

TECHNICAL SESSIONS

Monday, September 29th, 2025

AEESP MASTER LECTURE

1:30 – 3:00 PM

TBD

Moderator Pusker Regmi, *Stantec Inc.*
Assistant Moderator Sreerama Kasi, *Olsson*

Agenda:

1:30 PM **Master Lecturer: Bruce Rittman**
B.Rittmann, *Arizona State University*

Anaerobic Treatment of High Strength Industrial Wastewater

1:30 – 3:00 PM

Anaerobic treatment strategies can be an effective approach for high-strength industrial wastewater. This session will examine the use of anaerobic treatment for landfill leachate, distillery wastewater, and swine wastewater, with a focus on biogas generation and MBR applications. Together, these papers will highlight the benefits of anaerobic treatment in improving efficiency, sustainability, and resource recovery across diverse industrial wastewater streams.

Moderator Matt Griffin, *General Motors*
Assistant Moderator Sara Theodoulou, *Veolia*

Agenda:

1:30 PM **Multi-Phase Treatability Study For High-Strength Landfill Leachate**
Mehdi Mehrazaran, *Geosyntec Consultants*

2:00 PM **Sazerac Northwest Ordinance Distilling Plant Upgrades to Anaerobic Membrane Bioreactor System**
Daniel Bertoldo, *Xylem*

2:30 PM **Smart fouling management strategies for reducing chemical and energy footprint of Anaerobic Membrane Bioreactors (AnMBR) for swine wastewater treatment**
Chinmay Deore, *Kansas State University*

Applications and Optimization of MBR Technology

1:30 – 3:00 PM

This session will showcase different applications and optimization of MBR technology. First, a case study of a unique tertiary MBR demonstration scale system to achieve nitrification-denitrification (NdN) tertiary using glycerol as the carbon source. Next, another case study of the design, construction, and commissioning of a 32 MGD greenfield BNR and MBR facility. The third case study will look at MBR performance after commissioning by presenting long-term operating data for a full-scale MBR plant to characterize fouling and its interaction with air scour control.

Lead Facilitator

Tim Constantine, *Jacobs*

Assistant Facilitator

Elizabeth Blair, *Black & Veatch*

Agenda:

- 1:30 PM **0.6 MGD Validation of a Unique Tertiary MBR Process to Provide NdN for Pure Water**
Michael Liu, *LA County Sanitation District*; Alan Ronn, *Metropolitan Water District of Southern California*
- 2:00 PM **Process Intensification Using MBR and S2EBPR Technologies**
Mark Miller, *Brown and Caldwell*
- 2:30 PM **Membrane Bioreactor Air Scour Control Model to Address Fouling**
Changyoon Jun, *University of Michigan*

Biosolids Planning from WRF to the WRRF

1:30 – 3:00 PM

Embarking on a biosolids planning and implementation program can be a daunting effort for many utilities. A need to navigate a range of existing infrastructure conditions, a rapidly evolving landscape of regulations and technologies, and a drive for operational efficiency combine together to create significant uncertainty for utilities moving into the process. This session starts with an update on WRF-developed tools for assessing biosolids treatment approaches, moves into a case study focused adapting planning to a constantly changing environment, and wraps up with a specific case study several years into operation showing real-world impacts of the previously completed planning efforts.

Lead Facilitator

Matt Van Horne, *Hazen and Sawyer*

Agenda:

- 1:30 PM **Evaluating Innovative and Sustainable Treatment Options for Biosolids (WRF Project # 5169)**
Micah Blate, *Hazen and Sawyer*

- 2:00 PM **Got Options? Louisville's Biosolids Adaptive Planning Case Study**
Adrian Romero, *Black & Veatch*
- 2:30 PM **Regulatory Challenges Paved the Road to Efficiency, Sustainability, & Safety**
Brent Bode, *Tetra Tech*; Josh Moore, *City of East Lansing WRRF*

Capital Planning: A Springboard for Effective Project Delivery

1:30 – 3:00 PM

This facilitated panel discussion brings together utility leaders focused on capital planning and delivery within their organizations. Each leader will share key strategies that have transformed their organizational approaches and driven successful CIP planning and execution. Bring your questions and enthusiasm for CIP planning and delivery!

Lead Facilitator Aditya Ramamurthy, *Raftelis*
Assistant Facilitator Sarah Lothman, *Burns & McDonnell*

Agenda:

- 1:30 PM **The Role of Change Leadership in GLWA's Capital Improvement Program Delivery Transformation**
Dima El-Gamal, *Great Lakes Water Authority*
- 2:00 PM **Invited Speaker: Shaun Stone**
Shaun Stone, *Eastern Municipal Water District*

Densified Activated Sludge (DAS) Fundamentals

1:30 – 3:00 PM

Densified activated sludge (DAS) has been recognized as an effective approach to enhance sludge settleability. Beyond settling benefits, DAS systems with a physical selector may provide the ability to decouple the SRT of floc versus granule fractions. However, decoupling aerobic SRT, role of flocs and different size granules impact on process performance and design remain uninvestigated. These presentations aim to advance the development of intensified treatment strategies for the design and optimization of biological nutrient removal (BNR) facilities.

Moderator Bipin Pathak, *Fairfax County Dept of Public Works and Environmental Services*
Assistant Moderator Alyssa Mayer, *Hazen and Sawyer*

Agenda:

- 1:30 PM **Determination of the Critical Anaerobic HRT to Maintain Settleability at Low DO**
Megan Wittman, *University of Kansas*
- 2:00 PM **Understanding the Kinetics of Densified Activated Sludge: Implications in Design and Optimization**
Kayla Bauhs, *Brown and Caldwell*
- 2:30 PM **Unraveling the many benefits of DAS Insights into nitrifier enrichment through SRT decoupling of flocs versus granules**
Rudy Maltos, *Metro Water Recovery*; Wendell Khunjar, *Hazen and Sawyer*

Disinfection is FUN-damental

1:30 – 3:00 PM

Disinfection is often the final step in the treatment process, but it's also the most essential for protecting public health. This session dives into the core principles or 'fundamentals' of disinfection, offering an overview of the core disinfection practices and the pathogens they treat. Understanding these critical processes not only safeguards communities but also creates a ripple effect of safety that extends far beyond the treatment plant.

Lead Facilitator Jay Swift, *Gray and Osborne*
Assistant Facilitator John Crawford, *BECA Consultants*

Agenda:

- 1:30 PM **Pathogens & Indicators**
Rasha Maal-Bared, *CDM Smith*
- 1:45 PM **Chlorine**
Ryan Flood, *Water Analytics*
- 2:05 PM **UV**
Adrian Romero, *Black & Veatch*
Gray Hunter, *Black & Veatch*
- 2:25 PM **Peracids**
Jacob Van Geffen
- 2:45 PM **Ozone and Other Disinfectants**
Keith Bourgeois, *Brigham Young University*

Extreme Reuse: Industrial Water Reuse Cases and Advances

1:30 – 3:00 PM

The session begins with an overview of minimum liquid discharge and zero liquid discharge concepts. Water reuse case studies in USA pulp & paper, and Canadian food

industries are then presented. Finally a relatively new recirculating reverse osmosis process is presented that allows for extreme reuse of high scaling-potential wastewater.

Moderator Mikel Goldblatt, *Ramboll*
Assistant Moderator Melody White, *In-Situ*

Agenda:

- 1:30 PM **NZLD and ZLD Balancing Costs While Meeting Sustainability Targets and Ensuring Water Availability**
Brian Moore and Asher Benedict, *Arcadis*
- 2:00 PM **Water Reuse for Food Processing in Canada Case Study**
Nick Butson, *Geosyntec Consultants*
- 2:30 PM **CTBD - 95% Recovery to Enable Implementation of Cost Effective ZLD**
Vijay Ahire, *IDE Americas, Inc.*

Freedom! Liberating Nutrients from Industrial Byproducts for Agricultural Reuse

1:30 – 3:00 PM

The circular water economy presents an opportunity for stakeholders to work together to recover nutrients from waste products for reuse, reducing costs and strain on natural resources. Nitrogen-rich industrial wastes can be beneficially reused as a nutrient source in agriculture; however, these waste products often require treatment to meet quality requirements and stabilize nutrients. This session will examine three different industrial waste sources and their associated treatment to demonstrate beneficial agricultural reuse as part of the circular water economy.

Moderator Rachel Hanson
Assistant Moderator Manel Garrido

Agenda:

- 1:30 PM **Resource Recovery and Reuse in Controlled Environment Agriculture using Membrane Bioreactors**
Kelsey Vought, *Kennedy Jenks Consultants*
- 2:00 PM **Winning Partnerships Agriculture & Industrial Synergies For Reuse In California**
Margaret Wild, *Kennedy Jenks Consultants*
- 2:30 PM **Upcycling of manure - making stable organic fertilizer in a pilot scale system**
Abrahan Bechara, *Mott Corporation*

Funding Water Infrastructure: The \$64 Trillion Dollar Question

1:30 – 3:00 PM

Funding water infrastructure needs across the globe is a major challenge under traditional financial practices and models. State and federal agencies are facing a pressing need to: renew aging water infrastructure; upgrade existing and creating new assets for higher levels of service and increasing populations; increase water systems resilience to natural hazards; and proactively address the anticipated impacts of a changing climate. These agencies must utilize a variety of funding sources both public and private in order to deliver water infrastructure solutions fit for the 21st century.

Moderator

Garry Macdonald, *CH2M Beca*

Assistant Moderator

Karyn Stickel, *Hubbel, Roth & Clark, Inc.*

Cheyenne Harris, *Brown and Caldwell*

Agenda:

1:30 PM **The Challenges of Financing Water Infrastructure in Global Markets and Lessons for North American Water Utilities?**

Joel Kolker, *World Bank*

2:00 PM **Perspectives from North America on Implementation of P3/PPP in Water**

Brian Shell, *WSP USA, Inc.*

2:30 PM **Harnessing Grant Funding to Improve Collection System Resilience**

Erica Mullen & Tyler Wynn, *Benesch*

Low SRT Performance of Membrane Aerated Biofilm Reactors (MABR)

1:30 – 3:00 PM

In this session three presentations will demonstrate the biological process capacity advantage that MABR (Membrane Aerated Biofilm Reactor) processes provide by achieving nitrification in systems with very low solids retention times (SRTs). The first presentation describes a theoretical basis for predicting nitrification with MABRs supported by process modelling. The second and third presentations are each case studies of MABRs plants (both international) that demonstrate that low-SRT nitrification is observed at operational WRRFs, resulting in an increase in process capacity.

Moderator

Joe Rohrbacher, *Hazen and Sawyer*

Assistant Moderator

Bryce Figdore, *HDR Inc.*

Agenda:

- 1:30 PM **Hybrid MABR Technology for Nitrogen Removal in a Low Suspended Growth SRT**
Michael Cunningham, *Central Contra Costa Sanitary District*
Michael Falk, *HDR Inc*
- 2:00 PM **Process Intensification with Low Apparent Sludge Age at Monkmoor STW Using Membrane Aerated Biofilm Reactor**
Josep Manzano, *OxyMem*
- 2:30 PM **Nitrification below washout SRT - MABR upgrade at Sjølund**
Daniel Coutts, *Veolia WaterTech*

Mastering Critical Asset Management for Long-Term Success

1:30 – 3:00 PM

This presentation session explores two critical aspects of wastewater infrastructure management. The first session focuses on Washington D.C.'s innovative strategies to safeguard its critical wastewater system, emphasizing resilience-building efforts, climate change adaptation, and addressing aging infrastructure through advanced technologies and data-driven planning. The second presentation tackles the challenges utilities face in renewing and upgrading aging assets to meet modern demands, including navigating budget constraints, regulatory requirements, and environmental concerns. Attendees will learn about innovative renewal strategies, best practices in asset management, and how utilities can prepare for the future through technology and strategic planning to ensure long-term system sustainability and efficiency.

Moderator Alex Beck, *HDR Engineering Inc*
Assistant Moderator Tristian Bounds, *Orenco Systems Inc*

Agenda:

- 1:30 PM **Renewing Our Wastewater Assets: Are Utilities Ready for the Challenge?**
Matt Chapman, *HDR*
- 2:00 PM **Resilience and Innovation: Safeguarding DC's Critical Wastewater Infrastructure**
Ryu Suzuki, *DC Water & Sewer Authority*; Pono Hanson, *Brown and Caldwell*

Natural Disaster Response and Recovery: Sharing Lessons Learned

1:30 – 3:00 PM

When utilities experience natural disasters, they face the reality of whether their preparation efforts were enough to respond to and manage the effects of the events and they often wish they knew then what they know now. A panel discussion will explore

lessons learned from response to natural disasters (earthquakes, hurricanes/flooding, and wildfires). These speakers will answer the question: what would I tell myself 5 years ago? This is a panel discussion. It will not have traditional presentations but instead a dynamic discussion with a set of panellists. Panellists will provide brief remarks and will focus on their discussion and interaction with the audience rather than a presentation.

Lead Facilitator

Sarah Reeves, *Brown and Caldwell*

Assistant Facilitator

Chris Wilson, *Hampton Roads Sanitation District*

John Norton, *Great Lakes Water Authority*

Agenda:

- 1:30 PM **NC Utilities Helping Neighbors to Restore Service after Hurricane Helene**
Eileen Navarrete, *Brown and Caldwell*; Patrick Smith, *City of Greensboro*
- 2:10 PM **Alaska's 2018 Earthquake, A Utility's Perspective On Disaster Recovery**
Dylan Baffrey, *Tetra Tech*
- 2:20 PM **Hurricane Helene Impact on Western NC Infrastructure: Burnsville and Spruce Pine, NC**
Carolyn Hawkins, *WithersRavenel*
- 2:30 PM **Restoration and Recovery of Lake Houston**
Amanda Retta, *Tetra Tech*; Prakash Luetel, *City of Houston*

Real Results with Real Time Control

1:30 – 3:00 PM

Real-Time Control (RTC) is revolutionizing stormwater and wastewater management by optimizing infrastructure performance and reducing environmental impacts. This session highlights case studies from the UK and France, demonstrating how RTC improves storage, mitigates combined sewer overflows (CSOs), and enhances system resilience. Experts will share key insights, including cost savings, regulatory compliance, and operational efficiencies. Attendees will learn about real-world challenges, successes, and lessons from RTC deployment. Discover how data-driven automation is transforming water management and delivering measurable results. This is a case study analysis session. Each speaker will have 15 minutes for their presentation. Immediately after there will be 10 minutes for case study analysis in smaller groups.

Lead Facilitator

Jennifer Steffens

Assistant Facilitator

William McMillin, *Jacobs Engineering Group*

Agenda:

1:30 PM **Deployment of a Virtual Operating System for London CSO Management**

Stephanie McGregor, *Jacobs*; Virgil Adderley, *Tideway/Jacobs*

2:00 PM **Invited Speaker: Emma Smith**

Emma Smith, *Optimatics*

Tackling the PFAS Puzzle: Addressing Wastewater Effluent Concerns for Reuse

1:30 – 3:00 PM

As PFAS regulations extend beyond drinking water and into wastewater systems, utilities face increasing pressure to adopt effective and economical treatment solutions. This session brings together recent research and pilot studies focused on enhancing PFAS removal in municipal wastewater effluent. Presentations explore performance comparisons of adsorbents like GAC, IX, and novel media; the impact of effluent organic matter on adsorption efficiency; and the value of pretreatment technologies such as ozone and biological activated carbon. Attendees will gain insight into cutting-edge treatment configurations for future regulatory compliance and water reuse applications. This is a conversation and input session. Presenters will have 15 minutes and then provide questions to the audience to discuss for 10 minutes.

Lead Facilitator Mahmudul Hasan, *Baltimore City Department of Public Works*

Assistant Facilitator Ryujiro Tsuchihashi, *Jacobs*; James Scholl, *Kiewit*

Agenda:

1:30 PM **The Technical and Economic Feasibility of PFAS Treatment in Municipal Wastewater Effluent**

Rosa Yu, *Carollo Engineers, Inc*

2:00 PM **Leveraging Ozone-BAC Pretreatment to Improve PFAS Adsorption in Wastewater Effluent by GAC**

Erica Wirski, *Kennedy Jenks Consultants*

2:30 PM **Beyond the PFAS treatment Barrier: Key Lessons from an 18-Month Pilot on PFAS removal from Wastewater**

Conner Murray, *Hazen and Sawyer*

Training and Retaining Tomorrow's Workforce

1:30 – 3:00 PM

Tomorrow's workforce will need to be more technical and engaged than ever before. How can we reinvigorate programs and integrate new tools to develop our teams and

set them up for success? Join us to learn about apprenticeship programs, training simulations, and career development to invest in employees from day one through retirement.

Lead Facilitator

Jessica Stiner, *Infiltrator Water Technologies*

Assistant Facilitator

Coenraad Pretorius, *GHD*; Malia Turner, *Hazen and Sawyer*

Agenda:

- 1:30 PM **Building a Future-Ready Workforce: A Case Study for Apprenticeships**
Patricia Butler & Adino May, *Great Lakes Water Authority*
- 2:00 PM **Using Simulators to Innovate Operator Training: Preparing for Wet Weather and MBR Technologies in the San Mateo WWTP Expansion**
Jacob Barclay, *Hatch* & Malika Ramanathan, *HDR Engineering, Inc*
- 2:30 PM **Utility Leadership Via Career Progression**
Raul Romero & Jose Leon, *Johnson County Wastewater*

Transforming Stormwater Management with Next-Generation Digital Technologies

1:30 – 3:00 PM

This session illustrates the transformative potential of digital applications and innovative technologies in safeguarding water resources and urban spaces. Session presentations include examples of new tools such as AI, 3D printing, and adaptive stormwater management to dynamically design and manage stormwater.

Lead Facilitator

Christopher Tabor, *Hazen and Sawyer*

Assistant Facilitator

Suvarna Verma, *Jacobs Engineering Group*

Agenda:

- 1:30 PM **Enhancing Stormwater Resilience Using AI and Digital Tools**
Fernando Pasquel, *Arcadis*
- 2:00 PM **From Pixels to Pipelines: Accelerating Stormwater Innovation with 3D Printing**
Jeremy Fink, *Oldcastle Infrastructure*
- 2:30 PM **Smart Stormwater Management at the Ford Campus in Dearborn, Michigan**
Erich Smith, *Wade Trim & Associates*; Dayton Marchese, *Opti*

Balancing Act: Nutrients, Water Quality, and Ecosystems

3:30 – 5:00 PM

This session offers an in-depth exploration of the complexities surrounding nutrient management in aquatic ecosystems, featuring three distinct yet interconnected topics. The discussion will begin with an examination of the paradox of stormwater infiltration in arid-urban environments, highlighting its unintended consequences on downstream water quality in Lake Elsinore, California. Following this, the session will address Illinois' Nutrient Loss Reduction Strategy, focusing on the development and implementation of the Nutrient Assessment Reduction Plan (NARP) and the critical role of stakeholder engagement in this process. Finally, the session will investigate the establishment of science-based nutrient goals for reservoir TMDLs in South Carolina, emphasizing the relationship between chlorophyll-a concentrations and beneficial uses. Collectively, these presentations will illuminate the challenges and innovative strategies essential for achieving effective nutrient management and improving water quality.

Moderator Andrew Ba Than, *Tetra Tech*

Assistant Moderator Jamie Hughes, *Clean Water Services*

Agenda:

- 3:30 PM **The Arid-Urban, Watershed-Lake Paradox: Traditional Stormwater Infiltration for Nutrient Load Reduction has a Negative Impact to Downstream Water Quality**
Steve Wolosoff, *GEI Consultants*
- 4:00 PM **Nutrient Reduction Planning: Illinois' Journey and Lessons Learned**
Rishab Mahajan, *Geosyntec Consultants*
- 4:30 PM **Finding the Sweet Spot: Developing Science-Based Nutrient Goals for Reservoir TMDLs**
Clifton Bell, *Brown and Caldwell*

Bringing Bugs into Focus: Microbial and Genetic Tools for Optimizing WRRF Performance

3:30 – 5:00 PM

Moderator Rudy Maltos, *Metro Water Recovery*

- 3:30 PM **Genetic Analysis in Treatment Process Monitoring**
Blythe Layton, *Clean Water Services*
- 4:00 PM **Exploring The Use Of Machine Learning To Connect Microbial Community Assembly Processes To Water Resource Recovery Facility Performance**
Savanna Smith, *Brown and Caldwell*
- 4:30 PM **Invited Speaker: Belinda Sturm**

Belinda Sturm, *University of Kansas*

Data in Action! Data-Driven Optimization Models

3:30 – 5:00 PM

Multiple examples of data being successfully leveraged and applied will be discussed. The first step is developing a data integration and optimization process. These processes are then implemented in real-world facilities ranging from 10-200 MGD, followed by an in-depth analysis at one facility.

Moderator Bob Dabkowski, *Process Optimization, LLC*
Assistant Moderator Sydney Gard

Agenda:

- 3:30 PM **Unlocking the Power of Wastewater Data**
Josh Goldman, *Metro Wastewater Reclamation District*; Rylee Rubino
- 4:00 PM **Effluent Excellence: Unleashing Hybrid Model Magic at Fond du Lac**
Isaac Avila & Chinmay Gaidhani, *Black & Veatch*
- 4:30 PM **Development and Deployment of Data-driven Optimization Models in Full Scale Wastewater Treatment Plants**
Ernesto Martinez & Joshua Registe, *Jacobs*

Decarbonizing Water: International Efforts to Measure and Reduce Process N₂O Emissions

3:30 – 5:00 PM

Session includes three presentations from researchers working on full-scale N₂O monitoring and reduction. The first two presentations cover full-scale measurement from 15 and 21 WRRFs, respectively. The third presentation takes a deeper dive into how liquid-phase measurements correlate with actual emissions by use of four different methodologies and KLa's for N₂O against measured N₂O emissions from a four-pass, activated-sludge system. This session will kick-off the Water Decarbonization Journey at WEFTEC.

Lead Facilitator John Willis, *Brown and Caldwell*
Assistant Facilitator Garry Macdonald, *CH2M Beca*
Md Mazharul Islam, *University of the District of Columbia*

Agenda:

- 3:30 PM **Accelerating N₂O reduction from WRRFs in the Netherlands: A national effort**

- Jose Porro, *Cobalt Water Global*
- 3:40 PM **Lessons Learned from Nitrous Oxide Monitoring at 15 WRRFs**
Amanda Lake, *Jacobs Engineering*
- 3:50 PM **Refining liquid-based nitrous oxide emission quantification methods for long-term practice**
Shuting Wang, *The University of Queensland*

Efficient Flow: Innovative Strategies for Asset Management

3:30 – 5:00 PM

This session will cover key strategies for enhancing asset management. The first explores integrating proactive maintenance practices like predictive, preventive, and corrective maintenance to improve system resilience, reduce downtime, and boost service reliability. The second highlights the importance of human capital in executing successful Condition Assessment Programs (CAP), focusing on the need for skilled personnel, training, and effective resource allocation to ensure accurate assessments and long-term asset performance. Finally, Evansville Water and Sewer Utilities shares its journey toward asset management excellence, emphasizing strategies, tools, and best practices that improve operational efficiency, reduce costs, and extend infrastructure lifespan through data-driven decision-making and continuous improvement.

Moderator Tristian Bounds, *Orenco System*
Assistant Moderator Grant Davies, *AECOM*

Agenda:

- 3:30 PM **The Road to Resilience: Integrating Maintenance Strategies into Asset Management for Water and Wastewater Utilities**
Imran Motala, *Region of Peel*; Aman Singh, *SLBC-Inc*
- 4:00 PM **Human Capital in Condition Assessment Programs: Analyzing Resource Requirements for Execution of a Successful CAP Program**
Jason Stegeman & Shelbie Puglio, *Hazen and Sawyer*
- 4:30 PM **Evansville Water and Sewer Utilities Road to Asset Management Excellence**
Shawn Wright, *Evansville Water and Sewer Authority*; Sara Ferrara, *Arcadis*

Full-Scale Shortcut Nitrogen Removal

3:30 – 5:00 PM

These case studies present shortcut nitrogen removal in full-scale plants. Advanced nitrogen removal strategies will be evaluated by comparing effluent quality, air

requirements and capital costs for both sidestream and mainstream. Participants will apply key findings from a demonstration plant to develop the detailed design of a full-scale facility that achieves energy neutrality. The final case study couples densified activated sludge (DAS) with PdNA in tertiary MBBRs to meet stringent nutrient limits. Participants will identify lessons learned and considerations to support DAS/PdNA operation.

Lead Facilitator Gillian Burger, *EnviroSim Associates Ltd.*
Assistant Facilitator Emily Korot, *CDM Smith*
Md Al Sadikul Islam, *DC Water*

Agenda:

- 3:30 PM **Innovative, Sustainable and Cost-Effective Nitrogen Removal Strategies to Meet New Colorado Regulations (TN < 2 mgN/L): Insights and Case Studies**
Sara Arabi, *Stantec Inc.*
- 4:00 PM **Short Cut Nitrogen Removal Design for and Initial Results from Full Scale Implementation at Melbourne Water's Western Treatment Plant**
Aprilia Vellacott, *Jacobs Engineering*
- 4:30 PM **Unlocking Resource Intensification through Full-Scale Densification and PdNA**
Gregory Pace, *Hazen and Sawyer*

How Do Upstream Processes Impact Disinfection Systems?

3:30 – 5:00 PM

As the final process in traditional wastewater treatment facilities, disinfection is naturally impacted by the water quality produced by upstream processes. In particular, the operation of secondary treatment systems has significant effects on disinfection requirements. This session will address the impacts of implementing biological nutrient removal (BNR), membrane bioreactors (MBRs), and nano-bubble technology on disinfection operations.

Moderator Naoko Munakata, *LA County Sanitation District*
Assistant Moderator Adrian Romero, *Black & Veatch*; Tim Constantine, *Jacobs*

Agenda:

- 3:30 PM **MBR's Ability to Disinfect - Pathogen Removal for Discharge and Reuse**
Katie Peach, *Veolia WTS USA Inc.*
- 4:00 PM **Impacts of BNR Processes on Disinfection**

June Leng, *HDR Inc*
4:30 PM **Comparing the effects of nanobubbles and conventional aeration on wastewater properties: can nanobubbles reduce disinfectant demand?**
Rasha Maal-Bared, *CDM Smith*

Innovative Approaches to Design and Optimization

3:30 – 5:00 PM

This knowledge development forum will explore innovative approaches to design and optimization. The use of frameworks for facilitating design decisions, the use of digital twins to reduce capital cost, and the development of a digital protocol to optimize nutrient removal performance will all be explored. This is a Knowledge Development Forum (KDF) session. Speaker presentations are brief and are meant to stimulate questions and an exchange of information. The conversation is kept moving by instigators who will ask tough questions.

Lead Facilitator Thor Young, *GHD*
Assistant Facilitator Belinda Sturm, *University of Kansas*

Agenda:

3:30 PM **Framework Enables Systematic Evaluation of Innovative Ammonia Removal Technologies**
Sina Moharramzadeh & Jacob Metch, *HDR*
4:00 PM **Reducing Capital Cost in Process Design with Digital Twins: Two Full-Scale Case Studies**
Cheng Yang, *Jacobs*
4:30 PM **Developing a Digital Protocol to Optimize Biological Nutrient Removal Performance**
Keith Sears, *AECOM*

MBR: What It Can Do For You

3:30 – 5:00 PM

MBR technology gaining popularity lately due to the stringent effluent discharge criteria and water reuse. You should be utilizing wisely the certain features of the MBR technology. This session will share experience and lessons learned how you can get the most out of this advanced technology.

Lead Facilitator Val Frenkel, *TYLin*
Assistant Facilitator Akshay Jain, *CDM Smith*

Agenda:

- 3:30 PM **What Can an MBR Really Do? Evaluating the Impacts of low HRT and SRT on Membrane Performance**
Brett Faulkner, *Trussell Technologies Inc*
- 4:00 PM **Coupling MABR & MBR: The Wastewater Technology Combination Of The Future?**
Nadine Oschmann, *Veolia*
- 4:30 PM **Invited Speaker Presentation: Stephen Katz**
Stephen Katz, *Veolia WTS USA Inc.*

Navigating Consent Orders and Master Plans

3:30 – 5:00 PM

This session explores the challenges and strategies involved in implementing consent orders and master plans for collection system improvements. Many communities facing sewer overflows must comply with regulatory mandates, requiring careful planning from initial negotiations through project execution and certification. Attendees will gain valuable insights into navigating the complexities of consent orders, avoiding common pitfalls, meeting performance criteria, and adapting to population projection and system demand changes. Case studies will provide real-world examples of effective planning and compliance strategies.

Moderator Karyn Stickel, *Hubbell, Roth & Clark, Inc.*
Assistant Moderator Cheyanne Harris, *Brown and Caldwell*

Agenda:

- 3:30 PM **CSO Post-Construction Monitoring: Four Watersheds, Forty-Four CSOs, Seventeen Miles of Tunnel, a Storage Tank, and Successful Achievement of Performance Criteria**
Christopher Ranck, *Black & Veatch*; Derek Sutton, *Citizens Energy Group*
- 4:00 PM **Little Rock's 20 Year Success Story!**
Jean Block, *Little Rock Water Reclamation Authority*; Daniel Jackson, *RJN Group*
- 4:30 PM **Wait, What Just Happened?? Amending a New Master Plan When Your Population Projections are Blown out of the (Waste)Water**
Sherif Mabrouk & Heather Lindner, *HDR Inc*

Navigating the Challenges and Changing Landscape of Strategies, Policies and Inclusive Practices in Water

3:30 – 5:00 PM

This session will explore the evolving challenges and opportunities in developing and implementing strategies, policies, and inclusive practices within the water sector. From addressing social equity to adapting to environmental and policy shifts, attendees will gain insights into how various parts of the water ecosystem are navigating these uncertainties. This session will bring perspectives from the public sector, private sector and broader water community to bring collective awareness.

Lead Facilitator Hugh Sinclair, *Arcadis*
Assistant Facilitator Haley Falconer, *City of Boise Public Works*
 Patricia Butler, *Great Lakes Water Authority*

Agenda:

3:30 PM **Invited Speaker: Corey Williams**
 Corey Williams, *SmartCover Systems*
3:40 PM **Invited Speaker: Steve Hamai**
 Steve Hamai, *Water Environment Federation*
3:50 PM **Invited Speaker: Tony Parrott**
 Tony Parrott, *Louisville & Jefferson County MSD*

PFAS in Wastewater and Biosolids: Novel Measurement Methods and Fate During Thermal Processes

3:30 – 5:00 PM

Join us in exploring the intricate world of PFAS and biosolids by navigating the various measurement methods and cutting-edge research on the fate of PFAS during thermal treatment processes. This session will cover the different types of PFAS measurement methods. Participants will learn what conclusions can and cannot be drawn from the results of each method and how to select the most suitable method tailored to their specific needs. The session will highlight the fate of PFAS. Drying reduces PFAS concentration in biosolids, whereas pyrolysis and gasification generate transformation byproducts that appear in effluent liquid and gaseous products. Don't miss this opportunity to broaden your knowledge and stay at the forefront of advancements in the complex realms of PFAS analysis.

Assistant Moderator Jessica Calteux, *Marquette University*

Agenda:

3:30 PM **Welcome**
3:40 PM **Characterization methods for PFAS in wastewater and biosolids:
What you can do, what you can use, and what you can (and cannot)
conclude**

- Taryn McKnight, *Eurofins Environment Testing*
- 4:05 PM **Quiz Questions**
- 4:15 PM **Heating up biosolids the impact of drying, pyrolysis, and gasification on the fate of PFAS**
Patrick Mcnamara, *Black & Veatch/Marquette University*
- 4:40 PM **Panel Discussion**

Rewriting the Rules: Smarter Approaches to Stormwater Compliance

3:30 – 5:00 PM

This session highlights practical solutions to compliance gaps and challenges using three case studies of post-construction stormwater management and watershed-scale approaches. Speakers will share practical guidance and tools that support flexible design solutions for non-infiltrating sites, transitioning temporary sediment controls into long-term BMPs, and completing early-stage project evaluation using GIS and regional coordination frameworks. Highlighting Florida DOT's WATERSS process and Oakland County, MI's MEP standards and stormwater reuse strategies, this session highlights how agencies and designers can embrace innovation and integrated planning in practical ways. Attendees will gain knowledge of replicable models for regulatory clarity, cost-effective compliance, and watershed-scale compliance.

Lead Facilitator Juli Beth Hinds, *University of California San Diego*
Assistant Facilitator Elizabeth Krousel, *Michael Baker International*

Agenda:

- 3:30 PM **The Clean Water Act, Water Quality, Quantity and Integrated Planning**
Patrick Bradley, *Michael Baker International*
- 4:00 PM **Advancing Post-Construction Stormwater Standards: MEP and SESC Innovations for NPDES MS4 Compliance**
Lynne Seymour, *Oakland County Water Resources Commissioner's Office*; Daniel Christian, *Tetra Tech Inc*
- 4:30 PM **Meeting Florida's New Stormwater Rule using a Watershed Approach to Stormwater Management**
Catherine Earp & Rick Renna, *AtkinsRealis*

Solutions and Ideas From Award Winning Industrial Experts

3:30 – 5:00 PM

We will hear from and honor this year's recipients of the distinguished Wes Eckenfelder Award, the Industrial Water Quality Achievement Award, the McKee Groundwater Award and the Rudolf's Paper Award. The topics and featured projects will be of interest to those in the industrial wastewater community. At the conclusion of this featured

session, we invite you to join us at the annual Industrial Reception for recognition of each of our industrial awards recipients, and to enjoy some refreshments with our colleagues and friends.

Moderator

Abigail Antolovich, *Wigen Water Technologies*

Assistant Moderator

William Bratt, *Woodard & Curran Inc*; David Riedel, *Arcadis*

Techniques for Modeling I/I Source Reduction Benefits

3:30 – 5:00 PM

Predicting the effectiveness and cost of I&I reduction approaches presents challenges for utilities as they develop their capital improvement programs/master plans/regulatory corrective action plans because there are no recognized standards for this. This session will present a range of techniques used when modeling proposed I/I reductions. This session will explore methods for both assigning I&I reduction values and for adjusting parameters within the model to represent various combinations of source reduction measures. This session seeks to engage subject matter experts (SMEs) and attendees in a debate of the pros and cons of the different approaches and work to definition of standard practices for this important aspect of planning.

Lead Facilitator

James Shelton, *Arcadis*

Assistant Facilitator

Pradeep Sudini, *CDM Smith*; Eric Harold, *Carollo Engineers*

Understanding Clarifier Settleability from Fundamental to Intensification Process

3:30 – 5:00 PM

As climates are changing, WRRFs operations are challenged by increased wastewater flow (wet weather flow) and facilities must need to optimize and evaluate clarifier capacity intensification. This session presents a comprehensive view of clarifier settleability performance for secondary clarifier and biologically enhanced carbon diversion process clarifier (1st stage of two-stage process). Pilot scale and full-scale research highlight the performance of clarifier for conventional activated sludge, densified activated sludge and high-rate activated sludges operating at low SRT.

Moderator

Arifur Rahman, *Jacobs*

Assistant Moderator

Sreerama Murthy Kasi, *Olsson*

Agenda:

3:30 PM

Impact of Activated Sludge and Clarifier Configurations on Final Clarifier Capacity

- 4:00 PM Donovan Esping, *Brown and Caldwell*
Optimizing Suspended Solids Removal in Secondary Clarifiers from DAS Systems
- 4:30 PM Anna Scopp, *Hazen and Sawyer*; Rudy Maltos, *Metro Water Recovery*
Using video analysis to better understand Settleability in High-Rate Activated Sludge Systems
Yuang Li, *Cornell University*

What Stinks? Community Engagement to Odor Solutions

3:30 – 5:00 PM

Advancements in tools and technologies are enhancing community engagement, modeling, monitoring, and mitigation of odor and corrosion issues in wastewater systems. This session will present three case studies showcasing innovative approaches, including crowdsourced odor feedback, sulfide generation, ventilation, and dispersion modeling, odor compound monitoring, and the evaluation and implementation of effective odor control solutions.

Lead Facilitator Inken Mello, *Woodard & Curran Inc*
Assistant Facilitator Richard Pope, *Hazen and Sawyer*
Vaughan Harshman, *V&A Consulting Engineers*

Agenda:

- 3:30 PM **Odor Management at Annapolis WRF: Addressing Community Concerns with Data-Driven Solutions**
Mamatha Hopanna, *HDR Inc*
- 4:00 PM **Commissioning the London Tideway Tunnels: Advanced Modelling for Innovative Odour Control**
Sofia Georgaki, *Jacobs*
- 4:30 PM **Preventing H₂S by injecting a supersaturated dissolved oxygen stream into a forcemain**
Alec Mackenzie & Travis Arnold, *EPCOR Water Services*

Tuesday, September 30th, 2025

Advancing Resilience through Innovative Sustainable Practices

8:30 – 10:00 AM

Extreme weather events are causing water sector utilities to explore opportunities to explore, research, pilot test, adopt, and scale sustainable energy management efforts to

make water and wastewater infrastructure resilient to climate impacts. This facilitated session will focus on three utility case studies where utilities have adopted different sustainability efforts to achieve organization resilience. Example sustainability topics include - adoption of sustainable industry standards such as ISI and ESG, and energy management and optimization.

Lead Facilitator Aditya Ramamurthy

Agenda:

- 8:30 AM **Fort Wayne’s Journey Towards Resilience and Clean Energy - Implementation of a Microgrid Program and RNG Injection**
Laurel Schaich, *CDM Smith*; Zachary Schortgen, *City of Fort Wayne Planning & Design Services*
- 9:00 AM **Smart Pumps Revolutionizing Sustainable Wastewater Management**
Alexis de Kerchove, *Xylem*
- 9:30 AM **Advancing Sustainability Through Delivery Of A New 48MGD Water Reclamation Facility**
William Peterson, *AECOM*; Holly Lopez, *Salt Lake City Department of Public Utilities*

Condition Assessment from Laterals to Interceptors

8:30 – 10:00 AM

Effective condition assessment is essential for maintaining sewer system performance, minimizing failures, and prioritizing rehabilitation efforts. This session explores best practices and emerging technologies for assessing infrastructure at all levels—from small-diameter laterals to large interceptors. Experts will discuss inspection methods, data analytics, and risk-based approaches to evaluate asset condition, optimize maintenance, and extend service life. Case studies will highlight successful assessment programs and innovative tools that enhance decision-making. Attendees will gain practical insights into improving system reliability and planning cost-effective interventions.

Lead Facilitator Jennifer Steffens, *Ardurra*
Assistant Facilitator Isabel Hall, *Tetra Tech*; Luis Leon, *AECOM*

Agenda:

- 8:30 AM **Private Property I/I Reduction Program Shows Success!**
Rich Snyder, *City of Rocky River*; Scott Belz, *AECOM*
- 9:00 AM **New Methods For Sewer Pipe Inspection- Pole Camera Screening To Reduce Costs For CCTV And Condition Assessment**

9:30 AM Scott Belz, *AECOM*; Costas Kontos
Historic Combined Sewer - Severe Invert Loss, Imminent Failure Grade, Structural Integrity Maintained
Tanner Adair & Kevin Alspach, *AECOM*

Decarbonizing Water: Mitigating N₂O at Your WRRF

8:30 – 10:00 AM

Global progress in measuring and reducing GHG emissions from wastewater treatment in recent years has highlighted the challenges and real costs of mitigating nitrous oxide emissions. Developing business cases and return on investment is challenging for water utilities. This session allows participants to gain the best knowledge, using real full scale case studies of how to mitigate N₂O. It includes speakers from utilities and industry with varying levels of N₂O understanding and shows how their mitigation has been designed and undertaken, including quantified cost and carbon benefits. It provides participants with understanding of N₂O mitigation which will deepen with each speaker presentation and be put to test in the interactive session.

Lead Facilitator Garry Macdonald, *CH2M Beca*
Assistant Facilitator Bernard Koh, *PUB Singapore*
John Willis, *Brown and Caldwell*

Agenda:

8:30 AM **Welcome and introduction to N₂O Hierarchy**
Amanda Lake, *Jacobs Engineering*

9:00 AM **Revisit Mitigation Hierarchy And Deeper Dive Into Optimisation Through Carbon, Ammonia, Biomass And Oxygen Management**
Nerea Uri Carreno, *N118 Consulting*

9:30 AM **How The N₂O Mitigation Hierarchy Has Been Developed Into A Leading Mitigation Plan For Their Utility And The Role Of Intensification Technologies In Achieving This**
Kevan Brian, *Watercare Services Limited*

Don't Feed the Algae! Watershed Management for Nutrient Control

8:30 – 10:00 AM

This session provides a narrative overview of the meaningful impacts that watershed management practices can have for nutrient control. Going from monitoring to impact assessment and remediation, these case studies arrange a compelling discussion of the overlooked challenges in nutrient control.

Moderator Vishal Vaidyanathan, *Jacobs*

Assistant Moderator

Anastasia Rudenko, *GHD*

Agenda:

- 8:30 AM **Tracking Puget Sound Nutrient Loading Trends and Water Quality Response**
David Clark, *HDR Inc*; Joel Baker, *University of Washington*
- 9:00 AM **Watershed Management and NPDES Permitting Complexities with Nutrients for the City of Medford, Oregon**
Adrienne Nemura, *Geosyntec Consultants*
- 9:30 AM **Lake Apopka: A Case Study of Ecological Recovery & Sustainable Management**
Charles Drake, *Tetra Tech, Inc*; Jim Peterson, *St. Johns River Water Management District*

From Machine Learning to Agentic AI: Exploring the Journey for Utilities and their Workforce

8:30 – 10:00 AM

As artificial intelligence gains momentum in the water industry, confusion remains around what constitutes machine learning, AI, and emerging agentic systems, including how it synergizes with the workforce. This session will demystify the terminology and technologies by showcasing real-world utility experiences. With insights from an AI technology provider, an academic, and a utility champion, the session will illustrate the full arc of the digital journey—from early-stage machine learning applications to the adoption of agentic AI tools. Attendees will gain clarity, practical knowledge, and inspiration to advance AI initiatives within their organizations, including ways to address workforce challenges such as training, succession planning, knowledge retention, and future-readiness.

Lead Facilitator

Jeff Moeller, *Water Environment Research Foundation*

Assistant Facilitator

Pusker Regmi, *Stantec, Inc*

Agenda:

- 8:30 AM **Invited Speaker: Kathryn Newhart**
Kathryn Newhart, *Oregon State University*
- 9:00 AM **Invited Speaker: Keaton Lesnik**
Keaton Lesnik, *MAIA Water*
- 9:30 AM **Invited Speaker: Jeffrey Sparks**
Jeffrey Sparks, *Hampton Roads Sanitation District*

Innovative Strategies for Urban Flood Mitigation in Combined and Separated Systems

8:30 – 10:00 AM

Join us for an engaging session that explores innovative strategies for urban flood mitigation through case studies from Lancaster, PA, Dearborn, MI and Alexandria, VA. Participants will gain insights into the challenges posed by combined sewer systems and learn how stormwater separation projects can help control flooding while reducing combined sewer overflows. We will delve into the use of optimization software to evaluate flood control technologies and discuss the integration of cloud-based tools in designing resilient infrastructure. This session emphasizes the importance of cost-effective solutions and interdisciplinary collaboration in addressing the impacts of climate change on urban flooding.

Moderator Carol Hufnagel, *Tetra Tech Inc*

Agenda:

8:30 AM **Leveraging the Cloud to Power Resiliency: Alexandria's Flood Defense**

Daniel Baldwin & Pereira Jade, *Jacobs Engineering*

9:00 AM **Lessons Learned from Separating Stormwater from Combined Sewers in Lancaster**

Susan Beck, *Jacobs Engineering*; Molly Deger, *City of Lancaster, PA*

9:30 AM **Mitigating Unprecedented Flooding Through Optimized Evaluation With Multiple Design Storms**

Scott Aurit, *HDR Inc*; Joel Wilson

Innovative THP Startup and Biosolids Finishing

8:30 – 10:00 AM

Seeding and feeding THP digesters during startup include balancing multiple variables and risks. This session includes two case studies that present innovative methods to improve startup and troubleshooting of initial operations. The third case study presents a novel approach to THP biosolids finishing by taking advantage of natural biological process to generate heat and achieve drying to up to 60% solids.

Lead Facilitator Tracy Stigers, *Brown and Caldwell*

Assistant Facilitator Bhargavi Subramanian, *Kennedy Jenks Consultants*

Agenda:

- 8:30 AM **Optimizing Class A Biosolids: THP Startup, Troubleshooting, and Long-Term Benefits**
Dana Gonzalez, *Carollo Engineers*
- 9:00 AM **Transforming THP biosolids cake using a new biodrying process**
Todd Williams, *Jacobs*
- 9:30 AM **Pushing Feed Rates Beyond Limits to Accelerate THP Digestion Startup: Insights from an In-Situ Pilot Study**
Yitao Li, *Virginia Tech*

Insights Gained from Installations of PFAS Capture and Destruction Technologies

8:30 – 10:00 AM

As PFAS regulations tighten for various geographies and industries, the PFAS treatment landscape is beginning to shift its focus from treatment technology development to optimization through pilot and full-scale implementation. Increasing numbers of industrial facilities are installing PFAS capture and destruction technologies, which is offering an opportunity for the industrial community to gain insights into the practical considerations associated with successfully installing and operating PFAS treatment systems. This session will explore results and learnings from three different PFAS capture and destructions systems treating wastewater from a variety of sources and industries.

Moderator Chandler Mancuso, *MacDermid Envio Solutions*

Agenda:

- 8:30 AM **PFAS Capture Performance of an Advanced Water Treatment System for Cooling Water Remediation**
Albert Wu, *3M*
- 9:00 AM **Insights from the First Foam-Fractionation + Electrochemical Oxidation Treatment System for PFAS Destruction in Metal Finishing Wastewater**
Victor Leung, *Axine Water Technologies*

Microbial Selection and Performance Under Low DO Conditions

8:30 – 10:00 AM

This session explores the impact of low dissolved oxygen conditions on microbial selection and performance in BNR systems. Experts will present research and case studies demonstrating how low DO environments influence the biomass community

dynamics, enhancing nitrogen and phosphorus removal while reducing energy demands.

Lead Facilitator Jose Jimenez, *Brown and Caldwell*
Assistant Facilitator Ken Brischke, *AECOM*

Agenda:

- 8:30 AM **Emissions, Energy, and Performance: Low Energy BNR at Full Scale**
Gretchen Gutenberger, *Black & Veatch*
- 8:40 AM **Distinguishing AOB and Comammox Nitrifier Kinetics to Effectively Nitrify at Low Dissolved Oxygen Conditions**
Megan Wittman, *University of Kansas*
- 8:50 AM **Denitrification, Hydrolysis and Internal Store Carbon in Low Dissolved Oxygen Biological Nutrient Removal**
Jose Jimenez, *Brown and Caldwell*

Microplastics In Wastewater Treatment: Insights from Recent Research

8:30 – 10:00 AM

In recent years, studies have documented the occurrence of microplastics in water resource recovery facilities (WRRFs). While research on their sources, detection, and analysis is ongoing, there is also an increased interest in exploring the fate of these particles during the wastewater treatment process. This session will provide an update on current studies that focus on monitoring microplastics in influent, filtered effluent, final effluent, and biosolids.

Lead Facilitator Jenny Reina, *Jacobs*
Assistant Facilitator Adrian Romero, *Black & Veatch*

Agenda:

- 8:30 AM **Microplastics Occurrence in Multiple WRRFs**
Nicole Fahrenfeld, *Rutgers The State University of NJ*
- 9:00 AM **WRF Project 5221- Impact of Solid Stream Treatment on Microplastics in Biosolids**
Yian Sun, *Hazen and Sawyer*
- 9:30 AM **Innovative Quantification of Microplastics in Digestate from Ontario Biogas Plants: Implications for Environmental Monitoring and Management**
Sheng Chang, *University of Guelph*

Municipal-Industrial Synergy: Innovations in Wastewater Treatment 8:30 – 10:00 AM

This session highlights the collaborative efforts between municipal and industrial sectors to innovate and improve wastewater treatment processes. This session explores cutting-edge methods and technologies in industrial wastewater treatment and reuse, featuring presentations on algae-based nitrogen removal, semiconductor impact on municipal systems, and sustainable carbon sourcing from whiskey distilleries. The session emphasizes the mutual benefits of these industrial/municipal partnerships and the innovative approaches developed to ensure sustainable and efficient water management.

Lead Facilitator Elyse Smith, *Ramboll*

Agenda:

- 8:30 AM **Chips and Wastewater: Sherman's Story with the Semiconductor Industry**
 Quentin Geile, *Alan Plummer Associates, Inc.*
- 8:40 AM **One Industry's Waste is Another Industry's Carbon Source**
 Shannon Harney, *South Platte Water Renewal Partners*
- 8:50 AM **Commissioning the Largest Algae-Based Nitrogen Removal Pretreatment Plant in the US**
 Jens Dancer & Steve Wirtel, *Gross-Wen Technologies*

Overcoming Challenges to Implement Advanced Aeration 8:30 – 10:00 AM

Does your facility have limitations that prevent you from performing advanced aeration? This session will report on three successful approaches to overcome existing challenges at water resource recovery facilities ranging from 12 to 200 MGD. This is a facilitated discussion session. Presenters will have 15-20 minutes to present which will be followed by 10-15 minutes of facilitated discussion.

Lead Facilitator Bob Dabkowski, *Process Optimization, LLC*
Assistant Facilitator Mark Miller, *Brown and Caldwell*

Agenda:

- 8:30 AM **Process Modeling and Aeration Control Design with ABAC for A/O SND Process with Densification**
 Sara Arabi, *Stantec Inc.*
- 9:00 AM **Improving Aeration Controls While Being Limited by Blower Flexibility**

Leiv Rieger, *Jacobs Solutions Inc.*
9:30 AM **Addressing Controllability Challenges in Aeration Systems: Insights from Blue Plains**
Chengpeng Lee, *DC Water*

Ozonation Dynamics: Exploring Micropollutant Formation and Effective Removal

8:30 – 10:00 AM

This session will delve into the dynamics of ozonation in advanced wastewater treatment, providing participants with valuable insights into the formation of nitromethane in ozone-based potable reuse plants. It will explore the innovative approach of photolytic ozonation for effective micropollutant removal, highlighting its advantages in enhancing treatment efficiency. Additionally, the session will cover ozone reactor design utilizing CFD-AMOZONE technology, which optimizes performance while minimizing byproduct formation. This session will delve into the dynamics of ozonation in advanced wastewater treatment, providing participants with valuable insights into the formation of nitromethane in ozone-based potable reuse plants. It will explore the innovative approach of photolytic ozonation for effective micropollutant removal, highlighting its advantages in enhancing treatment efficiency. Additionally, the session will cover ozone reactor design utilizing CFD-AMOZONE technology, which optimizes performance while minimizing byproduct formation.

Lead Facilitator Germano Salazar-Benites, *Hampton Roads Sanitation District*

Assistant Facilitator Eduardo Arispe, *CDM Smith*

Agenda:

- 8:30 AM **Nitromethane formation in ozonation based potable reuse plants, its fate and transformation**
Jiaming Shi, *Geosyntec Consultants*
- 9:00 AM **Photolytic Ozonation for Micropollutant Removal and Disinfection Using LEDs**
Uwe Huebner, *Xylem*
- 9:30 AM **Full-scale of Ozonation Reactor Design with CFD-AMOZONE for the HRSD Nansemond SWIFT Indirect Potable Reuse Facility**
Pieter Vlasschaert, *AM-Team*

Pass the Gas: Digester Rehab, Intensification, and Innovation
8:30 – 10:00 AM

This session explores the pressing challenges in anaerobic digester operations, focusing on issues related to structural integrity and capacity limitations. It features a data-driven condition assessment of existing anaerobic digesters. The discussion then transitions to intensification alternatives of anaerobic digestion processes. Among the innovative approaches highlighted is the microbial hydrolysis process, aimed at enhancing the efficiency and performance of anaerobic digesters.

Moderator John Kabouris, *Stantec*
Assistant Moderator Claire Fletcher, *Jacobs Solutions Inc.*

Agenda:

- 8:30 AM **Verifying Condition of Existing Digesters: Advanced Condition Assessment for Sustainable Infrastructure Reuse**
Abdiel Picazo, Eastern Municipal Water District; Bradley Stuart, HDR
- 9:00 AM **Building A New Digester or Intensifying the Existing Anaerobic Digesters? A Deep Dive into Advanced AD Intensification Technologies in North America**
Farokh Laqa Kakar, Brown and Caldwell; Andrew Marcus, Great Lakes Water Authority
- 9:30 AM **Full-Scale Enhancement of Anaerobic Digestion with the Microbial Hydrolysis Process**
Madeleine Fairley-Wax & Stephanie Cope, Jacobs

Preparing for Change in Sewer Construction Projects

8:30 – 10:00 AM

Projects will not always proceed as planned, so it becomes wise to anticipate changes and prepare for them with contract contingencies, contract allowances, rebidding, contractor teaming for flexible methods and approaches, and initiating a project hiatus for financing or alternative delivery preparations. This session will be based around completed tunnel and drop shaft construction projects in Niagara Falls, NY.

Lead Facilitator Jaime Davidson, *JM Davidson Engineering*
Assistant Facilitator Andrew Peters, *Evansville Water and Sewer Authority*
Erik Johnson, *Ramboll*

Agenda:

- 8:30 AM **Skinning the Cat (or any good plan is flexible)**
Richard Roll, Niagara Falls Water Board

Utility Leaders Roundtable

8:30 – 10:00 AM

This is the annual Leadership Roundtable led by the Utility Management Community. Traditional format is a keynote speaker who will talk about a topic of current importance to utility leaders, followed by breakout groups (led by table moderators) that will explore the topic in more detail.

Lead Facilitator Michael Martin, *Milwaukee Metropolitan Sewerage District*

A Story of Struvite Survival and a Sidestream Saga

1:30 – 3:00 PM

Sidestreams cause operational and process challenges within the treatment process. The presentations in this session will describe the impact of sidestreams on issues such as nuisance struvite formation and inhibition from thermal hydrolysis. Furthermore, the presentation will describe operation and maintenance methods to reduce or remove these negative impacts.

Lead Facilitator Elaine Hung, *Trinity River Authority of Texas*

Assistant Facilitator Gavi Subramanian

Agenda:

1:30 PM **The Struvite Scourge: Practical Operations & Maintenance Considerations for Handling Nuisance Struvite Formation**
Dustin Craig, *CDM Smith*

2:00 PM **Thermal Hydrolysis of Biosolids: Reducing Microbial Inhibition in Sidestream Treatment**
Michaela Morales, *Hazen and Sawyer*

Advances in UV Disinfection Technologies

1:30 – 3:00 PM

UV technologies continue to gain popularity for disinfection and advanced treatment. Stay up to date on the latest advancements in UV including supercritical UV, UV-AOP, and UVC-LED.

Moderator Ryan Flood, *Water Analytics*

Assistant Moderator Andrew Pogue, *Woodard & Curran Inc*
June Leng, *HDR Inc*

Agenda:

- 1:30 PM **Supercritical UV for Disinfection of Low UVT, High Turbidity Wastewater Effluent**
John Crawford, *BECA Consultants*
- 2:00 PM **Controlling UV/AOP Performance in Water Reuse Projects**
Kwon Minhwan, *Trojan Technologies*
- 2:30 PM **Comparison of UVC LED to Conventional UV**
Gary Hunter, *Black & Veatch*

Collaborative Case Studies: Design-Build for Effective Capital Delivery

1:30 – 3:00 PM

Join us for an engaging session packed with real-world case studies on collaborative project delivery. Featuring a diverse array of projects, you'll discover the key factors that led owners to choose design-build, explore the challenges and successes encountered along the way, and gain valuable insights into how teams effectively engaged operations staff to drive better outcomes.

Moderator Shane Bragg, *Hazen and Sawyer*
Assistant Moderator Malia Turner, *Hazen and Sawyer*

Agenda:

- 1:30 PM **Innovative Project Delivery: Success at Sterling Natural Resource Center**
Michael Moore, *East Valley Water District*
- 2:00 PM **Elevating Operator Input: Techniques from a \$580M Greenfield RWRRF**
Corey King, *HDR*; Nicole Bartlett & Joseph Lockler, *Charlotte Water*
- 2:30 PM **Start to Finish: How to Design, Build, and Operate a Wastewater Recycling Facility in less than 18 Months**
Shannon Jessica, *Cloacina LLC*

Decarbonizing Water: N2O Modeling - From Low DO to HPO

1:30 – 3:00 PM

Join this interactive forum where different approaches to model N2O will be discussed. Processes spanning the full range of dissolved oxygen will be included. This is a Knowledge Development Forum (KDF) session. Speaker presentations are brief and are meant to stimulate questions and an exchange of information. The conversation is kept moving by instigators who will ask tough questions.

Lead Facilitator
Assistant Facilitator

Diego Rosso, *University of California Irvine*
Jose Jimenez, *Brown and Caldwell*

Agenda:

- 1:30 PM **Halton Region's Operations-Focused Nitrous Oxide Monitoring and Mitigation**
Jeremy Kraemer, *GHD Group Pty Ltd.*
- 2:00 PM **Full-Scale N2O Modelling For Advanced Mitigation**
Wim Audenaert, *AM-Team*
- 2:30 PM **Impact Of Carbon Sources And Dosing Ratios On Denitrification And N2O Dynamics In A Low DO BNR Process**
Leon Downing, *Black & Veatch*

Exploring the Capability and Flexibility of MABRs

1:30 – 3:00 PM

This session will consist of three presentations, each providing a new perspective on the capability and flexibility of the MABR process. The first presentation will provide a new approach to design intended to take advantage of the benefits MABR processes provide. The second presentation will focus the resulting benefits that MABRs can provide to WRRF owners and operators, and the limits of those benefits. The third presentation then expands the advantages of MABRs by combining the process with another innovative process, PDNA. These protocols result from case studies that incorporate both traditional, updated approaches and new concepts and innovations.

Moderator
Assistant Moderator

William McConnell, *CDM Smith*
Alyssa Mayer, *Hazen and Sawyer*

Agenda:

- 1:30 PM **MABRs Are Neat, But How Do I Design Them? A Practical Design Methodology for Hybrid MABR/AS**
Matt Reeve, *CDM Smith*
- 2:00 PM **Membranes Vs Concrete: Defining the value and limitations of hybrid MABR retrofits**
Jon Liberzon, *Black & Veatch*
- 2:30 PM **Tertiary Membrane Aerated Biofilm Reactor/Partial Denitrification-Anammox Process**
Bruce Mansell & Raymond Tsai, *LA County Sanitation District*

Flood Modeling: Saving Cities, One Storm at a Time

1:30 – 3:00 PM

In this session, we will explore three significant flood risk studies. The City of Madison's Watershed Study Program, initiated after a historic storm in 2018, aims to mitigate flooding in the East Isthmus Watershed. The Philadelphia Water Department is addressing aging infrastructure by using 1D/2D modeling to assess flood risks across its service area. And, flood risks evaluation for the Neom project in Saudi Arabia, developing flood zone maps and a severity grid to guide sustainable urban planning and emergency response.

Moderator

Nitin Katiyar, *HDR Inc*

Assistant Moderator

Anil Kumar Tangirala, *MS Consultants Inc*

Agenda:

- 1:30 PM **Meeting the Challenge: Mitigating Pluvial Flooding in Low-Lying Urban Areas**
 Jenna Troppman, *Tetra Tech*
- 2:00 PM **Present and Future Damage: Quantifying Urban Flood Impacts in Philadelphia**
 Emma Rakestraw, *Jacobs*
- 2:30 PM **Innovative Flood Hazard Classification for Resilient Urban Development**
 Khaled Pordel & Kenneth Hunu, *AtkinsRealis*

Fundamentals of Physical and Chemical Phosphorus Removal

1:30 – 3:00 PM

This session includes an introduction to fundamentals of physical and chemical phosphorus removal processes. Presentations include information related to chemical phosphorus removal optimization and use of cloth media filtration for effective solids removal. Future directions and research trends in physical and chemical phosphorus removal processes will also be highlighted.

Moderator

Nicholas Tooker, *University of Massachusetts Amherst*

Assistant Moderator

Andrea Busch, *Great Lakes Water Authority*

Agenda:

- 1:30 PM **Operations, Performance, Costs: Optimizing Chemical Phosphorus Removal Through Collaborative Implementation**
 Zeena Williss Kohr, *Rocky Mountain WEA*; Chris Machado, *Stantec Consulting*
- 2:00 PM **Evaluating Cloth Media Filtration for Achieving Ultra-Low Phosphorus Limits: Case Studies and Insights**

Matthew Castillo, *MSA Professional Services*
2:30 PM **Invited Speaker: Murthy Kasi**
Sreerama Murthy Kasi, *Olsson*

Innovative Carbon-Based Advanced Treatment Solutions: Transforming Water Reuse

1:30 – 3:00 PM

Current and emerging practices of carbon-based advanced treatment (CBAT) will be discussed in this interactive session. The session will include a presentation of pilot studies to guide through full-scale implementation, cutting edge approaches for designing utilizing machine learning, and the state of knowledge on the removal of PFAS and other emerging contaminants with CBAT systems. The interactive session will include a facilitated discussion with the presenters.

Lead Facilitator Ryujiro Tsuchihashi, *Jacobs*
Assistant Facilitator Tess Laffer, *AECOM*

Agenda:

- 1:30 PM **Innovative Carbon-based Advanced Treatment in Action: Unveiling Key Lessons Learned from Pilot Demonstrations**
Gayathri Ram Mohan, *Hazen and Sawyer*, Jiefu Wang, *Virginia Tech*
- 2:00 PM **Navigating PFAS Emerging Regulations: HRSD's SWIFT Program and the Role of CBAT**
Germano Salazar-Benites, *Hampton Roads Sanitation District*
- 2:30 PM **Machine Learning Design Tools for Carbon-Based Reuse**
Yoko Koyama, *Carollo Engineers*

Integrating Decentralized Assessments, Technologies and Management into Infrastructure

1:30 – 3:00 PM

Small and decentralized wastewater systems are increasingly viewed as a part of the water infrastructure. This session presents models for assessing available options, performance of specific technology and a method for life cycle assessments of decentralized systems. This session addresses the plethora of issues associated with implementation of decentralized approaches to wastewater management.

Lead Facilitator Tristian Bounds, *Orenco Systems Inc*
Assistant Facilitator A Rubin, *North Carolina State University*

Agenda:

- 1:30 PM **From construction to production: bringing decentralized systems to small communities**
Stephen Slessor, *RSE*
- 2:00 PM **Integrating Nitrogen Reducing On-Site Programs into Coastal Watershed Management Programs**
Anastasia Rudenko, *GHD*
- 2:30 PM **Life Cycle Assessment of Decentralized Wastewater Treatment Technologies**
Rachel Chai, *University of South Alabama*

Know What's Coming In: Source-Tracking of PFAS

1:30 – 3:00 PM

Per- and polyfluoroalkyl substances have become a rising concern mainly due to the widespread use in manufacturing, household products and operations. Given their persistent nature and the cost of treatment at WRRFs, one of the best management practices promoted by EPA is source control. This session will walk through the importance of characterization of PFAS sources and lays emphasis on implementation of source control rather than removal alternative. One case-study will showcase the importance of quantification and PFAS identification with guidance on monitoring and sampling for source identification. The session will also explore machine learning algorithms that can be used for PFAS source identification which can help save time, efforts and eventually cost.

Lead Facilitator Deborah Houdeshell, *City of Canton WRF*
Prachi Salekar, *Black & Veatch*

Assistant Facilitator Jayesh Charthal, *Jacobs Engineering*

Agenda:

- 1:30 PM **Exploring Machine Learning Algorithms to Support Municipal Wastewater Treatment PFAS Source Identification and Control Efforts (WRF 5276)**
Jamie Lefkowitz, *Brown and Caldwell*; Anna Schroeder, *Rocky Mountain WEA*
- 2:00 PM **Occurrence of per- and polyfluoroalkyl substances in Minnesota wastewater treatment facility influents: A Statewide Analysis**
Caitlin Glover, *Stantec*
- 2:30 PM **Seven Habits of Highly Effective PFAS Source Trackers**
Eva Steinle-Darling, *Carollo Engineers*

Leveraging DE&I Strategies, Emerging Best Practices, Guides, and Tools for Our Water Industry

1:30 – 3:00 PM

This session will highlight findings from two recent completed nationwide studies on DEI best practices (one focused on hiring and workforce development, and the other on equitable water management, organizational strategies, and community engagement) along with a new guidebook, implementable tools, and other resources that utility practitioners can use within their own organization. This session will also highlight the plans and steps from the Water Environment Federation to embed DEI throughout the organization, in alignment with the WEF Strategic Implementation Plan. Finally, this session will promote peer-to-peer community-building and further advancement of DEI within the water industry.

Moderator Andrea Hall, *Thermo Fisher Scientific*

Assistant Moderator Amber Lefers, *Jacobs Engineering*

Agenda:

1:30 PM **Introductions and Overview**

1:45 PM **DEI Practices And Workforce Development (Research Findings, Tools, And Recommendations)**

Katie Proter, *Brown and Caldwell*

2:00 PM **Equitable Water Management Strategies**

Linnea Warren May, *RAND*

2:15 PM **WEF's Commitment To DEI, Recent Progress, And DEI Framework Overview**

Steve Hamai, *Water Environment Federation*

Next-Gen Sewer Operations: Digitizing Data, Resilience, and Action

1:30 – 3:00 PM

Utilities face increasing pressure to modernize infrastructure, enhance operational efficiency, and improve resiliency against climate events and system failures. This session brings together three critical elements digital transformation, real-time monitoring, and operational resiliency to help utilities navigate these challenges effectively.

Moderator Megan Livak, *SmartCover Systems*

Assistant Moderator Michael Piller, *Johnson County Wastewater*

Grant Zebold, *Lamp Rynearson*

Agenda:

- 1:30 PM **Advancing Sewer Maintenance - SacSewer's Digital Transformation of the Main Line Visual Flow Inspection Program**
Anthony Norrell & Luisa Gomez, *SacSewer*
- 2:00 PM **Next-Generation Wastewater Operations: Immokalee Water & Sewer District's Fully Integrated Sensor Network and Real Time Monitoring Platform for Enhancing Operational Efficiency and Disaster Resiliency**
Armando Reyes, *Immokalee Water & Sewer District*; Eric Corey, *Core & Main*
- 2:30 PM **Phoenix, AZ, Adopts Real-Time Sewer-monitoring Technology to Optimize Operations and Balance Current and Future Expectations**
Patricia Kennedy, *City of Phoenix*; Nazario Prieto, *Phoenix Water Services Department*

Smart Asset Management: Digital Tools for Efficiency and Reliability

1:30 – 3:00 PM

Discover how digital tools are transforming asset management by improving efficiency, reliability, and decision-making. This session explores best practices for leveraging data analytics, risk management, and automation to optimize asset performance and lifecycle management. Learn how utilities and industries can enhance maintenance strategies, reduce costs, and maximize operational resilience with a digital-first approach.

Moderator Andres Villarraga, *Washington Suburban Sanitation Commission – Lab*

Assistant Moderator Alex Beck, *HDR Engineering, Inc.*

Agenda:

- 1:30 PM **From Assessment to Action: Leveraging Digital Dashboards for Wastewater Risk Management**
Isabell Hall, *Tetra Tech*; Adrian Gonzalez, *City of Clearwater*
- 2:00 PM **Ft Worth Water: Driving Performance through Data Analytics and Dashboards**
Gage Muckleroy, *GHD Inc*; Tejal Kshatriya, *City of Fort Worth Water Dept*
- 2:30 PM **Collaborative Odessa Utility SCADA Master Plan with ISA112 Standard alignment**
Manoj Yegnaraman & Kalyani Ganesan, *Carollo Engineers*

Thickening to Drying: Optimizing Solids Handling Through Innovation

1:30 – 3:00 PM

This session highlights practical and innovative strategies for optimizing thickening, dewatering, and drying in biosolids management. Speakers will present on upgrading aging infrastructure, dialing in polymer performance, and integrating new technologies like self-aspirating pumps and low-temperature dryers. Through full-scale implementation stories, pilot testing outcomes, and operations-focused improvements, attendees will explore how facilities are reducing energy use, chemical consumption, and manual effort while improving solids handling efficiency across the board. The session spans the solids processing train, from thickening to drying, and offers actionable insights for utilities of all sizes.

Lead Facilitator Emily Gottberg, *Barge Design Solutions Inc*
Assistant Facilitator Hainite Tuitupou, *Great Lakes Water Authority*

Agenda:

- 1:30 PM **Advanced Thickening Upgrades: Maximizing Existing Assets by Integration of New Technology**
Jeffrey Zahller, *HDR Inc*; Kip Summers, *LOTT Clean Water Alliance*
- 2:00 PM **Enhancing Polymer Efficiency Through Use Of Diluted Polymer For Final Dewatering**
Khoa Nam Ngo, *DC Water*
- 2:30 PM **Lessons learned from the first BioDryer installation at Silicon Valley Clean Water**
Mary Lou Romero, *Brown and Caldwell*; Arvind Akela, *Silicon Valley Clean Water*

Water Reuse Strategies at Scalable Data Center Operations

1:30 – 3:00 PM

As artificial intelligence scales, the environmental impact of data centers – particularly their water usage – has come under increased scrutiny. In response, data centers are moving towards innovative water reuse strategies to minimize environmental impact and support sustainability goals. This session explores a practical model and real world case studies demonstrating how reclaimed water can be effectively used in data center cooling operations. Attendees will gain insights into both environmental and economic benefits, including significant reductions in both operational costs and fresh-water consumption.

Lead Facilitator Ian Fife, *WesTech Engineering Inc*
Assistant Facilitator Prachi Jain, *Haley & Aldrich Inc*
Ryan Beil, *Brown and Caldwell*

Agenda:

- 1:30 PM **Retrofitting Existing Data Centers with Water Reclaim Systems**
Jackson Malace, *Carollo Engineers*; Mohammed Alrob, *Microsoft*
- 2:00 PM **Recycled Water Makes Data Center Cooling More Sustainable**
Ufuk Erdal, *Black & Veatch*
- 2:30 PM **Invited Speaker Presentation: Lindsay Swain**
Lindsay Swain

Advances in Biofilm Research from WER Journal

3:30 – 5:00 PM

Keep up with trends in biofilm research by attending this session featuring the authors of cutting-edge research from Water Environment Research journal. TL/DR? No problem! Come to hear directly from authors of hot papers published in WER about their recent work and where the field is going.

Lead Facilitator

Nicole Fahrenfeld, *Rutgers The State University*

Assistant Facilitator

Martha Dagneu, *Western University*

Zhen He, *Washington University in St. Louis*

Agenda:

- 3:30 PM **Biofilm Characterization and Dynamic Simulation of Advanced Rope Media Reactor for the Treatment of Primary Effluent**
Wudneh Shewa, *Bishop Water Inc.*
- 4:00 PM **New Strategy for Integration of Anaerobic Side-stream Reactor with Mainstream B-stage Nitrification for Short-cut Nitrogen Removal with Granulation**
Zijun Meng
- 4:30 PM **Evaluation of Biofilm Scouring Methods on the Nitrification Efficiency in a Pilot-scale Membrane-aerated Biofilm Reactor**
Priyanka Ali, *Rice University*

Big Solutions for Big Storms

3:30 – 5:00 PM

This session explores how major U.S. cities are designing and implementing next-generation infrastructure to manage stormwater at scale. Presentations will showcase high-capacity stormwater pump stations, large underground storage tanks, and integrated systems that combine blue, green, and gray infrastructure. Drawing from complex projects in Houston, Somerville, and New Orleans, this session emphasizes solutions to protect vulnerable urban areas from flooding.

Lead Facilitator

Scott Rybarczyk, *New York Power Authority*

Assistant Facilitator

Gregory Williams, *StormTrap*

Agenda:

3:30 PM **Somerville, Massachusetts Goes Big With Underground Stormwater Storage Tanks**

Christian Olander, *Stantec Consulting Services*

4:00 PM **Working at Scale: Role of Hydraulic Standards & Advanced Numerical & Physical Models for TXDOT's Largest Storm Pump Station in Houston, Texas**

Maria Rafiq & Andrew Gibbs, *WSP*

4:30 PM **Beyond Pumps: Blending Blue, Green, and Grey Infrastructure in NOLA**

Monica Stochl & Dustin Atchison, *Jacobs Engineering*; Meagan Williams

Challenges and Innovation in Sludge Processing

3:30 – 5:00 PM

This session explores the challenges and opportunities in managing hydrothermal liquefaction (HTL) byproducts within wastewater treatment and anaerobic digestion systems. It examines the inhibitory effects of specific compounds, their impact on biological processes, and potential strategies to mitigate toxicity over time. Additionally, the session includes a presentation that compares an emerging vacuum evaporation enhanced digestion technology with thermal hydrolysis to assess effectiveness in improving digestion performance. Through experimental findings and comparative analysis, this session provides valuable insights into optimizing waste conversion and resource recovery.

Moderator

Joyce Chang, *Jacobs*

Assistant Moderator

Hainite Tuitupou, *Great Lakes Water Authority*

Ashwin Dhanasekar, *Brown and Caldwell*

Agenda:

3:30 PM **Invited Speaker: Adrian Romero**

Adrian Romero, *Black & Veatch*

4:00 PM **What Makes Hydrothermal Liquefaction Aqueous Phase Inhibitory to Anaerobic Digestion?**

Ronald Kizza, *University of British Columbia*

4:30 PM **Bench Scale Comparison of Vacuum Evaporation Enhanced Anaerobic Digestion (IntensiCarb™) with Thermal Hydrolysis**

Christopher Muller, *Brown and Caldwell*

Concept to Completion: Pump Station Improvement and Construction 3:30 – 5:00 PM

This session explores strategies for designing, improving, and constructing pump stations and interceptors. Attendees will be exposed to advancements in assessing and retrofitting aging pump stations, addressing challenges in interceptors and tunnel crossings, pump station replacements, and integrating new infrastructure within existing systems. The session highlights pump station and interceptor improvement projects from multiple utilities.

Moderator Scott Belz, *AECOM*
Assistant Moderator David McCord, *Great Lakes Water Authority*
Isabell Hall, *Tetra Tech*

Agenda:

- 3:30 PM **Pump Stations for the Future: Innovations in Assessment, Retrofitting, and Operations**
Jeremy Koch & Manasi Parekh, *Ardurra Group*
- 4:00 PM **TRWRA Pleasure Bay Interceptor Tunnel Crossing and Main Pump Station Replacement**
William Gettings & Kevin Haney, *Hazen and Sawyer*
- 4:30 PM **The Canoas Wastewater Pump Station, Alternative Delivery of a Major Component of the Bogota River Sanitation Program in Colombia**
Alejandro Montes, *TYLin*; Diego German Montero, *Empresa de Acueducto y Alcantarillado de Bogota*

Decarbonizing Water: Mathematical Modeling and Digital Twins to Reduce N₂O Emissions from WWTP 3:30 – 5:00 PM

This session will present findings which illustrate the use of digital solutions to support decisions and optimize the operation of WWTPs for N₂O reduction. This session will also present advanced modeling on full-scale treatment plants for optimization of N₂O reduction.

Lead Facilitator Ramesh Goel, *University of Utah*
Assistant Facilitator Mark Miller, *Brown and Caldwell*

Agenda:

- 3:30 PM **Digital Twins for Climate-Conscious WRRFs: Integrating Data and Knowledge for Process Optimization and Decision Support**
Mostafa Khalil, *Stantec*
- 4:00 PM **Hybrid Modeling and Diagnosis to Reduce N2O Emissions at WRRFs**
Emma Shen, *Jacobs*
- 4:30 PM **Operational Strategies and NO Emission Hotspots: Integrating Monitoring Campaigns with Process Modelling**
Mostafa Khalil, *Stantec*

**Densified Activated Sludge Full Scale Performance and Optimization
3:30 – 5:00 PM**

This session covers experiences with densified activated sludge (DAS) from multi-year full-scale implementations. Four case studies will present performance results, lessons learned, modifications for process optimization, and future work. Case studies include densification in conventional activated sludge as well as MBR and MABR processes. A panel discussion will follow the four case studies.

Lead Facilitator

Bryce Figdore, *HDR Inc*

Assistant Facilitator

Rudy Maltos, *Metro Water Recovery*

Agenda:

- 3:30 PM **Bin the Floc, Boost the Rock: Increasing Activated Sludge Wet Weather Treatment Capacity using Densified Activated Sludge**
Nathan Brown, *Stantec Inc*; Kevan Brian, *Watercare Services Limited*
- 3:40 PM **DAS in cold wastewater BNR to increase capacity at Gold Bar WWTP myth or reality?**
Julian Xheko; Saif Molla, *EPCOR Water Services*
- 3:50 PM **Towards Unifying Densification and Low TN / TP Operation at the South Durham Water Reclamation Facility**
David Wankmuller, *Hazen and Sawyer*
- 4:00 PM **Defining Best Operating Points of Biomass Densification for MBR and Clarifiers: Lessons Learned from Two-year Operation at Full-scale Plants**
Sylvain Donnaz & Jean Gagnon, *Veolia*

Indigenous Environmental Practices: Lessons from the Past for the Future

3:30 – 5:00 PM

Indigenous communities from around the globe developed traditions that were suited to their specific environments. This session includes a panel of indigenous speakers from different countries explaining their cultural values and traditional practices and how modern utilities can embrace indigenous knowledge into their management practices. We will explore the drivers and logic behind the traditional practices, their barriers, and how they might inform contemporary solutions for a sustainable future.

Lead Facilitator

Kahao Lim, *Stantec Inc*

Lee Gary, *Strategic Management Services – USA*

Assistant Facilitator

Maria Claudia Rubio-Galvez, *Fairfax County*

Agenda:

3:30 PM **Developing National Wastewater Discharge Standards for New Zealand with an Indigenous Focus**

Garry Macdonald, *CH2M Beca*; Sara McFall, *Water Services Authority/Taumata Arowai*

3:40 PM **Invited Speaker: Len Drago**

Len Drago, *ADEQ*

Investing in Multi-Benefit Green Stormwater Infrastructure for Scale and Impact

3:30 – 5:00 PM

Rain gardens, bioretention, and other green stormwater infrastructure integrated into climate resilient landscapes manages rain where it falls and improves water quality. These strategies can supplement more centralized approaches and provide multiple benefits--green jobs, reduced water demand, increased wildfire resilience, enhanced biodiversity, improved local air quality, and reduced heat stress. Urban stormwater managers can maximize these co-benefits by investing at scale and opening the door to co-funders and other partners. This session highlights how to value multiple benefits of climate resilient landscapes in Los Angeles County and how to leverage these values into co-funding. It also explores equitable, affordable financing.

Moderator

Caroline Koch, *WaterNow Alliance*

Assistant Moderator

Cynthia Koehler, *WaterNow Alliance*

Jeffrey Odefey

Agenda:

3:30 PM **Valuing Multiple Benefits of Distribute Green Stormwater Infrastructure**

Jeffrey Odefey

3:40 PM **Identifying Co-Funders and Funding Options**

- Carline Koch, *WaterNow Alliance*
- 3:50 PM **Exploring Multiple Benefits Scenarios**
Jeffrey Odefey
- 4:05 PM **Debt Financing Distributed Green Stormwater Infrastructure for Scale**
Cynthia Koehler, *WaterNow Alliance*

Mature Stormwater Programs: Assessment and Enhancement Opportunities

3:30 – 5:00 PM

Stormwater utilities are facing increasing pressures and expectations from a variety of perspectives such as evolving regulatory, financial and revenue challenges and political and customer viewpoints. To help meet these challenges, stormwater programs need to evolve to ensure they are delivering fiscally responsible and effective stormwater management services. This session will discuss and present various opportunities for stormwater utilities to assess key aspects of their stormwater program to identify opportunities for enhancement and meet the challenges of today and the future.

Moderator Henrietta Locklear, *Raftelis*
Assistant Moderator Rocky Craley, *Raftelis*
Jeffrey Duke, *Raftelis*

Agenda:

- 3:30 PM **Introduction: Overview of Stormwater Program Assessments - Why They Are Important**
Brandon Vatter, *Raftelis*
- 3:40 PM **Assessing Stormwater Fee Structures & Credit Programs**
Casey Biernacki, *Village of Western Springs*
- 4:05 PM **Best Practice Considerations for Stormwater Capital Program Delivery**
Brandon Vatter, *Raftelis*
- 4:30 PM **Stormwater Billing Data: Have you looked at this lately?**

Navigating the Storm: Disinfecting Wet Weather Events

3:30 – 5:00 PM

This session examines the impacts of wet weather events on disinfection processes at WRRFs and in combined sewer systems. We will explore technologies used to mitigate challenges of high suspended solids and pathogen concentrations that occur during storm conditions. We'll present case studies highlighting effective approaches to

managing water quality and compliance. Join us to discover strategies for maintaining water quality during wet weather events.

Lead Facilitator Brain Hilts, *CDM Smith*
Assistant Facilitator Aria Harris, *Greeley and Hansen*

Agenda:

- 3:30 PM **Impact of Rainfall Events on the Performance of WWTPs**
Hari Lal Kharel, *Civitas Engineering Group*; Fazle Rabbi, *City of Houston*
- 3:50 PM **Sizing Wet Weather Disinfection Systems: How To Get It Right**
John Siczka, *Jacobs*
- 4:10 PM **Evaluating CSO Sampling System Components for Wet Weather Disinfection Control**
Brooke Ballard, *Great Lakes Water Authority*
- 4:30 PM **How'd It Go? Reviewing Operating Data from Omaha's New CSO Treatment Facility**
Trevor Wagenmaker, *Wade Trim*

One Water in the Spotlight! Getting Creative with Community Engagement

3:30 – 5:00 PM

This session spans three campaigns that put water front and center in communities across the country through creative engagement efforts focused on water, wastewater, and stormwater. One utility promoted the value of water through an integrated engagement strategy combining digital, grassroots, and partnerships. A familiar storm drain program used environmental psychology principles to support growth and evolution, while another utility crafted strong visuals to simplify the wastewater collection system for multiple audiences.

Moderator Marci Davis, *Jacobs Engineering*
Assistant Moderator Brian Shell, *WSP USA*
Emily Garner, *Greenville Utilities Commission*

Agenda:

- 3:30 PM **Enhancing Sustainable Water Quality Infrastructure: Communication Strategies and Partnerships**
Natalie Chaney, *Tetra Tech*; Alan Steinberg, *West Houston Association*
- 4:00 PM **Community Engagement and Storm Drain Stewardship with Adopt-a-Drain.org**
Ann Zawistoski & Sofie Wicklund, *Hamline University*

4:30 PM **Where Does the Water Go? Creating Public Engagement That Makes a Splash**

David White, *Wade Trim*; Christopher Nastally, *Great Lakes Water Authority*

Passing the Test: Improving Whole Effluent Toxicity Compliance from Industrial Wastewater Treatment

3:30 – 5:00 PM

Whole Effluent Toxicity (WET) testing is a critical process for evaluating the potential toxic effects of wastewater discharges on aquatic organisms in surface waters. but can be challenging to pass for industrial dischargers due to utilization of complex chemical mixtures, high salinity, and presence of biogenic compounds and the regulatory context in which they operate. Using common analytical tools and site-specific desktop tools, Molson Coors was able to improve their WET compliance. This session will review the challenges of passing WET testing, how to identify toxicants present in effluent and process waste streams and best practices for identifying and eliminating potential toxicants from their facilities.

Assistant Moderator Mark Koch, *Molson Coors Beverage Company*

Agenda:

3:30 PM **Introduction to WET Testing Challenges**

4:00 PM **Identifying Potential Toxicants**

4:30 PM **Improving WET Compliance using Desktop Tools**

Michelle Young, *Carollo Engineers*; Mark Koch, *Molson Coors Beverage Company*; Clifford Lange, *Effluency Lab LLC*

PFAS Removal Technologies for Leachate and Complex Wastewaters

3:30 – 5:00 PM

Come explore the application of several novel technologies for removal and destruction of PFAS from landfill leachate and other complex waste streams. The performance of foam fractionation for three different leachate matrices will be compared, and the novel use of modified coal fly ash for PFAS adsorption will be explored. The application of foam fractionation combined with three destructive technologies, electrochemical oxidation, supercritical water oxidation, and thermal plasma, will also be described.

Lead Facilitator Lucy Pugh, *AECOM*

Assistant Facilitator Ryan Cage, *Wigen Water Technologies*

Agenda:

- 3:30 PM **Foam Fractionation PFAS Treatment Considerations from Three Distinct Landfill Leachate Process Treatment Waste Streams**
Baxter Mitake, *Arcadis*
- 4:00 PM **Removal of Per- and Poly-Fluoroalkyl Substances (PFAS) from Landfill Leachate using Modified Coal Fly-Ash (CFA)**
Renzun Zhao, *North Carolina A and T State University*
- 4:30 PM **Emerging Separation and Destruction Technologies to Mitigate PFAS in Leachate Destined for a Municipal Water Resource Recovery Facility**
Gary Hunter, *Black & Veatch*

Resiliency and Effectiveness of Wet Weather Flow Management and Treatment

3:30 – 5:00 PM

WRRFs are adapting their treatment operations for wet weather flow management using various non-biological advanced technologies. This session presents a comprehensive overview of evaluating various wet weather treatment technologies for peak flow management and treatment. Full-scale performance and CFD modeling highlight the treatment efficiency of various technologies including pile cloth media filter, and ballasted sedimentation.

Moderator Thor Young, *GHD*
Assistant Moderator Arifur Rahman, *Jacobs*

Agenda:

- 3:30 PM **Early Adopters Prove Resiliency of Auxiliary Treatment Strategy and Effectiveness of Latest Generation of Multi-Purpose Filtration**
James Fitzpatrick, *Black & Veatch*
- 4:00 PM **Remote Wet Weather Treatment Facility Operational Insights and Treatment Success**
Ryan Dunne, *Jacobs Engineering*; John Carter, *King County Dept of Nat'l Res & Parks*
- 4:30 PM **Channel Mixing: Tackling Floatables and Grit without Screening and Grit Removal Facilities**
Andrea Pelayo, *Los Angeles County Sanitation Districts*; Marilyn Pine, *Vaughan Company*

RNG-Codigestion, Carbon Capture, and Fugitive Methane

3:30 - 5:00 PM

Renewable natural gas (RNG) remains an attractive value-added alternative to biogas at WRRFs. This session explores new approaches to leverage opportunities to further improve the economic performance of RNG facilities while mitigating carbon emissions. These opportunities include the first non-prescriptive D3/D5 administrative split, carbon capture from RNG tail gas, and reduction in fugitive methane to increase revenue from RNG.

Lead Facilitator

Adrian Romero, *Black & Veatch*

Assistant Facilitator

Jeremy Kraemer, *GHD Group Pty Ltd.*

Claire Fletcher, *Jacobs Solutions*

Agenda:

- 3:30 PM **Exploring Carbon Capture Opportunities at Water Resource Recovery Facilities**
Peibo Guo & Trung Le, *Brown and Caldwell*
- 4:00 PM **Nonrevenue Methane: Leveraging the Value of Biogas to Mitigate and Monetize Greenhouse Gas Emissions**
Ian Piro & Ohad Rotem, *Burnham RNG*
- 4:30 PM **Navigating the D3/D5 Split: Renewable Natural Gas and Co-Digestion**
Alexis Kontorousis, *Johnson Controls*; Barbara Ward, *Hampton Roads Sanitation District*

Squeezing the Tube to the End: Maximizing Capacity

3:30 – 5:00 PM

Presentations and discussion of process tools applied to capacity analysis. Case studies include dynamic modeling and clarifier capacity analysis.

Moderator

Eric Redmond, *Black & Veatch*

Assistant Moderator

Thor Young, *GHD*

Agenda:

- 3:30 PM **Development of Dynamic Process Model for Comprehensive Capacity Evaluation of UOSA's Combined Wastewater and Advanced Water Treatment Facility**
Isaac Avila, *Black & Veatch*
- 4:00 PM **Enhancing Secondary Clarifier Capacity through Hydrocyclone Implementation at Full-Scale Wastewater Treatment Plants**
Wonho Song, *LA County Sanitation District*
- 4:30 PM **Mobile Biofilms and Screens Intensify Biological Wastewater Treatment**

Joshua Boltz

Water Reuse: Today's Landscape and Tomorrow's Path

3:30 – 5:00 PM

In partnership with the Water Reuse Association and the Water Research Foundation, this session will offer diverse perspectives from across the water reuse community. We will explore key topics such as regulations, advocacy, program funding, and the current landscape of water reuse regulations throughout the United States.

Lead Facilitator

Germano Salazar-Benites, *Hampton Roads Sanitation*

District

Assistant Facilitator

Eduardo Arispe, *CDM Smith*

Isabelle Sexton, *Jacobs*

Wednesday, October 1st, 2025

Benzene Waste Operations NESHAP: Compliance Strategies for Refining & Petrochemical Facilities

8:30 – 10:00 AM

This session provides an overview of the Benzene Waste Operations NESHAP (BWON) rule and strategies for compliance at refining & petrochemical facilities. Presentations will cover the current regulatory environment surrounding BWON and the enforcement actions by the US Environmental Protection Agency, methodologies to properly tabulate benzene emissions in industrial facilities, and strategies to minimize benzene emissions from wastewater treatment plants.

Moderator

Nick Johnson, *Burns & McDonnell*

Assistant Moderator

Rassan Bines, *Ramboll*

Agenda:

8:30 AM

Regulatory Environment

Peter Whitfield, *Sidley Austin LLP*

8:55 AM

Benzene Tabulation and Benzene Removal Technologies

Ryan Kirkland, *Burns & McDonnell Engineering*

9:20 AM

Emissions From Wastewater Treatment Plants and Operating in Compliance With the Rule

Thomas Schultz, *Brown and Caldwell*

BNR But Better: Additional Improvements on BNR Systems

8:30 – 10:00 AM

Don't assume BNR upgrades are the final step! This session explores the reality that evolving influent conditions and effluent limits often necessitate additional process improvements in upgraded BNR facilities. Through three compelling case studies, learn how operating facilities successfully adapted their systems and operations to address upcoming flow changes and stricter permit requirements.

Moderator Natalie Cook, *Donohue & Associates*

Assistant Moderator Parin Izadi, *GHD*

Agenda:

8:30 AM **Revitalizing Tampa Bay: Lessons From The Largo WWRF Nutrient Removal Project**

Caroline Wilson, *Kiewit*

9:30 AM **Step-Feed BNR MLSS Intensification for Cost-Efficient Nitrogen Removal at Low C:N Ratios**

John Kabouris, *Stantec*

Building Resilience and Planning for Climate Change

8:30 – 9:30 AM

With climate-related hazards continuing to impact our water infrastructure, planning for and building resilience into projects just makes sense. This session will highlight two case studies where consideration of climate hazards was incorporated into planning including modeling to analyze and visualize risks as well as innovative ways to integrate adaptations. A climate resilience plan at the AlexRenew WWRF presents methods to assess the risk of climate hazards on operations and personnel at the facility. The New York City Economic Corporation pursues the design and engineering of a Master Plan to meet flood mitigation and sustainability goals.

Moderator Vanessa Nedrick, *Remington & Vernick Engineers*

Agenda:

8:30 AM **Integrating Flood and Heat Risks in AlexRenew's Climate Resilience Plan**

Charlotte Cherry, *Jacobs Engineering*; Mallory Orme, *Alexandria Renew Enterprise*

9:00 AM **Comprehensive Stormwater Management: Combining Flood Mitigation and Water Reuse**

Joel Kaatz, *Arcadis*

Community-based Utility Management: Engagement, Investment, Stewardship

8:30 – 10:00 AM

The nation has underinvested in water infrastructure for too long. Since 2021, the Bipartisan Infrastructure Law has put the spotlight on much-needed infrastructure investment to address decades of funding gaps that have negatively impacted the quality of life of our communities. In this session, we will approach Utility Management from the lens of community engagement, investment, and stewardship. First, we will set the stage with a utility that activated its employees on every level to incorporate the viewpoints, concerns, and priorities of the communities they served into their daily operations. Then, we will feature a utility that formed a formal partnership with multiple community-based organizations and local businesses to develop a culture of participation in recruitment, procurement, service delivery, and a data-driven community engagement plan. We will conclude by recognizing the mutual benefit to the utility and community derived from technical assistance support and financial investment based on community input and engagement.

Moderator Patricia Butler, *Great Lakes Water Authority*

Assistant Moderator Prithviraj Chavan, *Ardurra Group Inc*

Agenda:

8:30 AM **Where Commitment Meets Innovation: Transforming EJ Commitment into Tangible Impact**

Christine Umerley, *Northeast Ohio Regional Sewer District*

9:00 AM **BSA Queen City Clean Waters: Leveraging Infrastructure Projects into Community Investment**

Walt Walker, *TYLin*; Rosaleen Nogle, *Buffalo Sewer Authority*

9:30 AM **Working With Disadvantaged Communities To Deliver Technical Assistance**

Bill Porter, *TYLin*; Tessa Edelen, *Environmental Policy Innovation Center*

Decarbonizing Water: Across Space and Time - Techniques for CH₄ and N₂O Monitoring

8:30 – 10:00 AM

Explore real-world case studies of methane (CH₄) and nitrous oxide (NO_x) measurement at water resource recovery facilities. This interactive session covers off-gas testing for aeration efficiency and NO emissions, multi-level sensing for fugitive methane, and

advanced optical, satellite, and reverse modeling techniques. Take a virtual journey to three facilities using cutting-edge methods to track emissions and improve quantification.

Lead Facilitator

Ruth Spierling, *LA County Sanitation District*

Assistant Facilitator

John Willis, *Brown and Caldwell*

Md Mazharul Islam, *University of the District of Columbia*

Agenda:

- 8:30 AM **Two Birds, One Test: Off-gas Testing for Assessing Scope 1 and Scope 2 Emissions**
Samuel Reifsnnyder, *Carollo Engineers*
- 9:00 AM **Advanced Quantification of Fugitive Methane Emissions in Wastewater Treatment Plants**
Ahmed Elsayed, *Toronto Metropolitan University*
- 9:30 AM **Bridging the Gaps in GHG Monitoring from Wastewater Treatment: Insights into Temporal and Spatial Heterogeneity**
Bo Zhang, *Stantec Consulting Services Inc*

Densified Activated Sludge: Practical Design and Modeling Experiences Converge

8:30 – 10:00 AM

This session focuses on practical aspects of design and modeling for densified activated sludge systems. Topics include biological selection principles, biological selector design metrics, hydrocyclone design, and modeling approaches. Modeling approaches within conventional activated sludge model frameworks and newly-available densified activated sludge model frameworks will be discussed.

Moderator

Vedansh Gupta, *Aqua Aerobic Systems Inc*

Assistant Moderator

Parnian Izadi, *Jacobs*

Agenda:

- 8:30 AM **Densified Sludge Model Sensitivity Analysis and Pilot Data Calibration**
Henry Croll, *HDR Inc*
- 9:00 AM **Internal Substrate Selection of Granules in A Flow-Through Activated Sludge System via Biological Selectors**
Kam Law, *Donohue & Associates*
- 9:30 AM **Bringing It All Together: Designing a Densified AO/SND Process for Efficient Biological Nutrient Removal**
Shelley Trujillo, *Stantec Consulting Services*

From PFAS to Models: Water Treatment and Optimization Strategies in Semiconductor Manufacturing

8:30 – 10:00 AM

Growing demand for electronics has led to tremendous growth in the semiconductor industry. This session presents case studies on water optimization and PFAS destruction in the semiconductor manufacturing industry. This session highlights the growing need of innovation in water treatment and use in chips manufacturing.

Lead Facilitator

Kristen Jenkins, *Kiewit*

Assistant Facilitator

Prachi Jain, *Haley & Aldrich Inc*

Agenda:

- 8:30 AM **Photoactivated Reductive Defluorination Destruction Of Fluorochemicals In Semiconductor Manufacturing Waste**
Meng Wang, *Enspired Solutions*
- 9:00 AM **Modeling Semiconductor Wafer Fabrication Water Quality and Quantity to Inform Treatment Approach Development**
Arthur Sandy, *Brown and Caldwell*
- 9:30 AM **Invited Speaker Presentation**
Daniel Wilson, *Kiewit Industrial and Water Engineering*

GSI Performance Tools: Optimizing GSI Placement and Performance

8:30 – 10:00 AM

The world is adopting green stormwater infrastructure (GSI) as a nature-based approach to reduce pollutant from stormwater runoff, improve water quality, and meet water quality standards. These presentations will present three different tools (GIS Impact Hub, Flood Risk Tool and ArcGIS online prioritization tool) that help municipalities, and the public evaluate the effectiveness and compare benefits of GSI implementation; explore climate change that might impact GSI systems' performance; and show optimization of GSI investments. These presentations incorporate regional resilience plans, climate resilience analysis, hydraulic analysis of GSI alternatives, and estimating co-benefits including climate resiliency, flood relief, cooling effects; and return on investment.

Moderator

Cynthia Baumann, *CDM Smith*

Agenda:

- 8:30 AM **GSI Impact Hub: Capturing the Multiple Benefits of Green Stormwater Infrastructure**
Janet Clements, *One Water Econ*; Lyndon DeSalvo, *The Nature Conservancy*
- 9:00 AM **Maximizing the Benefits of Green Stormwater Infrastructure under Climate Change**
Mason Throneburg, *Confluency*; Matt Magruder, *Milwaukee Metropolitan Sewerage District*

Infrastructure Investments and Strategies of Corporate Responsibility

8:30 – 10:00 AM

This session explores how infrastructure investments can be powerful tools for advancing inclusive practices through intentional consideration of corporate responsibilities. Using real-world case studies—“from Kerr County’s award-winning wastewater project to King County’s innovative Capital Program”—presenters will highlight how collaborative planning, community engagement, and data-driven decision-making can lead to sustainable, equitable outcomes. Attendees will gain insights into innovative funding models, hands-on planning processes, and frameworks that embed equity into infrastructure design and delivery.

Lead Facilitator Maria Claudia Rudio-Galvez, *Fairfax County*
Assistant Facilitator Rachel Chai, *University of South Alabama*

Agenda:

- 8:30 AM **Developing an Environmental, Social, and Governance Framework for Water Utilities**
Joseph Danyluk & Kylee Hamilton, *Jacobs Engineering*
- 9:00 AM **Transforming Communities: The Kerr County Center Point Wastewater Project: A Model of Innovation and Resilience in Water Quality Management**
Don Burger, *Tetra Tech*; Charlie Hastings, *Kerr County*
- 9:30 AM **Advancing Equity Through Capital Portfolios**
Margo Iniguez Dawes, *King County Wastewater Treatment Division*

Innovations in Finding I/I

8:30 – 10:00 AM

Infiltration and Inflow (I/I) of clear water into sanitary systems drives hundreds of millions of dollars into upsizing pipes, storage, and treatment facilities. Removal of I/I is seen as an undefinable quantity in planning and costing. There are many tried-and (sometimes)-true I/I investigations (smoke testing, manhole inspections, CCTV, dye flooding, etc.)

that only sometimes provide confidence in I/I removal as a solution to capacity issues. There is a tremendous need for innovative and effective technologies and approaches to find I/I. This 90-minute technical session will feature the latest innovations for locating I/I.

Assistant Moderator David Edgren, *RJN Group*

Speakers Thomas Ogden, *Yorkshire Water*
 Andy Lukas, *Brown and Caldwell*

Agenda:

8:30 AM **Introduction: This Stuff is New**
8:40 AM **Using Your Clues: Desktop Assessments**
8:50 AM **Smart Sewers: Detecting I&I with Level Sensors & AI**
9:00 AM **Cold Rain, Hot Showers: Temperature Peaking From the Comfort of the Office**
9:10 AM **Temperature Stalking: Temperature in the Field**
9:20 AM **Distributed Temperature Sensing**
9:30 AM **Seeing the Culprit**
9:40 AM **Interactive Discussion on Appropriate Use Cases/Strengths/Limitations**

Innovative Approaches to Micropollutant Removal in Wastewater

8:30 – 10:00 AM

This session explores cutting-edge strategies for removing emerging contaminants such as PFAS, EE2, and microplastics in wastewater treatment. Presenters will discuss the use of reactive migrating carriers, biochar, and other adsorptive media for process intensification and contaminant mitigation. Key findings on adsorption efficiency, biodegradation potential, and process optimization will be highlighted. Attendees will gain insights into sustainable and scalable approaches for addressing regulatory and environmental challenges.

Lead Facilitator Andrew Matsumoto, *Hazen and Sawyer*

Assistant Facilitator Prithviraj Chavan, *Ardurra Group Inc*
 Yuichi Ito, *Horiba Instruments*

Agenda:

8:30 AM **Process Densification and Emerging Contaminant, PFAS and EE2, Management in Wastewater Treatment using Reactive Migrating Carriers**

- 9:00 AM Ramesh Goel, *University of Utah*
Advanced Micro-Pollutant and PFAS Removal with Micro-Sorbent and Pile Cloth Media Filtration
- 9:30 AM Terry Reid & John Dyson, *Aqua-Aerobic Systems Inc*
Optimizing Microplastic Removal using Biochar
Jianqiao Dong, *University of South Alabama*

Optimizing Disinfection Systems for Efficiency and Reliability

8:30 – 10:00 AM

Real-time information and advanced models have created new opportunities to optimize disinfection systems with less risk than ever before. Come learn about the latest ideas and techniques for improving reliability, reducing chemical usage, and saving money!

Moderator Josh Goldman, *Metro Wastewater Reclamation District*
Assistant Moderator Kari Brisolaro, *LSUHSC*
Caleb Osei-Appau, *Louisiana State University*

Agenda:

- 8:30 AM **Buckingham Dimensional Analysis for Chemical Disinfection in Wastewater Reactors**
Hao Luo, *Western University*
- 9:00 AM **Optimizing De-chlorination by Altering Sodium Bisulfite Dosing Strategy: A Computational Fluid Dynamics Study**
Ed Wicklein, *Carollo Engineers*
- 9:30 AM **Optimizing Disinfection Operations for Discharge and Recycling: Las Vegas Experience**
June Leng, *HDR Inc*; Sayeda Ummeh Masrura

Optimizing Wastewater Utility Operations: Leveraging GIS Technology

8:30 – 10:00 AM

Hear from three utilities as they share how GIS has helped them tackle common challenges faced by utilities across the nation. Participate in an engaging panel discussion with these industry leaders.

Moderator Christa Campbell, *Environmental Systems Research Institute*
Assistant Moderator Alyson Pohlit, *Environmental Systems Research Institute*

Agenda:

- 8:30 AM **Introductions**

- 8:45 AM **Green Valley Water Digital Transformation**
Garrett Goldman, *Green Valley Water*
- 9:00 AM **Athens Utilities Operations Management**
Marc Courville, *City of Athens Utilities*
- 9:15 AM **Milwaukee Metropolitan Sewerage District Vertical**
Emily Champagne
- 9:30 AM **Interactive Share Survey Results**
- 9:45 AM **Q&A / Panel Discussion / Closing**

PdNA: Insights into Pilot and Full-scale Implementations

8:30 – 10:00 AM

Historically, PdNA has been studied at lab scale level with research focused on PdNA mechanism and parameters influencing PdNA. To advance PdNA implementation, it is important to better understand PdNA startup and operational strategies for stable performance. This session will delve into the challenges of PdNA implementation with fixed film technologies and the practical solutions employed to overcome them in two pilot studies and at a full-scale facility. Additionally, the session will offer insights into strategies for improving PdNA efficiency. The findings from these studies will be instrumental in guiding the design and successful, stable operation of full-scale PdNA systems.

Moderator Jayesh Charthal, *Jacobs Engineering Group*
George Wells, *Northwestern University*

Assistant Moderator Nandita Ahuja, *Hazen and Sawyer*

Agenda:

- 8:30 AM **Optimizing Partial-Denitrification/Anammox (PdNA) Startup in IFAS system with Low TIN Discharge Targets**
Md Al Sadikul Islam, *DC Water*
- 9:00 AM **Primary Effluent- and Glycerol-Driven PdNA for Large-Scale Potable Reuse: Maximizing Benefits from MBBR to IFAS Transition**
Mojtaba Farrokh Shad, *LA County Sanitation District*, Yewei Sun, *Hazen and Sawyer*

Shaping the Future of Water Reuse: Drivers, Feasibility & Challenges

8:30 – 10:00 AM

Effective water reuse planning is essential for sustainable resource management. This session will explore key drivers influencing water reuse initiatives, focusing on the feasibility of Direct Potable Reuse (DPR) and the role of discharge avoidance in the western United States. Participants will learn about technical, regulatory, and

community acceptance factors that shape DPR implementation and examine case studies that include considerations for a successful reuse program.

Moderator Tess Laffer, *AECOM*
Assistant Moderator Nona Jesmani, *CDM Smith*
Akshay Jain, *CDM Smith*

Agenda:

- 8:30 AM **Discharge Avoidance: Emerging Driver for Potable Reuse In The West**
John Rehring, *Carollo Engineers*
- 9:00 AM **Reuse along the Rockies: How Aurora Water Evaluated DPR Feasibility**
Jacqueline Kingdom & Bryan Coday, *Carollo Engineers*
- 9:30 AM **Seasonal Impacts of Nonpotable Reuse on DPR Feasibility**
Elizabeth Charbonnet, *Carollo Engineers*; Andrew Damron, *Napa Sanitation District*

Tackling PFAS: From Discharges to Watershed Mitigation Strategies
8:30 – 10:00 AM

This session will explore various strategies to mitigate PFAS contamination in watersheds, addressing impacts from the source to users across rivers, groundwater, and stormwater. Presentations will cover a range of approaches, including mitigation techniques for drinking water sources, groundwater remediation methods, and strategies to manage stormwater effectively.

Moderator Anastasia Rudenko, *GHD*
Assistant Moderator Vishal Vaidyanathan, *Jacobs*

Agenda:

- 8:30 AM **How Different Water Utilities Around the US are responding to PFAS contamination in Rivers**
Aleyda Matamoros & Viraj deSilva, *Freese and Nichols*
- 9:00 AM **Innovative Approaches to PFAS Control in Stormwater and Industrial Discharges**
Terry Reid, *Aqua-Aerobic Systems Inc*

Turning the Tide on the Silver Tsunami
8:30 – 10:00 AM

There is widespread concern in the industry related to the so-called silver tsunami, or the fact that experienced operations and maintenance staff are, or soon will be, retiring faster than the rate at which they can be replaced. This session offers some innovative strategies for meeting this challenge head-on.

Moderator

Coenraad Pretorius, *GHD*

Assistant Moderator

Jessica Stiner, *Infiltrator Water Technologies*

Agenda:

- 8:30 AM **Learning Lessons from Golden’s Compressed Workweek Pilot**
Sarah Reeves, *Brown and Caldwell*; Anne Beierle, *City of Golden*
- 9:00 AM **Navigating the New Normal: Embracing Continuous Organizational Change**
Patricia Butler & Lynn Herrick, *Great Lakes Water Authority*

Beyond BNR: Pushing the Envelope of Intensification Technologies

10:30 AM – 12:00 PM

This session consists of three presentations on the latest efforts in pushing the boundaries of intensification technologies. The first presentation is a full-scale demonstration of MOB to improve reliability of nutrient removal in cold weather. The second presentation is the use of inDENSE hydrocyclones for improving high-rate contact stabilization system performance. The third presentation is the application of aerobic granular sludge in saline conditions (as high as 5,000 mg/L Cl).

Moderator

Michael Liu, *LA County Sanitation District*

Assistant Moderator
Commission

Caroline Nguyen, *Washington Suburban Sanitation*

Agenda:

- 10:30 AM **The MOB Comes to Reno: Putting Mobile Organic Biofilm Technology to the Test**
Paul Steele, *Jacobs Engineering Group*
- 11:00 AM **Improving Settleability and Clarifier Capacity for High-rate Contact-stabilization Systems Through inDENSE Application**
Arame Diop, *DC Water/Catholic University*; Maria Mendoza Ramirez, *University of the District of Columbia*
- 11:30 AM **Keeping Granules Happy In A Salty Environment: Aerobic Granular Sludge Testing At Sand Island WWTP**
Rachel Shaw & Katerina Messologitis, *Stantec Consulting Services*

Collaborative Strategies for Private I/I Reduction

10:30 AM – 12:00 PM

This Knowledge Development Forum will demonstrate three effective approaches to reducing private inflow and infiltration (I/I), showcasing how targeted small-scale projects can yield significant, utility-wide benefits. Attendees will explore data-driven methods for identifying I/I sources, funding strategies to support private property programs, and best practices for engaging the public in collaborative solutions. Real-world case studies will demonstrate how these focused efforts translate into substantial reductions in overall system load and improved public infrastructure performance. The session will then breakout into case study evaluations for audience teams to brainstorm potential approaches and identify obstacles to implementation.

Lead Facilitator

Michael Piller, *Johnson County Wastewater*

Assistant Facilitator

Grant Zebold, *Lamp Rynearson*

Agenda:

10:40 AM

Invited Speaker Presentation: Angelee Strawder

Angelee Strawder, *East Bay Municipal Utility District*

10:55 AM

Invited Speaker Presentation: Shannon Mathes

Shannon Mathes, *Johnson County Wastewater*; Daniel Ott, *HDR Inc*; Troy Young, *TREKK Design Group*

Full-Scale Primary Sludge Fermentation

10:30 AM – 12:00 PM

This session explores the design and performance of full-scale primary sludge fermentation in several case studies. Primary sludge fermenters can provide an 'internal' source of carbon for nutrient removal facilities however they may also introduce nutrient loadings back to the mainstream. As facilities are required to meet lower effluent nutrient limits, it is therefore critical to account for internal nutrient recycles in addition to internal carbon recycles. In the second case study, participants will evaluate fermentation tests in full-scale gravity thickeners to assess fermentate quality and nutrient release under dynamic conditions to optimize nitrogen and phosphorus removal processes in the liquid train. The final case study will present key findings and lessons learned from a full-scale primary fermentation process.

Lead Facilitator Gillian Burger, *EnviroSim Associated Ltd*

Assistant Facilitator

Emily Korot, *CDM Smith*

Agenda:

- 10:30 AM **Insights from Full-scale Primary Sludge Fermentation for Carbon Management and Nutrient Removal**
McKenna Farmer, *Black & Veatch*
- 11:00 AM **Investigating Fermentation of Primary Sludge in Full-Scale Gravity Thickeners**
Shafkat Islam, *George Washington University*

Innovations in Membrane Treatment for Reuse

10:30 AM – 12:00 PM

Membrane treatment is an established feature of many municipal wastewater reuse systems but expanding its use for indirect and direct potable reuse applications is driving the need for innovation. This session presents new research that will take participants from filter feed pretreatment, to managing the membrane waste streams, and ending with reverse osmosis product water LRV compliance.

Lead Facilitator Ryan Beil, *Brown and Caldwell*
Assistant Facilitator Prithviraj Chavan, *Ardurra Group Inc*
James Scholl, *Kiewit*

Agenda:

- 10:30 AM **Partial Denitrification-Anammox Treatment of Reverse Osmosis Concentrate**
Bruce Mansell & Ariana Coracero, *LA County Sanitation District*
- 11:00 AM **Thinking Abnormally: A New Way to Look at RO Data**
Kyle Thompson, *Carollo Engineers*
- 11:30 AM **Ultrafiltration for Municipal Wastewater Reclamation and Potable Reuse**
Qinlin Li, *Plummer Associates*

Innovative Green Infrastructure Solutions in Diverse Urban Settings

10:30 AM – 12:00 PM

Controlling urban runoff includes numerous potential obstacles depending upon site specific issues. These presentations include three different approaches for addressing urban runoff by applying different green infrastructure solutions. Each example also includes discussion of ancillary benefits of the green infrastructure for the community at large.

Moderator Patrick Bradley, *Michael Baker International*
Assistant Moderator Francisco Haces-Garcia, *University of Houston*

Agenda:

- 10:30 AM **The Long's Park Treatment Wetlands and Park Enhancement Project**
Daniel Wible & Susan Beck, *Jacobs Engineering*
- 11:00 AM **Central Jefferson: Rethinking Alley Networks for Stormwater Capture**
Jason Fussel, *Tetra Tech*
- 11:30 AM **Merced Avenue Greenway Project: A Model for Future Urban Street Retrofits**
Jason Fussel, *Tetra Tech*

Lessons from Biosolids Project Startups

10:30 AM – 12:00 PM

Startup embodies the confluence of operations, construction, and engineering where methodical planning meets quick problem solving. This session includes lessons learned from startup of three distinct Class A biosolids treatment processes with ranging levels of technology maturity for installations throughout North America. The startup projects include temperature phased anaerobic digestion, thermal hydrolysis, and gasification projects.

Lead Facilitator

Vanessa Borkowski, *Stantec Inc*

Assistant Facilitator

Robert Sharp, *Manhattan College*

Agenda:

- 10:30 AM **Lessons Learned from the Start-up of the TPAD Process at San Jose-Santa Clara RWF**
Christopher Muller, *Brown and Caldwell*; Alicia Alba, *City of San Jose*
- 11:00 AM **Seeding, Startup, and Commissioning of THP Systems at Three WRRFs**
Laurel Schaich & Daniel Bond, *CDM Smith*
- 11:30 AM **Commissioning a Biosolids Gasifier System at a Water Resource Recovery Facility**
David Parry, *Jacobs*; Dave Mooney

Oil and Gas Water Treatment Solutions: Beneficial Reuse and Advanced Separation Technologies

10:30 AM – 12:00 PM

The session will cover new water treatment and reuse technologies for the oil and gas industry. Topics of discussion will include desalination and ammonia removal for sustainable disposal alternatives of produced water. The results of a pilot suspended air flotation (SAF) unit will be presented, emphasizing the effectiveness of SAF technology

for total suspended solids removal. This session aims to provide an overview of recent advancements in water treatment technologies and their applications in the oil and gas sector. Attendees will gain insights from industry experts on solutions for sustainable water management.

Moderator Fernando Almada Calvo, *Chevron Inc*
Assistant Moderator Tracy Still, *BP*

Agenda:

- 10:30 AM **Intensifying Refinery WWTU Secondary Solids Separation: Suspended Air Flotation Pilot Results**
Aditi Podder, *Brown and Caldwell*
- 11:00 AM **Beneficial Reuse of Permian Basin Produced Water**
Jeff Steinwinder, *Waggoner Engineering*
- 11:30 AM **Invited Speaker: Javier Casas**
Javier Casas, *Aris Water Solutions*

Operational Optimization through Digital Transformation Enablement and Adoption

10:30 AM – 12:00 PM

Have you heard the terms - Digital Water, Digital Twins, Digital Transformation, Information Revolution and other buzz words? If so, this session is for you. This facilitated discussion will take you through three organizational journeys to optimize their operations through technology enablement. Topics discussed include data and information retrieval, digital transformation roadmap, as well as enabling decision making through performance reporting.

Lead Facilitator Aditya Ramamurthy, *Raftelis*

Agenda:

- 10:30 AM **Enhanced Information Retrieval in the Digital Age**
Charles Woldorff, *Hazen and Sawyer*; Erika Bailey, *City of Raleigh*
- 11:00 AM **Beyond Consent Decree Compliance: Houston's Dynamic Program Evaluation Revolution**
Nish Senthilkumar, *Ardurra*; Fazle Rabbi, *City of Houston*
- 11:30 AM **Invited speaker: Matt Magruder**
Matt Magruder, *Milwaukee Metropolitan Sewerage District*

Pathways for Decarbonization and Circular Water Economy

10:30 AM – 12:00 PM

This session will delve into decarbonization and the Circular Water Economy by exploring the water industry's critical role to keep resources in use, design out waste,

regenerate natural systems and transition towards a fully renewable energy system. The session will begin with an introduction to the concept of a Circular Water Economy and the technical and the economic and environmental benefits of adapting this framework. The second and third speakers will present case studies from a utility and decentralized urban systems perspective, providing specific examples of feasible and cost-effective mitigation strategies and approaches to reduce energy and water consumption while regenerating resources with costs in mind.

Moderator Jennifer Walsh, *Hazen and Sawyer*
Assistant Moderator Rachel Chai, *University of South Alabama*

Agenda:

- 10:30 AM **Invited Speaker: Chris Wilson**
Chris Wilson, *Hampton Roads Sanitation District*
- 11:00 AM **Developing a Cost-Effective Resilient Decarbonization Strategy: Lessons for Decision-Makers**
Jeremy Kraemer, *GHD*
- 11:30 AM **Water and Wastewater Decentralization at Urban District-Level to Enhance Resiliency and Sustainability**
Manel Garrido, *Brown and Caldwell*

Pharmaceuticals, AMR, and Wastewater Treatment: Risks and Solutions

10:30 AM – 12:00 PM

Pharmaceuticals in the Environment (PiE) continue to pose significant risks to both the environment and to human health including the acceleration of antimicrobial resistance (AMR) which is projected to become the #1 cause of human deaths by 2050. This session will focus on the treatment, management, and risks of pharmaceuticals and AMR across industrial and municipal wastewater treatment systems and their receiving environments. The first paper is a case study reviewing the process design upgrades, overcoming commissioning & start up challenges, and the operational performance of the Grifols Therapeutics North Carolina on-site pharmaceutical WWTP complying with stringent Industrial User Pretreatment Permit (IUP) limits for discharging treatment biopharmaceutical wastewater effluent to the local municipal wastewater treatment system. The next paper is a case study reviewing the removal of 17 pharmaceuticals, personal care products or pesticides, and 23 high risk substances or their metabolites at a 120-MGD water reclamation facility in Nevada across various full scale and pilot wastewater treatment & potable reuse processes. The final paper will provide an overview of the mechanisms underlying antibiotic resistance and conduct a thorough analysis of existing guidelines, incorporating hypothetical scenarios of antibiotic release

from various sources, including residential, healthcare, manufacturing, waste management, and animal health non-point sources.

Moderator Mark Knight, *Arcadis Canada Inc*
Assistant Moderator Jayesh Chartal, *Jacobs Engineering*
Gary Hunter, *Black & Veatch*

Agenda:

- 10:30 AM **Production expansion and changing discharge limits at Grifols Therapeutics, North Carolina, USA calls for wastewater treatment plant upgrades**
Aleah Henry, *Veolia WTS USA*
- 11:00 AM **Pharmaceutical and Illicit Drugs Removal via Full-Scale Wastewater Treatment Processes**
Jessica Steigerwald, *Southern Nevada Water Authority*
- 11:30 AM **Mitigation of Antimicrobial Resistance (AMR) in Water Resources: Risk, Mitigation, Guidance and Policy Updates**
George Hollerbach, *Brown and Caldwell*

Regulations, Communications and Costs of PFAS for Utility Leaders
10:30 AM – 12:00 PM

The uncertainty around PFAS regulations and the potential costs of compliance have been a concern for Utility Leaders for the past several years. The regulations haven't been settled between Federal, State, and Local requirements, but the picture is becoming increasingly clear. This session offers a regulatory update along with a utility's case study to proactively communicate and build local support for upcoming PFAS challenges. Finally, the potential capital and operating costs of compliance will be explored for a range of situations.

Moderator Scott Schaefer, *Advanced Engineering and Environmental Services*
Assistant Moderator Shea Dunifon, *JEA*

- 10:30 AM **Analysis of Existing and Emerging Biosolids Beneficial Use Regulations**
Nickolas Hines, *Material Matters*
- 11:00 AM **Developing a PFAS Response Roadmap to Maintain Public Trust: Salem's Case Study**
Tyler Kane, *Carollo Engineers*

11:30 AM **Comprehensive PFAS Treatment Cost Estimates for Various Types of Water**

Shawn Lin & Hariprasad Parthasarathy, *Geosyntec Consultants*

Stormwater Strategies; Building, Implementing and Improving Regulations

10:30 AM – 12:00 PM

February 2022 marked a new era of stormwater management in New York City, as DEP established the Unified Stormwater Rules (USWR) to meet increasingly stringent state water quality requirements, align water quantity requirements between sites draining to combined sewer systems (CSS) or MS4, and provide comprehensive and standardized guidance for the design of stormwater management practices (SMPs) via an updated New York City Stormwater Manual (NYC SWM). This session will provide a comprehensive overview of both the process of developing improved stormwater management programs, as well as the approach to streamlining the implementation of these programs.

Moderator Clare Moriarty, *Arcadis*
Assistant Moderator Chirine Chidiac, *Arcadis*

Agenda:

10:30 AM **Policy Overview and Update**
Melissa Enoch, *NYCDEP*
10:50 AM **Process Streamline**
Tyler Carson

Thermal Treatment of PFAS in Biosolids

10:30 AM – 12:00 PM

With increasing and varied regulatory pressures, PFAS remains a challenge in wastewater treatment and biosolids disposal. This session aims to bring the latest developments in PFAS treatment and transformation through thermal treatment systems, including thermal drying, pyrolysis, gasification, and supercritical water oxidation (SCWO). These technologies are assessed using life cycle analysis and case studies on full-scale facilities.

Lead Facilitator Kyle Stern, *Kiewit*
Assistant Facilitator Jeanette Brown, *Manhattan College*

Agenda:

- 10:30 AM **Rethinking the impact of PFAS emissions in biosolids thermal processes through a holistic life cycle assessment**
Andrew Shaw, *Black & Veatch*
- 11:00 AM **Understanding Gasification for PFAS Removal in Residuals: Full-Scale Study Results from WRF Project 5107**
Mohammad Abu-Orf & Kamruzzaman Khan, *Hazen and Sawyer*
- 11:30 AM **Adopting Emerging PFAS Destruction Technologies: The Orlando SCWO Case Study**
Sudhakar Viswanathan, *374Water Inc.*

Tools for Addressing Emerging Contaminants in Wastewater Infrastructure Projects

10:30 AM – 12:00 PM

Utilities have the concern of removing the emerging contaminants and the costs involved. EPA has a web based tool that estimates the baseline EC removal and the treatment performance, cost, and environmental impact of additional processes to increase EC removal. This will assist utilities investigating a holistic approach to EC removal. The outcomes from the tool may be used in application for clean water state funding. Two case studies are included to exemplify how states and utilities are leveraging the EPA and state funding to address ECs in their communities and support our nationwide understanding of treatment options.

Moderator Smiti Nepal, *EPA*

Assistant Moderator Heather Strathearn, *EPA*
Jacob Adler, *EPA*

Agenda:

- 10:30 AM **EPA Emerging Contaminants Tools**
Sam Arden & Jake Powell, *Eastern Research Group*
- 11:00 AM **Connecticut/NEIWPCC Case Study**
Nisha Patel, *Connecticut Department of Energy and Environmental Protection*
- 11:30 AM **City of Orlando Case Study**
Corey Knight, *City of Orlando*

Unlocking Impact through Open Innovation: Past, Present, and Future

10:30 AM – 12:00 PM

This interactive, facilitated panel will explore the evolution of open innovation in the water sector, starting with pioneering efforts by DC Water and Hampton Roads

Sanitation District. These early efforts catalyzed a collaborative ecosystem involving utilities, academics, consultants, technology providers, and PhD researchers—all working together to advance impactful solutions. The session will unpack how this movement began, what lessons have emerged from early implementations, and how these learnings can shape the future of innovation. Expect a dynamic, presentation-free format focused on discussion, knowledge-sharing, and crowd-sourced insights from a diverse panel of experts.

Lead Facilitator Pusker Regmi, *Stantec*
Assistant Facilitator Sreerama Murthy Kasi, *Olsson*

Agenda:

10:30 AM **Invited Speaker: Sudhir Murthy**
Sudhir Murthy, *NEWhub Corp*

11:00 AM **Invited Speaker: Charles Bott**
Charles Bott, *Hampton Roads Sanitation District*

11:30 AM **Invited Speaker: Kevan Brian**
Kevan Brian, *Watercare Services Limited*

Using Collaborative Delivery to Build High-Performing Urban Resilience Infrastructure Programs

10:30 AM – 12:00 PM

This session will provide participants with an in-depth look at the innovative collaborative delivery programs that are leading to rapid improvements in the way resilience infrastructure is delivered in urban areas. Led by experts in the field, the session will focus on sharing diverse case studies from New York, Cook County, IL, and Seattle, WA, among other locals, to provide a first-hand perspective on how to set up and run innovative programs that lower costs and accelerate the deployment of resilience infrastructure.

Assistant Moderator Sarah Dobie, *Corvias Infrastructure Solutions LLC*

What's New in MOP 27? An Overview of Changes to Financing and Charges for Wastewater Systems

10:30 AM – 12:00 PM

WEF will publish a new edition of Manual of Practice 27: Financing and Charges for Wastewater Systems in the next few months. MOP 27 co-authors will present an overview of the manual content, as well as a summary of the changes made from the current version. Attendees will gain familiarity with the layout of the manual and where

to find information related to developing rates and charges for wastewater. This is a conversation and input session. Presenters will have 15 minutes and then provide questions to the audience to discuss for 10 minutes.

Lead Facilitator

Jennifer Ivey, *Carollo Engineers*

Advanced Strategies for Optimization of Sidestream Nitrogen Removal

1:30 – 3:00 PM

Sidestream nitrogen removal processes continue to be refined as lessons are gleaned from full-scale operating experience. This session will discuss the challenges with operating sidestream processes and how the lessons learned were applied to existing and next generation installations to optimize nitrogen removal.

Moderator

Mark Miller, *Brown and Caldwell*

Assistant Moderator

Michael Liu, *LA County Sanitation District*

1:30 PM **Navigating Process Challenges of Sidestream Nitrogen Removal: Insights from the Fond du Lac WRRF**

Eric Redmond, *Black & Veatch*

2:00 PM **Invited Speaker Presentation: Hampton Roads Sanitation District**

Megan Bachmann, *Hampton Roads Sanitation District*

Analyze This: Risk Based CIP Planning

1:30 – 3:00 PM

Risk Analysis CIP description: These presentation sessions focus on enhancing decision-making processes in organizational planning and risk management. The first session delves into innovative capital improvement planning approaches, emphasizing new methodologies and tools for prioritizing projects based on critical needs, resource allocation, and sustainability. Attendees will learn how to use data-driven strategies and risk management to optimize capital improvement processes. The second session focuses on integrating risk and vulnerability assessments into business decision-making, highlighting how identifying and mitigating risks can improve operational efficiency and strategic planning. Attendees will gain insights into leveraging risk analysis to make more informed, proactive business decisions.

Moderator

Grant Davies, *AECOM*

Assistant Moderator

Andres Villarraga, *Washington Suburban Sanitation Commission*

1:30 PM **Reinvigorating Capital Improvement Planning: Changing the Face of Project Prioritization**

Nicholas Anderson & Patrick Flynn, *Stantec Consulting*

2:00 PM **Risky Business: Using Risk and Vulnerability for Better Business Decisions**

Karina Yap & Mackenzie Capaci, *Kennedy Jenks Consultants*

Can Current Knowledge of CECs Keep Future Contaminants from Emerging?

1:30 – 3:00 PM

This session will provide examples of current management and knowledge pertaining to known contaminants of emerging concern, including PFAS, trace organics, and quaternary ammonia compounds. Then the speakers will engage the audience with questions about how the presented information might be applied to avoid recurring cycles of commercial and industrial chemicals posing concerns for human health and the environment. Attendees will be encouraged to discuss the questions posed in small groups to benefit from participants' varied perspectives and knowledge.

Lead Facilitator

Chris Wilson, *Hampton Roads Sanitation District*

Assistant Facilitator

Jennifer Walsh, *Hazen and Sawyer*

Nicole Fahrenfeld, *Rutgers The State University of NJ*

Brendan Zwiefel, *Facet Inc.*

1:30 PM **Quaternary Ammonia Compounds: Why are they so common, and why is nobody talking about them?**

Andrew Shaw, *Black & Veatch*

2:00 PM **A Framework for Prioritizing the Monitoring of Contaminants of Emerging Concern in Wastewater and Biosolids: The Paradox of Choice**

Javier Locsin, *CDM Smith*

Community Cybersecurity Approach: Secure by Design, Default, Demand, and Direction

1:30 – 3:00 PM

Security and resilience of water utilities benefits from a community approach. We will explore the critical concepts of 'Secure by Demand' (utility's perspective), 'Secure by Design' (integrator), 'Secure by Default' (product vendor), and 'Secure by Direction' (government). This presentation aims to provide a comprehensive understanding of how

these principles can be effectively implemented across the digital supply chain in the water sector to enhance the security posture of water utilities by enabling them to leverage the community. The session provides short presentations from each perspective and then facilitates a discussion of how they fit together to accomplish security through shared responsibility and community defense-in-depth.

Moderator Kenneth Crowther, *Xylem*

Assistant Moderator Damien Hugoo
Jill Randolph

1:30 PM **Introductions, Overview, Cybersecurity Challenges In Water Sector, Shared Responsibility Model**

1:45 PM **Utility Perspective And Examples Of Successful And Unsuccessful Methods Of Demand/Specifying Security From Integrators And Vendors**

Roger Caslow, *Hampton Roads Sanitation District*

2:00 PM **Integrator And Vendor Perspectives Describe Successes And Shortcomings Associated With Secure Development Lifecycle, Testing, And Assurance Cases**

John Karabias, *Jacobs*

2:15 PM **Government (CISA) Perspective Of Secure By Design / Secure By Demand Programs And Examples Of Successes And Challenges Across The Industry And Where To Go For Resources**

Matthew Rogers, *CISA*

Decarbonizing Water: GHG Measurement vs Estimates

1:30 – 3:00 PM

For nearly two decades, the Intergovernmental Panel on Climate Change (IPCC) guidelines have been the standard for estimating greenhouse gas (GHG) emissions carbon dioxide, methane, and nitrous oxide from wastewater systems. However, emissions can vary significantly among facilities, often leading to substantial over- or underestimations when using guideline-based methods. This session will explore innovative measurement techniques that provide facility-specific GHG emission data, offering a more accurate alternative to IPCC estimates and enabling meaningful comparisons.

Lead Facilitator Vaughan Harshman, *V&A Consulting Engineers*

Assistant Facilitator Amanda Lake, *Jacobs Engineering*
Ian Watson, *USP Technologies*

1:30 PM **Beyond One-Size-Fits-All: How Operational Patterns and Compliance Limits Shape Fugitive GHG Emission Variability in Wastewater Treatment Plants**

Ahmed AlSayed, *Northwestern University*

1:40 PM **Evaluating the Accuracy of Revised IPCC Guidelines for Nitrous Oxide Emissions**

Robert Swanson, *MWRDGC*

Design Build: Wetlands, Rivers, Storms, Oh My!

1:30 – 3:00 PM

This session explores three Design-Build projects from concept to construction, showcasing approaches to pipeline construction. Topics include in-system pipe storage to mitigate CSO events, siphon construction for river crossings, and a force main installation in wetlands. Presentations will examine the full lifecycle of design-build projects, from initial design concepts to construction execution and highlight lessons learned.

Moderator

Erik Johnson, *Ramboll*

Assistant Moderator

Andrew Peters, *Evansville Water and Sewer Authority*

1:30 PM **Reinventing an Old Technology: In-system Pipe Storage**

Brian Rubel, *Tetra Tech Inc*; Steven Rozycki, *Macomb County Public Works Commissioner*

2:00 PM **Fast Tracking Gravity Sewer Design And Construction Using Design-Build**

Julian Gomez, *CHA Consulting*; Arnelio Alfonso, *A&P Consulting Transportation Engineers*

2:30 PM **Siphon Design Under the West Fork of the Trinity River**

Kelly Davis, *Trinity River Authority of Texas*; Reyna Johnson, *LAN*

Full-Scale MABR Successes in Performance Optimization and N₂O Control

1:30 – 3:00 PM

This session highlights full-scale Membrane Aerated Biofilm Reactor (MABR) applications with a focus on system performance, biofilm development, and process optimization under dynamic loading conditions. Case studies will cover advanced monitoring approaches, integration with existing treatment infrastructure, and the operational levers influencing nitrification and denitrification. Particular emphasis will be

placed on quantifying and mitigating nitrous oxide (NO) emissions, positioning MABR as a viable strategy for energy-efficient, low-carbon nutrient removal.

Moderator Rudy Maltos, *Metro Water Recovery*
Assistant Moderator Brendan Zwiefel, *Facet Inc.*

- 1:30 PM **North America's First Full-scale OxyMem-based MABR: Lessons and Performance Results**
Jesus Flores, *Jacobs*
- 2:00 PM **MABR Biofilm Technology Reduces N2O Emissions: Results from Eight Full-scale Mainstream & Sidestream Applications**
Zebo Long & Sylvain Donnaz, *Veolia*
- 2:30 PM **MABR Breathing Insights: Monitoring Biofilm Health in Full-scale System Based on Exhaust Gas Measurements**
Ahmed AlSayed, *Veolia Water Technologies & Solutions*

Innovative Applications of Computational Fluid Dynamics Modeling

1:30 – 3:00 PM

Computational Fluid Dynamics (CFD) is a powerful tool used to understand flow dynamics. This interactive session analyzes three diverse applications of CFD modeling; from secondary clarifiers, advanced treatment systems, to pump station design. Plant operators and engineers will identify targeted solutions that enhance treatment efficiency and optimize plant operations. Participants will analyze the mixing behavior in a DEMON reactor to optimize performance. The final case study will explore CFD modeling for pump intake design.

Lead Facilitator Caroline Nguyen, *Washington Suburban Sanitation Commission*
Assistant Facilitator Ahmed Al-Omari, *Brown and Caldwell*

- 1:30 PM **Maximizing the Treatment Potential of Secondary Clarifier Using CFD**
Thomas Weiland, *LA County Sanitation District*, Arthur Xu, *HDR*
- 2:00 PM **CFD Modelling for DEMON Process Optimization at the Blue Plains Advanced Wastewater Treatment Plant (AWTP) of District of Columbia Water (US)**
Wim Audenaert, *AM-Team*
- 2:30 PM **Hydraulic Institute Pump Intake CFD Modeling Methodology Evaluation**
Ed Wicklein, *Carollo Engineers*

Making the Case for Energy Neutrality

1:30 – 3:00 PM

Finding a path to achieving energy neutrality can be a complex undertaking. Participate in analyzing a series of case studies that present a cross-section of alternative pathways for achieving energy neutrality, considering regulatory impacts, resilience, and potential revenue. Then discover how each considered project implementation to achieve these objectives and then see the outcomes.

Lead Facilitator

Erik Larson, *Vaughan Company*

Assistant Facilitator

Paul Bizier, *Barge Design Solutions Inc*

1:30 PM **Guidance to Selecting and Delivering the Optimal Bioenergy Project at WRRFs**

Alexis Valenti & Alison Nojima, *Brown and Caldwell*

2:00 PM **Low-Emission Hybrid Cogeneration for Optimal Energy Resilience**

Ted Couch, *Jacobs*; Scott McClelland, *Encina Wastewater Authority*

2:30 PM **Developing an Energy Neutrality Plan for the Metropolitan Water Reclamation District of Greater Chicago**

Joe Marino, *Brown and Caldwell*; Judith Moran, *Metropolitan Water Reclamation District of Greater Chicago*

Mapping and Modeling Mayhem: A Downpour of Flood Mitigation Solutions

1:30 – 3:00 PM

In recent years, flooding in U.S. communities has been exacerbated by intensified precipitation, and the flooding is expected to get worse. In this session, presenters will talk about how various forms of modeling and mapping can be used to plan for and mitigate flooding. The presenters will go over their unique case studies, then all presenters will join a panel discussion on which situations it is appropriate to use which model. The floor will be open for audience questions.

Lead Facilitator

Vishal Vaidyanathan, *Jacobs*

Assistant Facilitator

Anastasia Rudenko, *GHD*

1:30 PM **2D Storm Water Modeling: Case studies and lessons learned**

Khaled Abdo & Hazem Gheith, *Arcadis*

2:00 PM **Building A Stormwater Flood Resilience Plan: Mapping to Mitigation**

Joel Kaatz, *Arcadis*

2:30 PM **Floodplain change as a driver of long-term flood resilience**

Francisco Haces-Garcia, *University of Houston*

Nutrient Removal in Fish Hatchery and Egg Processing Wastewater 1:30 – 3:00 PM

Nutrients are necessary in producing food for human consumption. Lowering of discharge criteria for nutrients is requiring creative upgrades to wastewater treatment processes. This session will cover liquid/solid separation alternatives evaluated for phosphorus removal from fish hatchery wastewater, upgrading of dissolved air flotation for phosphorus removal and conversion to the Bardenpho process for nitrogen removal in wastewater from an egg processing facility, and total nitrogen reduction using algae in an egg washing wastewater.

Moderator Kristen Jenkins, *Kiewit*
Assistant Moderator Manel Garrido, *Brown and Caldwell*

- 1:30 PM **Leading the School: Demonstrating 50 g/L Effluent TP Limits in Hatchery Pilot Testing**
Mahsa Mehrdad & Samuel Brown, *HDR*
- 2:00 PM **Wastewater Treatment Plant Upgradation for an Egg Processing Facility**
Mahbuboor Choudhury, *Mott Macdonald*
- 2:30 PM **Egg-Washing Wastewater Treatment Using Algal-Bacterial Consortia and Bacterial Community Analysis**
Karthik Basthi Shivaram, *Purdue University*

Optimizing the Treatment Train using Advanced Primary Filtration and its impact on Secondary Treatment 1:30 – 3:00 PM

This session explores how advanced primary treatment with cloth media primary filtration can improve solids and organics removal, enhance biogas production and improve downstream treatment. Speakers will provide case studies from full scale and pilot scale studies for advanced primary filtration, demonstrating how it augments secondary treatment technologies. Attendees will gain insights into system performance and design considerations for implementation of these technologies at existing and new facilities.

Moderator Keith Sears, *AECOM*
Assistant Moderator Md Al Sadikul Islam, *DC Water*
Emily Korot, *CDM Smith*

- 1:30 PM **Evaluation and Pilot Testing of Primary Filtration for Upgrade of Silicon Valley Clean Water Resource Recovery Facility**
Jane Kao, *Silicon Valley Clean Water*; Onder Caliskaner, *Caliskaner Water Technologies*
- 2:00 PM **Taking Intensification One Step Further: Can We integrate Advanced Secondary Treatment Processes after Advanced Primary Treatment?**
Derya Dursun, *Caliskaner Water Technologies*
- 2:30 PM **A Utility's Journey to Advanced Primary Treatment: From Pilot Testing to Full-Scale Implementation of Pile Cloth Media Filter**
Vedansh Gupta, *Aqua Aerobic Systems Inc*; Kam Law, *Donohue & Associates Inc*

Practical Lessons from NYC's Porous Pavement Infrastructure

1:30 – 3:00 PM

This session highlights recent research and implementation efforts focused on porous pavement systems in urban stormwater infrastructure. Drawing on NYC DEP's large-scale deployment of precast porous concrete panels and porous asphalt, presenters will share field-tested findings on performance monitoring, maintenance strategies, and design optimization. The session includes infiltration testing, core sampling analysis, and equipment comparisons to evaluate cleaning effectiveness. Attendees will gain practical insights on construction quality, site selection, and operations and maintenance best practices for porous surfaces in stormwater programs.

Moderator Daniel Christian, *Tetra Tech Inc*

- 1:30 PM **NYC DEP Right of Way Green Infrastructure: Implementing Precast Porous Concrete Panels in the Gravesend Bay Neighborhood of Brooklyn, NY**
Adriana Kocovic, *NYC Environmental Protection*; Bernadette Callahan
- 2:00 PM **Evaluating Maintenance Methods for Porous Pavement in New York City**
Stephanie Castro, *Arcadis*; Miki Urisaka, *NYC Department of Environmental Protection*
- 2:30 PM **Evaluating Porous Asphalt Best Practices and Performance through Core Sampling Analysis**
Michael Moscariello, *Arcadis*; Miki Urisaka, *NYC Department of Environmental Protection*

Removal, Fate, and Sequestration of PFAS in Biosolids

1:30 – 3:00 PM

PFAS, throughout the biosolids handling and treatment process, is a challenge for WRRFs in all geographic regions. Detecting, assessing, and removing material from solids or liquid flow streams is becoming a more critical aspect of future planning for the beneficial reuse of final biosolids or facility effluent. This session will start with research into lower temperature PFAS removal from dewatering filtrate, then to thermal drying air emission control equipment, and conclude with a potential innovative use of multiple challenging waste streams into a single beneficial product. Covering both research and full-scale applications, this session covers a wide range of biosolids PFAS considerations.

Lead Facilitator Kwok-Wai Tsang, *CDM Smith*
Assistant Facilitator Stephanie Spalding, *HDR Engineering Inc*

- 1:30 PM **Catalytic Defluorination of PFAS in Municipal Wastewater, Sludge, and Dewatering Filtrate at Mild Temperatures (80 °F)**
Yitao Li, *Virginia Tech*
- 2:00 PM **Fate of PFAS Through a Biosolids Drum Dryer with Regenerative Thermal Oxidizer Emissions Control**
Alexander Seidel & Llyod Winchell, *Brown and Caldwell*

RO and ZLD: Balancing Efficiency

1:30 – 3:00 PM

When discharging from a facility that is limited or not an option—the combination of RO and thermal process are common concepts typically applied. Due to the nature of the water, RO can be coupled with an evaporator which can be followed by the crystallizer. This session will share collective experience on optimization of these processes.

Lead Facilitator Melody White, *In-Situ*
Assistant Facilitator Val Frenkel, *TYLin*
Kristen Jenkins, *Kiewit*

- 1:30 PM **Treatability Studies Assist Fine-tune Advanced Treatment and ZLD Design for Internal Reuse at an Industrial Facility**
Chandra Mysore, *Jacobs Engineering*

Talking One Water and PFAS: Proactive Utility Communications

1:30 – 3:00 PM

As the challenges surrounding PFAS continue to evolve, utilities must adopt strategic and proactive communication approaches to build trust and navigate operational complexities. This interactive panel session of utility leaders explores simplifying the

PFAS narrative through a One Water approach, emphasizing the importance of transparent, adaptive communication to engage stakeholders and effectively support utility reputation management. This is a panel discussion. It will not have traditional presentations but instead a dynamic discussion with a set of panelists. Panelists will provide brief remarks and will focus on their discussion and interaction with the audience rather than a presentation.

Lead Facilitator Shea Dunifon, *JEA*
Assistant Facilitator Marci Davis, *Jacobs Engineering*

1:30 PM **Talking PFAS: Practical Utility Communications**
Amy Shahar, *HDR*

Tertiary Filtration: Case Studies for Design Optimization

1:30 – 3:00 PM

This session explores advanced strategies in tertiary filtration, featuring case studies on pilot testing for design optimization. The abstracts will delve into the development of piloting criteria, testing approach, and tools used to evaluate design optimization solutions. The studies cover snail mitigation in MBR treatment, dissolved organic carbon removal in secondary effluent, and tertiary filter rehabilitation using media testing and CFD modeling.

Lead Facilitator Elizabeth Blair, *Black & Veatch*
Assistant Facilitator Vedansh Gupta, *Aqua Aerobic Systems*

1:30 PM **Snail Away: Snail Mitigation of Nitrification-Only Tertiary MBR**
Rachel Deco & Bellanira Lynch, *LA County Sanitation District*

2:00 PM **Removal of Dissolved Organic Carbon in Secondary Effluent with Mixed Media Bio-Filtration**
Jeneva Hinojosa & Rumana Riffat, *George Washington University*

2:30 PM **Using the Sharpest Tools for Tertiary Filtration Rehabilitation: CFD Modeling and Media Selection at DC Water's Blue Plains AWTP**
Ryu Suzuki, *DC Water & Sewer Authority*; Danny Murphy, *Carollo Engineers*