to meet a June 2028 deadline. To do so, Aqua immediately developed a master plan to prioritize systems and researched avenues to expedite the installation process, reviewing state laws, transforming the “standard” filter system design, and evaluating conventional & novel treatment methods. The result is a new treatment system that has a standard design & construction process across sites that is easy to operate & maintain and a quarter of the cost.	11/11/25	9:45 AM	10:45 AM	Preeti	Reddy	Sr. Supply Chain Specialist - PFAS	Aqua	preddy@aquameric a.com
PST03	The Impact of Natural Organic Matter and Water Quality on PFAS removal pathways for Electrochemical Water Treatment	Peroxi-electrocoagulation (EC:H2O2) can serve as a multi-mechanistic treatment process for PFAS mitigation that features foam fractionation, fenton-based advanced oxidation and physical separation. Natural organic matter (NOM) and total organic carbon are ubiquitous in natural waters and add major complexity for water treatment processes. This research incorporated NOM characterization (based on UV metrics and size fractionation) for five sources to elucidate the overarching role of NOM on the fate of PFAS in electrochemical systems and how NOM can impact foam fractionation, oxidation and separation mechanisms. These findings will help to advance understanding of treatment processes for treating PFAS based on their water quality and NOM	11/11/25	9:45 AM	10:45 AM	Donald	Ryan			donald.ryan@stantec.com
PST03	Lessons Learned: Addressing Some of the Unexpected Challenges of Implementing PFAS Treatment	Utilities implementing GAC and ion exchange for PFAS removal are encountering unexpected operational challenges that disrupt treatment and increase costs. This presentation highlights lessons learned from full-scale systems, focusing on practical strategies to address these issues. Key scenarios include excessive scale formation in GAC downstream of air stripping, mercury and radium accumulation in spent GAC, and resin scaling in ion exchange systems with ortho/polyphosphate addition. Insights aim to help utilities avoid costly disruptions and optimize PFAS treatment operations.	11/11/25	9:45 AM	10:45 AM	Amanda	Berger	National PFAS Practice Lead	Arcadis U.S., Inc.	aa072298@gmail.com
PST03	PFAS Removal During Indirect Potable Reuse: A Comparative Evaluation of RSSCT and Pilot-Scale Performance for IX and SMC	HRSD’s Sustainable Water Initiative for Tomorrow (SWIFT) is an indirect potable reuse initiative recharging the Potomac Aquifer to manage water supply, seawater intrusion, and land subsidence. The HRSD SWIFT Research Center (SRC) is a 1 MGD demonstration facility optimizing advanced water treatment. SWIFT uses carbon-based advanced treatment (CBAT), including coagulation, floc/sed, ozonation, biologically active filtration, activated carbon adsorption, and UV disinfection. To address recently enacted PFAS regulations, pilot-scale and rapid small-scale column tests (RSSCT) were employed to evaluate the performance of anion exchange resin (IX) and surface-modified clay (SMC) post-GAC to improve PFAS removal and extend GAC lifespan.	11/11/25	9:45 AM	10:45 AM	Sayed Moh	Hassan Kha			khademi@mines.edu
PST03	Support for Cost-based Pricing at Municipal Water Utilities: Stability of Charge Growth in the Great Recession	Residential drinking water charges in the U.S. have grown faster than inflation for 20 years, raising affordability concerns. Limited research exists on the drivers behind this growth. Less than 20% of drinking water utilities are regulated by public utility commissions. Municipal water systems can underprice services and use city general fund transfers, leading to sharp charge increases during economic shocks. An 18-year panel of 204 utilities shows that utilities with operating ratios below 1.2 experienced higher charge growth rates during and after the Great Recession. Underpriced water services make utilities vulnerable to economic shocks, increasing financial burdens for households.	11/11/25	9:45 AM	10:45 AM	Katherine	Alfredo			kalfredo@usf.edu
PST03	Spatial and Temporal Monitoring of PFAS along the Quinnipiac River in New Haven	PFAS are significant contaminants due to their recalcitrance under environmental conditions. Assessing their prevalence in natural waters can help identify sources of contamination. Studies assessing PFAS contamination have not fully examined the impact of seasonal variation, though monitoring in preparation of the EPA’s new MCLs have highlighted the significant variation in PFAS concentrations. This study examines concentrations of PFAS in the Quinnipiac River within the greater New Haven area. Five sampling locations were selected along the river to determine if speciation and concentrations significantly changed along the length of the river. Two sampling campaigns have been conducted with two further campaigns being conducted this year.	11/11/25	9:45 AM	10:45 AM	Allison	Diana			adian3@unh.newhaven.edu
TUE09	TUE09 - Leveraging Data and Machine Learning in Water Systems	Although data-driven modeling can provide valuable predictions of treatment performance to inform operations, data from water treatment plants is often too domain-limited to train a comprehensive model due to the narrow range of operating conditions typically targeted. Published water quality models are valuable for conducting sensitivity analyses, but represent a central tendency, which can lead to inaccurate predictions on a specific source water. This study evaluated adjusting an established mechanistic/empirical coagulation model (Edwards 1997) with machine learning techniques to improve model accuracy for a single water source while maintaining the ability to predict operating conditions outside the domain of the provided data.	11/11/25	10:30 AM	12:00 PM	Yoko	Koyama		Carollo	ykoyama3@alumni.ncsu.edu

Session Code	Session Title	Details	Date	Start Time	End Time	Speaker 1	Speaker 1	Speaker 1 Title	Speaker 1 Company	Speaker 1 Email
TUE13	TUE13 - Taking the Paralysis out the Analysis – An overview for Performing your Own PFAS Laboratory Analysis	With the large number of PFAS installations along with regulatory and operational monitoring, there are situations when the economics and turnaround time may merit consideration of being able to “Self-perform” PFAS analyses rather than sending to subcontract laboratories. This session will explore the hurdles and decision making to go through to determine the strategy for utility laboratories.	11/11/25	10:30 AM	12:00 PM	John	Civardi			JCivardi@carollo.com
TUE08	TUE08 - Lithium - Challenges and Potential Solutions for a Problematic Emerging Contaminant	This session will summarize current research activities involving chemistry, analytical detection, occurrence and treatment of lithium in drinking water, as well as regulatory considerations. Lithium removal via existing treatment processes was assessed by measuring lithium throughout the treatment train of 32 systems representing 7 treatment categories, including conventional, biofiltration, softening, and reverse osmosis.	11/11/25	1:30 PM	5:00 PM	Philip	Brandhuber		Brandhuber Water Quality & Treatment LLC	philbwaterr@gmail.com
TUE10	TUE10 - Golden Mussels and Snails – Dealing with Nuisance Organisms in Drinking Water Systems	This session will explore the challenges associated with nuisance organisms in drinking water systems and proactive measures taken by utilities to detect and control invasive species. Development and implementation of routine screening and monitoring programs for source waters and direct potable reuse treatment processes to mitigate problems posed by nuisance organisms will also be discussed.	11/11/25	1:30 PM	3:00 PM	Bina	Nayak	Research Project Manager	Pinellas County Utilities	bnayak@pinellas.gov
TUE11	TUE11 - Lead Service Line Inventory and Point of Use Filters	Initial service line inventories have been submitted and many systems now need to focus on identifying unknown service lines. Information from 120Water’s database containing over 15 million service lines showed that ~40% of water systems still have unknown service lines and those unknowns are more than 1.5 times more likely to be found on the customer owned portion of the service line. Customer surveys are one verification method, pre-approved in almost every state, to help water systems identify customer side service line material. This presentation will discuss lessons learned from implementing service line identification focused customer survey projects at 224 water systems that sent over 270,000 surveys.	11/11/25	1:30 PM	5:00 PM	Ian	Robinson		BlueConduit	ian@blueconduit.com
TUE12	TUE12 - Advantages of Source Water Monitoring and Protection	With the large number of PFAS installations along with regulatory and operational monitoring, there are situations when the economics and turnaround time may merit consideration of being able to “Self-perform” PFAS analyses rather than sending to subcontract laboratories. This session will explore the hurdles and decision making to go through to determine the strategy for utility laboratories. As source water quality change can present significant challenges to drinking water treatment (DWT) operations, understanding if and why source water quality change is occurring can be valuable for water utilities. A case study highlighting the value of strategic water quality monitoring for identifying changes in source water quality and risks to the drinking water treatment operations is presented. The role of water quality monitoring as a climate change adaptation planning tool and for informing source water protection policies and/or DWT technology investment decisions is described.	11/11/25	1:30 PM	3:00 PM	Adam	Eyring	Staff Scientist	Philadelphia Water Department	Adam.Eyring@phila.gov
TUE14	TUE14 - Latest Developments in PFAS Destruction – The Path to Full-Scale Destruction. Perspectives from Academia, Utility, and Industry	The goal of this special session is to provide attendees with the latest updates in PFAS destruction from various perspectives across the water sector outlining various treatment technologies. Each presentation will provide technical guidance on the mechanisms associated with destruction, and drawbacks and advantages for each technology backed by experimental data.	11/11/25	1:30 PM	5:00 PM	Charlie	Liu	National PFAS Lead	Kennedy Jenks Consultants	charlieliu@kennedyjenks.com
TUE15	TUE15 - Advances in Water Treatment Technologies	This session showcases emerging technologies and treatment strategies aimed at improving water quality, operational efficiency, and resource recovery. Topics cover a wide range of innovative technologies and approaches, including UV LED for biofilm prevention, to diverse applications of ion exchange.	11/11/25	1:30 PM	5:00 PM	Scott	Alpert			salpert@hazenandsawyer.com
TUE18	TUE18 - PFAS Treatment Screening, Selection, and Other Considerations	AFFF application use at military sites has resulted in groundwater contamination by a complex mixture of terminal perfluoroalkyl acids (PFAAs) and precursor PFAS. While PFOS and PFOA are commonly regulated, more toxic polyfluorinated and PFOS-like compounds are often more abundant. This study quantitatively evaluates the removal of cationic, zwitterionic, and anionic PFAS using granular activated carbon (GAC), anion exchange resin (AER), and surface-modified clay (SMC). Rapid small-scale column tests (RSSCTs) combined with high-resolution mass spectrometry and suspect screening provide insight into adsorbent performance and the need for treatment approaches targeting a broader PFAS spectrum.	11/11/25	1:30 PM	3:00 PM	Jihyon	Im		CDM Smith	imj@cdmsmith.com

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PST02	A Practical Approach for the Detection and Quantification of Chloronitramide Anion in Water	Chloronitramide anion is a recently identified by-product of the decomposition of inorganic chloramine, one of the most commonly used disinfectants in distributed drinking water. Given its recent discovery, no commercially available chloronitramide anion reference standards with pre-determined concentration exists. Herein, we report a practical approach for the accurate determination of chloronitramide anion concentration in a formation solution, and its detection and quantification in water using IC-UV and LC-MS/MS. We found that the chloronitramide anion concentration could be accurately determined through the subtraction of interfering anions' UV absorbance contributions, to provide a reliable standard for analytical method development.	11/11/25	3:15 PM	4:15 PM	Danence	Lee	Dr.	PUB Singapore's National Water Agency	danence_lee@pub.gov.sg
TUE16	TUE16 - Microbiology of the Water Distribution System	This session will demonstrate different approaches and tools that are being used to gain insight on drinking water distribution systems ranging from simple assessments of biological stability to DNA based tools, to metagenomics, and lastly to the inclusion of AI modelling.	11/11/25	3:30 PM	5:00 PM	Kara	Cunningha		West Virginia University	karaa41@gmail.com
TUE17	TUE17 - Leveraging Microbial Monitoring for Pathogen Detection	Despite their increasing popularity, relatively little is known about viral reactivity with chloramines. This research seeks to understand the mechanisms behind chloramine inactivation in order to create predictive models for virus behavior in a chloraminated system. We exposed surrogate bacteriophages with different structures to concentrations of monochloramine typical in distribution networks to determine rate constants, probed the mechanism of chloramine-genome reactivity by studying how encapsidated and naked genomes react with chloramines, and compared the mechanisms of chlorine and chloramine reactivity. A long-standing water resource recovery facility in Scottsdale, Arizona conducted a sampling campaign to evaluate the fate of human viruses, viral surrogates, and parasites Cryptosporidium and Giardia from raw wastewater through reverse osmosis and ultraviolet-treated product waters. Preliminary results indicate that the most abundant and persistent human virus, Adenovirus, does not persist beyond live coliphages or the CrAssphage molecular marker. This presentation will outline the methods and materials that were employed and summarize potential regulatory implications arising from an ongoing two-year project.	11/11/25	3:30 PM	5:00 PM	Grace	Jang		The Water Research Foundation	hjang@waterf.org
TUE19	TUE19 - Advancements and Challenges in Filtration	At the EFWTP, a 330-MGD drinking water treatment plant owned and operated by Dallas Water Utilities, a new biofiltration complex is under construction where treatment capacity will be shifted from existing anthracite-sand filters to new GAC-sand biofilters as they are brought online. DWU prioritized ensuring blended water compatibility with the distribution system and beyond as treatment capacity is shifted from chloraminated anthracite-sand filters to new GAC-sand biofilters, focusing on preventing release of accumulated metals on the existing media, while also preventing chloramines from limiting biological growth on the new biofilters. Next, A case study of converting from anthracite to GAC filters in a 140 MGD conventional filtration plant and the operational challenges resulting from switch. Filter nitrification, increased chlorine demand, distribution system chloramine residual decay and differences in biological communities between east and west filters which impacted water quality were all part of the unexpected challenges brought about by the upgrade.	11/11/25	3:30 PM	5:00 PM	Matthew	Sullivan	Water Quality and Laboratory Supervisor	City of Minneapolis	matthew.sullivan@minneapolismn.gov
WED01	WED01 - Microplastics in Drinking Water: Monitoring, Modeling, and Mitigation	Assessment of potential health risks associated with microplastic ingestion requires accurate quantification of their occurrence in source and treated water. Building on previous research, this study incorporated advances in sampling and analysis to improve microplastic detection. Key enhancements include: i) identification of an optimal sampling methodology, ii) reduction of minimum microplastic particle size to 1 µm, iii) optimization of microplastic extraction, as well as iv) development of a consistent sub-sampling strategy during Raman analysis. By applying optimized methodologies, small microplastics (1–20 µm) were observed to dominate, with finished water concentrations ranging from 10–200 particles/L.	11/12/25	8:30 AM	12:00 PM	Brent	Alspach	VP & Director of Applied Research	Arcadis U.S., Inc.	brent.alspach@arcadis.com
WED02	WED02 - What's New With Coagulation, Flocculation, and Filtration?	When designing the expansion of existing treatment plants, it can be challenging to increase production capacity when space is limited, and additional land is unavailable or comes at a premium. This presentation will cover the results from a stress test that will be carried out on mechanically mixed flocculation tanks at an existing direct filtration plant, in cold water from Lake Ontario. The objective is to operate the flocculation process beyond its design capacity. A stepwise approach will be carried out to explore different stress rates, up to 2 times the design capacity. The test approach and findings will be presented.	11/12/25	8:30 AM	12:00 PM	Rebecca	Venot	Drinking Water Technologist	Jacobs	rebecca.venot@jacobs.com

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WED03	WED03 - Microbial Source Tracking - Tools and Applications	The speakers in this session are a mix of leading researchers and water utility representatives. Combined, they will highlight and array of new and novel advancements in MST tools and demonstrate their uses while utility representatives will describe how MST is being used to support data driven management decisions, actions and mitigations.	11/12/25	8:30 AM	12:00 PM	Norma	Ruecker	Leader Microbiology and Watershed Assessment	City of Calgary Water Services	norma.ruecker@calgary.ca
WED04	WED04 - Premise Plumbing, Biofilms, and Nitrification	The US General Services Administration (GSA) is conducting baseline drinking water quality tests for roughly 1,250 federally owned facilities and 6,000 leased spaces, including sampling and analysis for Legionella. The resulting GSA data set is the largest and most nationally representative data set of Legionella occurrence in buildings served by public water systems (PWSs). This study analyzed GSA Legionella data to describe national occurrence. For ten PWSs, a paired analysis of distribution system (DS) disinfectant residual data and Legionella data for GSA buildings served by the corresponding utility gives insight to the relationship between managing DS disinfectant residual levels and Legionella occurrence in customer buildings.	11/12/25	8:30 AM	12:00 PM	Amlan	Ghosh		Corona Environmental Consulting	aghosh@coronaenv.com
WED05	WED05 - Impacts and Solutions: Wildfires	Wildfire season has been extending with increasing temperatures from climate change, and more regions are being impacted by severe wildfires. As a part of Water Research Foundation project #5168, ash was collected from five wildfires in Oregon, Washington, and British Columbia. Bench- and pilot-scale testing assessed multiple conventional treatment approaches. A treatment resilience framework was developed to guide operational responses that utilities could take post-fire. This presentation will focus on modifications that utilities can make to monitoring, operations, and treatment processes through capital investment to improve resiliency to wildfire events.	11/12/25	8:30 AM	12:00 PM	Sarah	Page		Utah Division of Drinking Water	sepage@utah.gov
WED06	WED06 - Developments in Manganese Detection and Treatment	Manganese (Mn) was selected as a contaminant under the Fourth Unregulated Contaminant Monitoring Rule (UCMR4), identifying it as a potential public health concern. The rule selected 800 small systems (serving populations under 10,000) to monitor Mn occurrence as a representative sample for small public water systems. However, this sample size may not tell the full story, particularly for Mn, which is traditionally associated with elevated occurrence in small systems. Biofiltration effectively removes manganese (Mn) from groundwater, but its long startup period may hinder its adoption. Seeding with media from an existing Mn biofilter and using Mn-oxide coated media were compared as strategies to shorten the startup period. Microbial activity from the seeded media appeared to shorten the acclimation period in a way that sorption capacity provided by the Mn-oxide coating did not. This presentation will discuss the surface coating Mn levels, microbial community composition, and Mn oxidase gene concentrations to help elucidate the mechanisms involved in Mn biofilter startup.	11/12/25	8:30 AM	10:00 AM	Philip	Brandhuber		Brandhuber Water Quality & Treatment LLC	philbwaterr@gmail.com
WED07	WED07 - PFAS Treatment at Demonstration- and Full-Scale: From Treatment Testing to Design, Operation, Performance and Lessons Learned	The presentation will present results from ongoing demonstration-scale testing of advanced treatment for PFAS and water quality improvement at the 3 very large water treatment facilities in Southeastern Florida. The challenging water quality of the Biscayne Aquifer, coupled with the size of the facilities has created unique challenges that must be evaluated through testing. Extensive bench testing of multiple treatment technologies limited the testing phase to 16 adsorption columns (GAC, IX, alternative media), and 3 high-pressure membrane options. In addition, TOC removal pre-treatment is being employed to improve performance of some adsorption media, while iron mitigation strategies are being implemented to improve membrane performance. Next, The City of Woodbury has implemented short and long-term PFAS treatment strategies since the identification of PFAS in the City's groundwater in the mid-2000s. The City's temporary treatment facilities have been in operation for over 5 years, with a future centralized water treatment plant under construction and expected to be commissioned in 2028. Additionally, a multiyear pilot was conducted. These two data sets give Woodbury a unique ability to compare full-scale operation to multiple modeling techniques based on a range of bench and pilot-scale data. This presentation will detail the pros and cons of each method and the ability to scale up to full-scale lead-lag systems.	11/12/25	8:30 AM	12:00 PM	Alice	Fulmer		Water Research Foundation	afulmer@waterrf.org

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WED13	WED13 - Laboratory Method Improvements and Optimizations	With increasing number of laboratories testing PFAS in-house, their capacity for analyzing other organic contaminants expands as LC-MS/MS offers a fast and sustainable alternative to GCMS methods. This also improves the laboratories’ resiliency for meeting regulation and responding to water quality emergencies, including natural events such as Harmful Algae Blooms. In this work, we conducted an extended performance evaluation of an automated method-switching based workflow for PFAS and cyanotoxins testing by standardized methods (EPA 537.1, 544 and 545) using a single LC-MS/MS. We will share the performance (linearity, accuracies and sensitivity over time) of this workflow and discuss the benefits and limitations when planning its use for	11/12/25	10:30 AM	12:00 PM	Christiane	Hoppe-Jon			Christiane.Hoppe-Jones@amwater.com
WED08	WED08 - Water 2050: Shaping a Sustainable, and Resilient Future for the Water Sector (Part 2)	Prolonged water age in import supply and reduced water turnover in reservoirs because of conservation was causing reductions in chloramine levels. This necessitated increased sampling and manual chemical dosing to maintain regulatory compliance and ensure sufficient storage for both daily operations and emergency reserves, including fire protection. The District launched a fast-track program to enhance reservoir chloramine boosting (RCB) by deploying trailer-mounted equipment and installing provisions at over 20 reservoirs for mobile system use. The program also replaced corroded appurtenances, performed coating touch-ups to prolong asset service life, and improved safety by replacing caged ladders with spiral stairs.	11/12/25	1:30 PM	3:00 PM	Meg	Roberts		Hazen and Sawyer	mroberts@hazendawsawyer.com
WED09	WED09 - Ozone Based Water Treatment Solutions	Ozonation in combination with biologically active carbon filtration is increasingly applied as a major barrier for chemicals and pathogens in potable reuse projects. However, the formation of known and unknown products raises concern regarding potential adverse effects for human health. This study investigates major chemical reactions between ozone and organic micropollutants. We introduce a novel labelling strategy applying ozone generated from heavy oxygen (18O2) to elucidate product formation from sulfur- and nitrogen-containing compounds and track their environmental persistence. Furthermore, we apply this method to study the transformation of effluent organic matter, the major ozone consumer during ozonation of treated wastewater.	11/12/25	1:30 PM	5:00 PM	Keisuke	Ikehata	Assistant Professor	Texas State University	kikehata@txstate.edu
WED10	WED10 - Microbial Communities and Risk	Waterborne pathogens pose risks to drinking and recreational waters yet are rarely monitored due to limitations in current sampling and detection methods. This study evaluates a novel 3D-printed, in-line flow-through device using GAC to enhance molecular pathogen detection. Compared to 1-L grab samples, 100-L GAC samples improved RNA/DNA recovery, broadened viral metagenomic profiling, and captured notable Adenovirus genomic persistence after UV LED irradiation at 280 nm (~25 mJ/cm2), in contrast to higher reductions in bacterial indicators. These findings highlight the limitations of relying solely on traditional microbial indicators for monitoring waterborne pathogens and support GAC’s utility for detecting low-abundance pathogens.	11/12/25	1:30 PM	3:00 PM	Benjamin	Swaringen		Cornwell Engineering Group	bswaringen@cornwellinc.com
WED11	WED11 - Disinfection Byproducts: Formation, Behaviour, and Control	Drinking water risk associated with opportunistic pathogen (OP) exposure must be balanced with those associated with disinfection by-product (DBP) exposure. Limited studies have examined the interactions between DBPs and OPs. To fill in the research gap, our project investigates the occurrence of both DBPs and OPs in drinking water distribution systems (DWDSs) and how they behave under different circumstances. This presentation will demonstrate year 1 DBP results. Specifically, we will compare the impact of chlorination and chloramination on the formation of multiple DBP groups and their corresponding total DBP toxicity. The occurrence correlation between the toxicity-driving species and regulated DBPs will be discussed.	11/12/25	1:30 PM	3:00 PM	Ruth	Marfil-Vega		Shimadzu	rmmarfilvega@shimadzu.com
WED12	WED12 - Responding to Salt Contamination Incidents	Salt contamination from seawater intrusion, road salt runoff, etc. can affect drinking water sources across the U.S. This session provides an overview of effects of salinity components on infrastructure and water quality and demonstrates preparedness and response challenges faced by four utilities through presentations and a panel discussion.	11/12/25	1:30 PM	5:00 PM	Rebecca	Kriss	Physical Scientist	U.S. Environmental Protection Agency	Kriss.Rebecca@epa.gov
WED14	WED14 - PFAS Removal Using Ion Exchange	Ion exchange resins for PFAS treatment in drinking water come in two major morphologies: gel-type and macroporous. Fouling or interference by natural organic matter (NOM) is of particular interest to drinking water treatment, but few studies have examined the effect of NOM on PFAS removal by macroporous ion exchange resins. In this work, we compare the PFAS-removal performance of gel-type and macroporous resins in pilot-scale column filters using synthetic drinking waters with and without NOM. The results of this work will help researchers, water utilities, industry professionals, and state and local decision makers select appropriate adsorbent media when testing or installing new PFAS treatment systems.	11/12/25	1:30 PM	3:00 PM	Jihyon	Im		CDM Smith	imj@cdmsmith.com

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WED17	WED17 - Public Health Monitoring: From Water Rights to Health Risk Assessments	Optimizing rapid rate filter performance for turbidity removal provides better public health protection. in 2001 DOH began a treatment optimization program to improve performance of rapid rate filter plants. The program uses incentive and encouragement to persuade utilities and operators, rather than a regulatory hammer. Performance trends have shown turbidity reduction improvement by all rapid rate filter plants in Washington from 2001 through 2024. By optimizing water quality produced by their existing facilities, these utilities are able to provide a larger margin of safety and build greater resilience. This presentation will summarize our TOP criteria, general performance trends, ongoing challenges, case studies and lessons learned.	11/12/25	1:30 PM	3:00 PM	Rebecca	Slabaugh			rebecca.slabaugh@arcadis-us.com
WED15	WED15 - Water 2050: Data Driven Innovations in the Water Sector	The water sector is undergoing a transformation driven by automation, analytics, and AI, addressing challenges in water quality, efficiency, and resource optimization. Technologies like IoT sensors, machine learning, and advanced automation enable predictive maintenance, real-time monitoring, and improved operational performance. Case studies highlight AI’s role in optimizing chemical dosing, reducing costs, and enhancing water equity. Despite barriers such as data silos and workforce upskilling, strategies like robust data governance and pilot testing can drive adoption. These tools offer a pathway to smarter, more adaptive water systems, ensuring sustainable, resilient water management for the future.	11/12/25	3:30 PM	5:00 PM	Joshua	Benjamin		CDM Smith	benjaminja@cdmsmith.com
WED16	WED16 - Advancing Virus Removal and Monitoring in Water Reuse Applications	This session will explore challenges in monitoring virus removal in water recycling. It will cover indigenous coliphages as a cost-effective tool for assessing virus reduction, development of virus removal crediting frameworks for potable reuse, and how machine learning and large language models can enhance virus removal predictions, supporting regulatory frameworks and public health protection.	11/12/25	3:30 PM	5:00 PM	Grace	Jang		The Water Research Foundation	hjang@waterterr.org
WED18	WED18 - PFAS: Residuals and Concentrate Management	Increased PFAS regulations related to drinking water residuals may soon affect disposal costs for water utilities. In response, Louisville Water is sampling reservoir sediments for trace contaminants after 25 years of sediment accumulation requires dredging and disposal. Louisville Water and Hazen characterized PFAS and metals concentrations, achieving 75% confidence in distributed contamination levels. Results showed low PFAS levels (under 3 ppb) with minimal leaching of PFAS and metals. This presentation covers regulatory updates on PFAS waste streams pertaining to hazardous classifications, sampling methodology for probabilistic sampling of solid residual storage infrastructure, and financial implications for utilities.	11/12/25	3:30 PM	5:00 PM	Catherine	Hughes Keen		HDR Engineering	kate.keenan@hdrinc.com
WED19	WED19 - Taste and Odor Mitigation	This presentation shares insights from full-scale WTP operations and a pilot study on ozone and ozone-based AOP for T&O mitigation and disinfection. The Fargo WTP has used ozone since 1997, treating high-TOC and bromide-rich water. A 2018 expansion introduced a flexible ozone system to optimize T&O removal while minimizing bromate formation. Fargo’s high-pH ozonation approach leverages softening basin pH but faces challenges with ozone decay in warmer months. Strategies to optimize disinfection and minimize bromate include extended T10 credit calculations and pH adjustment. Key topics include ozone injection, decay, residual monitoring, and bromate control.	11/12/25	3:30 PM	5:00 PM	Hunter	Adams			hunter.adams@wicheitafallstx.gov
T1	Green River Filtration Facility - Tacoma Water	Since 1913, Tacoma’s primary water supply has been the Green River. The Green River Filtration Facility can treat up to 150 million gallons per day from a 231-square-mile protected watershed in the foothills of the Cascade Mountains. Until the Green River Filtration Facility was completed in 2015, the Green River was one of the few major unfiltered surface water supplies left in the U.S. The filtration facility includes blending, pre-ozonation, and biological filtration. The sedimentation process may be bypassed to allow for direct filtration. The Green River Filtration Facility is a zero-liquid-discharge facility. Solids handling includes screw presses for dewatering. Visitors should wear closed-toed shoes and dress for outdoor weather. Several facilities are only accessible by stairway.

	11/13/25	8:00 AM	12:00 PM					
T2	Point Defiance Zoo & Aquarium	This tour of the Point Defiance Zoo and Aquarium will showcase the facility’s three water treatment systems (connected to two aquariums and one aquatic animal exhibit), from pumping mechanisms at its Puget Sound inlet, to its eventual outlets at the exhibits. Guided by the facility’s water treatment specialists, the tour will highlight aspects of maintaining the chemistry and other physical parameters of the water to make it fit for life support. Visitors will also get the change to tour the rest of the zoo and its exhibits along with the water treatment units! 	11/13/25	8:00 AM	12:00 PM					