



LEADING  
THE FUTURE  
OF WATER



# WEFTEC 2024 Technical Program

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NEW ORLEANS CONVENTION CENTER

OCTOBER 5 -9, 2024

## WEFTEC 2024 Technical Program

### Monday Technical Sessions – October 7, 2024

#### **Building a Hydrogen Future**

Monday October 7, 2024 – 1:30 pm to 3:00 pm Room 244

Facilitators: Lee Gary, John Willis, Manel Garrido

- 1:30 pm *So You Want to Make H<sub>2</sub> at Your WRRF? Synergies, Pitfalls, and Opportunities*  
Ted Couch, Scott McClelland, Rexel Boter
- 2:00 pm *Feasibility of Green Hydrogen Production as Lulu Island WWTP: Final Effluent Pathway and Ammonia Pathway*  
Parisa Chegounian, AJ McCoy, Gemma Dunn, Shannon Hildebrandt, John Robertson, Ben Saffron, Lillian Zaremba
- 2:30 pm *Converting HPO to Nitrogen Removal: Closing the Oxygen Gap through Electrolysis*  
Samuel Reifsnyder, Lindsey Busch, Dale Gabel, Brendan Wolohan

#### **Case Studies - Implementing Stormwater Parks and Green Infrastructure Across North America**

Monday October 7, 2024 – 1:30 pm to 3:00 pm Room 354

Facilitators: Christopher Tabor, Anil Kumar Tangirala, Jenn Clarke

- 1:30 pm *Stormwater Parks: How to Create Economic and Social Resilience*  
Eric Dove, Chris Behr, Julie Stein
- 2:15 pm *Green Infrastructure Approaches: A National Perspective*  
Virginia Roach

#### **Ceramic Membranes for Industrial Water Reuse and Recovery**

Monday October 7, 2024 – 1:30 pm to 2:30 pm Room 338

Facilitators: Fernando Almada Calvo, Jacob Wurtz

- 1:30 pm *Electro-Ceramic Desalination of Challenging Industrial Wastewater*  
Greg Newbloom, Roland George
- 2:00 pm *Produced Water Treatment Using Ceramic Nanofiltration Membrane and the Interaction of Oil and Divalent Ions*  
Gyu Dong Kim, Youngchul Choi, Mustapha Soukri

## **DE&I – Representation and Impact**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 335

Facilitators: Hugh-berk Sinclair, Maria Reed

- 1:30 pm *Invited Speaker Presentation – Dr. Chalk with Healthy Community Services*  
Andrea Chalk
- 2:00 pm *Invited Speaker Presentation – Jeff Supak with Water Wise Gulf South*
- 2:30 pm *Invited Speakers Presentation – Andrea Hall and Haley Falconer*  
Andrea Hall, Haley Falconer

## **Decentralized Systems: Wastewater Management for Small Communities**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 349

Facilitators: Brandon Friedland, Alex Beck

- 1:30 pm *Coastal Community Resilience through Proactive Decentralized Wastewater Management Planning*  
Hillary Yonce, Holly Miller
- 2:00 pm *Challenges to and Strategies for Regionalization of Responsible Management of Decentralized Wastewater Infrastructure in the Rural Alabama Black Belt*  
Amal Bakchan, Kevin White
- 2:30 pm *Distributed Water Infrastructure Task Force Review: Advance the Understanding, Planning, Implementation, and Use of Distributed Infrastructures*  
Tristian Bounds, Lynn Broaddus, Edward Clerico, Zach Gallagher, Paula Kehoe

## **Effective Strategies for Managing Organics in IPR/DPR Systems**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 340

Facilitators: Ryujiro Tsuchihashi, Ryan Beil, Mahmudul Hasan

- 1:30 pm *Addressing Low Molecular Weight Organics in DPR using Membrane Bioreactors*  
Greg Wetterau, Joyce Lehman, Michael Liu
- 2:00 pm *RO Fouling Assessment of MBR-RO Trains using Flat-Plate MBR Membranes*  
Katarina Messologitis, Michael Adelman, Eric Bruce, Caitlin Glover, Joseph Jacangelo, Geno Lehman, Larry Morris, Donald Ryan, Nao Shimizu, Yasushi Terao
- 2:30 pm *Ion Exchange Potable Reuse: Organics and Salinity Removal Without RO*  
Melanie Pickett, Vincent Hart, Eva Steinle-Darling, Rosa Yu

## **Improving Disinfection Processes through Machine Learning**

Monday October 7, 2024 – 1:30 pm to 3:00 pm Room 346

Facilitators: Kayson Smith-Bejgrowicz, Josh Goldman, Jeff Moeller

- 1:30 pm *Machine Learning Soft Sensors for Energy Efficient Potable Reuse*  
Kyle Thompson, Amos Branch, Yoko Koyama, Kathryn Newhart, Andrew Salveson
- 2:00 pm *Machine Learning to Predict Pathogen Removal in Potable Reuse MBRs Based on Microbial Surrogates*  
Samarth Suruesh, Amos Branch, Andrew Salveson, Kyle Thompson
- 2:30 pm *From Prediction to Protection: Machine Learning for Wastewater Disinfection Efficiency*  
Joshua Registe

## **Innovative Approaches to Address Traditional Operational Challenges**

Monday October 7, 2024 – 1:30 pm to 3:00 pm Room 344

Facilitators: William McConnell, Coenraad Pretorius, Adrian Romero

- 1:30 pm *Determining Activated Sludge Characteristics Impacting Clarifier Capacity and Performance through Two Simple Measurements*  
Sakib Ahmad, Haydee DeClippeleir, April Gu, Yuang Li, Khoa Nam Ngo, Rumana Riffat
- 2:00 pm *Troubleshooting Nitrification Process Upsets with a Robust Testing Protocol*  
Ankit Pathak, Micah Blate, Wendell Khunjar, Haley Noteboom, Molly Sayles
- 2:30 pm *Densified Activated Sludge: Successful Analytical Methods for Process Performance Monitoring*  
Natalie Love, Ashley Bruhn, Cassandra Caley, Tracey Fielder, Rudy Maltos

## **Leveraging Automation and Analytics for Better Situational Awareness and Optimization: Part I**

Monday October 7, 2024 – 1:30 pm to 3:00 pm Room 350

Facilitators: Prabhushankar Chandrasekeran, Kahao Lim

- 1:30 pm *WRF 5121 - Final Report Overview: Long-Term Evaluation of Hybrid Digital Twins at Three Full-Scale WRRFs*  
Cheng Yang, Bruce Johnson, Keaton Lesnik, Tim Mason, Adrienne Menniti, Ivan Miletic, Monica Oristian, Drew Pienta, Joshua Registe, Leiv Rieger, Heather Stewart
- 2:00 pm *Unveiling Insights from Sensor Performance Tools: Discoveries from WRRF Software Implementation and Forward Recommendations*  
Lauren McIntyre, Luz Alejo, Evangelia Belia, Christian Huebner, Andrew Meyer, Mahsa Sadeghassadi, Oliver Schraa
- 2:30 pm *Evaluating Model Predictive Control for Aeration System Efficiency and Reliability*  
Nohemi Almaraz, Sean Cooney, Kimberly Cowan, Carson Elias, Daniel Freedman, Steven Kestel, Joshua Monsrud

## **Leveraging Digital Technologies to Make Better Decisions**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 235

Facilitators: Kevin Slaven, Augustina Osabutey

- 1:30 pm      *An Optimized CIP: Balancing Climate Change, Funding Dollars and More*  
Josh Soper, Matthias Wittenberg
- 2:00 pm      *Advancing AI-Based Sewer Inspection at West Boise Sewer District*  
Irene LaRocque, Daniel Buonadonna, Purnima Praturi, Alyce Tolman, Mark Wisbey
- 2:30 pm      *From Onsite to Remote Visual Inspections: How Wastewater Utilities Can Make Smarter  
Decisions When It Comes to Deploying Their Workforce More Effectively*  
Hanna Nyberg, Nils Irestedt

## **Navigating Nutrient Dynamics: Modeling for Water Quality Excellence**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 256

Facilitators: Eldon Blancher, Andrew Ba Than

- 1:30 pm      *Receiving Water Models: Linking Wet-Weather, Nutrient Management, and Water Supply*  
Eileen Althouse, Kimi Artita, Paula Kulis, Kin Man Leung
- 2:00 pm      *Puget Sound Point Source Regional Cost and Rate Study Summary*  
Amanda McInnis, Shruti Jagini
- 2:30 pm      *Re-Evaluating Established TMDLs: Applying True Adaptive Management to Improve Water  
Quality in High Value Receiving Waters*  
Clifton Bell, Amory Cervarich, Tim Hagan, Michael Milne

## **Optimization of MBR Technology**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 343

Facilitators: Thor Young, Elizabeth Heise

- 1:30 pm      *MBR-DAS: Densification Improves MBR Performance at the City of Detroit Lakes*  
Chris Shaw, Rob Bredeson, Susan Danzl, Sylvain Donnaz, Hui Guo, Jeff Peeters, Diego Rosso
- 2:00 pm      *Lessons Learned from 15 years of MBR operation at the Broad Run WRF*  
Jennifer Kaberline
- 2:30 pm      *A Flexible Design Concept for a 180 MGD MBR Facility*  
Colin Fitzgerald, Tim Constantine, Rachel Deco, Michael Liu, Bruce Mansell, Nikos Melitas, Nan  
Natanom-Harrold, Paul Swaim

### **Real Life PFAS Issues: WRRF to Watershed to Biosolids**

Monday October 7, 2024 – 1:30 pm to 2:30 pm

Room 253

Facilitators: Deborah Houdeshell

1:30 pm        *Translating PFAS Research into Action: Data, Perceptions and Application*  
Samir Mathur

2:00 pm        *Closing the PFAS Mass Balance to WRRFs and the Watershed*  
Scott Mansell, Bob Baumgartner, Amanda McGarry, Maria Rodriguez, Summer Sherman-Bertinetti

### **Solutions and Ideas from Award Winning Industrial Experts**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 243

Facilitators: Brian Arntsen, Abigail Antolovich, William Bratt

1:30 pm        Welcome and Overview of WEF Industrial Awards

1:40 pm        *Rudolfs Industrial Waste Management Medal*  
Divya Malyala, Lara Thurn

2:00 pm        *W. Wesley Eckenfelder Industrial Water Quality Lifetime Achievement Award Winner*  
Paul Bowen

2:20 pm        *W. Wesley Eckenfelder Industrial Water Quality Lifetime Achievement Award Winner*  
Michael Stenstrom

### **The Ultimate Collection Systems Basics Trivia Challenge 3.0**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 356

Facilitators: Jamie Davidson, Andrew Peters

1:30 pm        Introduction & *Opening Poll*

1:45 pm        *Grouting Basics*  
Trey Waagen

2:00 pm        *Cured-in-Place Pipe (CIPP) Basics*  
Erik Johnson

2:15 pm        *Grouting v. CIPP – An Owner’s Perspective*  
David Jurgens

## **THP: Downstream Process and Maintenance Challenges**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 240

Facilitators: Kwok-Wai Tsang, Matt Van Horne

- 1:30 pm      *A Week Becomes a Day: New Ideas and O&M Collaboration Leads to the Shortest THP Shutdown on Record*  
Stephanie Spalding, Shane Dearborn, David Ewing, Jeff Powell, Dylan Woolard
- 2:00 pm      *Filtrate rDON and Ortho-P Control Through Coagulant Addition During Dewatering of Thermal Hydrolysis Pretreatment-Enhanced Anaerobic Digester Sludge*  
Yitao Li, Caroline Nguyen, John Novak, Malcolm Taylor, Zhiwu Wang
- 2:30 pm      *Effect of Thermal Hydrolysis Pretreatment on the Friability of Thermally-Dried Digested Biosolid Pellets*  
Yitao Li, Robin Burch, Rafael Iboleon, Alex Eugene Novak, Zhiwu Wang, Dian Zhang

## **Water Policy Update – Part 1**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

La Nouvelle Ballroom B

Facilitators: Susan Sullivan, Scott Cummings, Nashita Naureen

Invited Speakers: Yu-Ting Guilaran, Dusti Lowndes, Deborah Nagle, Chris Peot, Andrew Sawyers, Zach Schafer, Lauren Wisniewski

## **WEF/AEESP Master Lecture: Tanja Rauch-Williams**

Monday October 7, 2024 – 1:30 pm to 3:00 pm

Room 238

Facilitators: Pusker Regmi

- 1:30 pm      *AEESP and WEF: A Two-Way Collection System*  
Lee Blaney, Tanya Rauch-Williams

## **Advances in Anaerobic Digestion**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 344

Facilitators: John Kabouris, Joyce Chang, Kyle Stern

- 3:30 pm      *Application of the Microbial Hydrolysis Process on an Existing Anaerobic Digestion System*  
David Parry, Madeleine Fairley-Wax, Per Nielsen
- 4:00 pm      *Application of Vacuum Extraction to Anaerobic Digestion for Process Intensification and Resource Recovery*  
Christopher Muller, Amr Abdelrahman, Ahmed Al-Omari, Katherine Bell, Eunkyung Jang, Ali Khadir, George Nakhla, John Norton, Domenico Santoro, Chris Sheculski
- 4:30 pm      *Performance Evaluation of Pilot Digestion Optimization Facility (PDOF) for Digestion Intensification of Metro Vancouver Anaerobic Digestion Facilities*  
Parisa Chegounian, Tyler Barber, Chris Choy, Stephane Flibotte, Theresa Gregonia, Farokh Laqa Kakar, Kelly Martin, Christopher Mueller, Michael Yesin, Susanna Yik, Lillian Zaremba

## **Community-Based Approach to Generate Equitable and Just Outcomes through Infrastructure Planning**

Monday October 7, 2024 – 3:30 pm to 4:30 pm

Room 354

Facilitators: Maria Reed

- 3:30 pm      *Operationalizing Equity in Long Term Control Plan (LTCP) Planning: Case Study of the Buffalo Sewer Authority*  
Nadia Mugisha, Rosaleen Nogle, Karyn Riley
- 4:00 pm      *Understanding the Community-Based Partnership Model: A Case Study of Prince George's County, Maryland*  
RJ Pire, Sarah Dobie

## **Consumer Education Fights Back at Collection Systems Under Attack**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 356

Facilitators: Emily Garner, Marci Davis

- 3:30 pm      *Toilet Talk: Changing Flushing Behaviour with Strategic Communications*  
Carol Nicolls, Dana Zheng
- 4:00 pm      *Let's Get Creative: Invasion of the Fatbergs, Meet the High School Video Contest*  
Julianne LaRock, Ryan Popko
- 4:30 pm      *Clearing Up the Confusion: Legislation for Wipes Labeling*  
Cynthia Finley

## **EBPR Pulse: Current Trends, Full-Scale Optimization, Model for Sustainability**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 243

Facilitators: Vedansh Gupta, Augustina Osabutey, Joseph Rohrbacher

- 3:30 pm      *Assessing the Current Landscape of Enhanced Biological Phosphorus Removal in Wastewater Treatment*  
Annalisa Onnis-Hayden
- 4:00 pm      *Optimization of EBPR at Full-Scale: Lowering Costs and Improving Effluent Quality*  
Riley Doyle, Charles Bott, Alexandria Gagnon
- 4:30 pm      *Modelling of Primary Sludge and RAS Fermentation for Carbon Management Optimization at WRRFs*  
Francesca Cecconi, Bishav Bhattarai, Leon Downing, Leah Pifer



## **Emerging Technical and Regulatory Issues in Petroleum Refinery Wastewater Management**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 240

Facilitators: David Marrs, Everett Gill

- 3:30 pm      *Selenium in Petroleum Refineries: Pervasiveness, Treatment Approaches, and Regulatory Status*  
Dominic Pontarolo, Jeffrey Allen, Kristen Jenkins, Arthur Sandy
- 4:00 pm      *Submerged Fixed Bed Bioreactor (SFBBR) Treats Colombia's Largest Refinery Wastewater*  
William Cunningham, Felix Suarez
- 4:30 pm      *Oil's Unchecked Outfalls: It's Time to Update Refinery Effluent Guidelines*  
Jennifer Duggan

## **Integrated Resilience and Reliability Planning**

Monday October 7, 2024 – 3:30 pm to 4:30 pm

Room 335

Facilitators: David Chamberlain, Shannon Harney

- 3:30 pm      *Incorporating Asset Management Reliability Elements in Water Resource Recovery Facility Design: A Case Study*  
Chris Machado, Laith Alfaqih, Marius Basson, Kristopher Hahn, Jared Marelli, Katherine Zhang
- 4:00 pm      *Is San Diego Ready for the Next Atmospheric River? Designing San Diego's Pump Station Network with Resiliency in Mind*  
Ed Othmer, Tony Adams, Kris Eckert, Jeff Endersby, Sean Neprud, Michael Phillips, Eric Sanchez, Nadarajan Sankaran, Cris Swain, George Tey, Bruce Wong

## **Leveraging Automation and Analytics for Better Situational Awareness and Optimization: Part II**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 350

Facilitators: Caroline Nguyen, Prabhushankar Chandrasekeran

- 3:30 pm      *New Process Control Opportunities Within Wastewater Treatment Facilities Through Real-time Nitrite and Nitrate Monitoring in Activated Sludge and Final Effluent*  
Eoin Murray, Oliver Jeeves, Colm Lynch
- 4:00 pm      *How to Solve Operational Challenges Using Data Driven Modeling and Optimization*  
Kendra Walter, Sara Troutman
- 4:30 pm      *Living Capital Planning Tools*  
Adrienne Menniti, Leila Barker, Peter Schauer, Ornella Sosa-Hernandez

## **Managing Biosolids for Tomorrow: Infinite Resources, Finite Uses**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 253

Facilitators: Vanessa Borkowski, Jack Segal

- 3:30 pm      *Working Towards a Sustainable Outlet for Maine Biosolids through a Regional Solution*  
William Brower, Tracy Chouinard, Scott Firmin, John Ross
- 4:00 pm      *Developing a Regional Biosolids Master Plan for the North Shore Water Reclamation District*  
Joe Marino, Trung Le, Persephone Ma, Emily Prentice, Natalie Sierra, Travis Vodnik, Steve Waters
- 4:30 pm      *A Comprehensive Case Study on Municipality Biogas Utilization: from Alternative Evaluation to Technology Selection*  
Yuan Fang, Drury Whitlock, Christoher Wilson

## **Microplastics in WRRFs: Research, Risk, and Regulation Updates**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 238

Facilitators: Jenny Reina, Nicole Fahrenfeld, Gary Hunter

- 3:30 pm      *Microplastics Thresholds to Inform Water Treatment Needs and Risks*  
Monica Emelko
- 4:00 pm      *Microplastics in Biosolids Treatment Stream: Abundance, Fate, and Methodologies*  
Yian Sun, Mohammad Abu-Orf, Cayla Cook, Derya Dursun, Shelly Walther
- 4:30 pm      *Microplastic Extraction From Wastewater: Comparison And Proposal Of Methods*  
Elinor Austin, Dana Austin, Diego Rosso, Yian Sun, Jimmy Wong

## **Nutrient Management: GET OUT (The Nutrients)!**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 343

Facilitators: Geoff Edwards, Madeleine Harris

- 3:30 pm      *Gaining Regulatory Support for a New Bioavailable Aluminum Analysis Method*  
Julia Crown, Bob Baumgartner, Zach Mander, Daniel Marrin, Emily Stefansson
- 4:00 pm      *Integrated Approaches to Reversing the Impacts of Nitrogen Eutrophication in Coastal Estuaries: Southeastern Massachusetts Case Studies*  
Anastasia Rudenko, Marc Drainville
- 4:30 pm      *Watershed-based Nutrient Management: Bay Area Update on Treatment and By Other Means Strategies*  
Michael Falk, Lorien Fono

### **Optimizing Design for Increased Capacity**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 349

Facilitators: Elizabeth Blair, Christopher Degroot

- 3:30 pm *Wet Weather Capacity Can't be Built in a Day, But Improved Settleability Can Shift the Paradigm Quickly*  
Alexandra Doody, Jason Boyd, Daniel Dair, Anjana Kadava, Douglas Nolkemper, Eric Staunton, Sarah Stewart, Alexander Szerwinski
- 4:00 pm *Utilization of Computational Fluid Dynamics Modeling to Optimize Design*  
Rachel Hanson, Tracy Lewis, Michael Schmidt, Marvin Weiss, Lauren Zuravnsky
- 4:30 pm *A Journey of Upgrades and Innovations to Achieve Capacity Improvements at Metro Water Services' Central WRF*  
Mark Miller, Kayla Bauhs, Jose Jiminez, Mark Miller, Diego Rosso, Douglas Yarosz

### **Reducing Wet Weather Flows Using Public and Private I/I Removal Solutions**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 346

Facilitators: Scott Belz, Alexandria King

- 3:30 pm *Leveraging Grant Funds to Reduce Private System I/I*  
Michelle Collins, Thomas Menke
- 4:00 pm *NapaSan Hits for the Cycle: Successful Collection System Rehabilitation*  
Andrew Damron, Matthew Lemon
- 4:30 pm *Everyone Wins: MMSD's PipeCheck Program - Teaming with Public to Reduce I&I*  
Sean Kilpatrick, Rebecca Specht

### **Revolutionizing PFAS Treatment: Harnessing the Power of Media Technologies**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 338

Facilitators: Prithviraj Chavan, Yuichi Ito, Scott Schaefer

- 3:30 pm *Novel Wastewater Treatment Process for PFAS Removal*  
Paul Rodriguez, David Brink, Dale Clark, Peter Elias, David Kempisty, Ashwini Khare, Jim Lord, Steven Woodard
- 4:00 pm *PFAS Removal in AWT: Using RSSCT to Accelerate GAC Design*  
Ramola Vaidya, Chistina Alito, Chance Lauderdale
- 4:30 pm *Spent Media Management Options for Industrial PFAS Treatment Applications*  
Alison Ling, Andy McCabe, Margaret Thompson, David Trueba, Sudhakar Viswanathan

### **Shaping the Future of Potable Reuse**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 340

Facilitators: Mahmudul Hasan, Gayathri Ram Mohan, Ryujiro Tsuchihashi

- 3:30 pm      *Challenges of Leveraging Pretreatment Programs for Advanced Water Treatment and Direct Potable Reuse*  
Mary Sadler, Stephanie Ishii, Troy Walker
- 3:50 pm      *Evaluating DPR for Small Communities: What Can Others Learn from the Village of Cloudcroft, NM?*  
Greta Zornes
- 4:10 pm      *Comprehensive Planning for DPR in Colorado: A Precedent Setting Project Putting New Regulations to Good Use*  
Kevin Linder, Jason Asouline, Tyler Nading
- 4:30 pm      *Master Planning WRRFs for Direct Potable Reuse Implementation*  
Vijay Sundaram

### **Standing on the Shoulders of Giants: Revisiting Seminal WER Papers**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 235

Facilitators: Christopher Degroot, Sreerama Murthy Kasi, Pusker Regmi

- 3:30 pm      *Cycling of Volatile Organic Sulfur Compounds in Anaerobically Digested Biosolids and its Implications for Odors*  
Matthew Higgins
- 4:00 pm      *Investigating the Dynamics of Volatile Sulfur Compound Emission from Primary Systems at a Water Resource Recovery Facility*  
Ulrich Bazemo, Ahmed Al-Omari, Haydee DeClippeleir, H. Hauduc, Sudhir Murthy, Imre Takacs, Alba Torrents
- 4:20 pm      *Aeration in Sludge Holding Tanks as an Economical Means for Biosolids Odor Control: A Zhiwu Wang*
- 4:40 pm      Application of Mechanical Shear in an Internal Recycle for the Enhancement of Mesophilic Anaerobic Digestion  
Mohammad Abu-Orf, Christop[her Muller, John Novak

### **Stormwater Infrastructure Operation and Maintenance: Management and Funding**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 244

Facilitators: Scott Rybarczyk, Rucha Shah

Invited Speakers: Gerald Bright, Michael Scaduto, Meagan Williams

## **Unleashing the Power of Digital Tools for Your Collection System**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

Room 256

Facilitators: Megan Livak, Andres Villarraga

3:30 pm        *The Sewerage & Water Board of New Orleans Enforces Compliance with Smart Technology*  
Corwin Washington, Phil Brenner, Wade Martin

3:50 pm        *Sewer Blockage Sensor Placement Optimization and Prioritization using AI, Advanced Data Analytics, and AGOL Dashboards*  
Lucas Djehdian, Kithsiri Tennakoon, Joel Wilson

4:10 pm        *The Next Wave of AI in the Sewer*  
Oscar Vasquez

4:30 pm        *Panel Discussion*

## **Water Policy Update – Part 2**

Monday October 7, 2024 – 3:30 pm to 5:00 pm

La Nouvelle Ballroom B

Facilitators: Alexie Kindrick, Susan Sullivan, Charlie Stevens

Invited Speakers: Paula Connolly, Kristiana Dragash, Ann Ferrio, Peter Garvey, Lori Johnson, Deborah Nagle, Andrew Sawyers, Adam Schnieders

## Tuesday Technical Sessions – October 8, 2024

### **Advancing Your Condition Assessment Program through Digital Technologies**

Tuesday October 8, 2024 – 8:30 am to 10:00 am Room 350

Facilitators: Phillip Sexton

- 8:30 am *Real-Time Sewer Monitoring Reduces Sanitary Sewer Overflows and Optimizes an Entire Collection System*  
Douglas Shoop, Jonathan Okafor
- 9:00 am *AI-based Smart Diagnosis System for CCTV Camera Inspection in Tokyo*  
Hideharu Nakagawa, Hiroaki Kobayashi, Ryosuke Kondo, Kazuaki Nagao, Kazuo Sakamaki, Yasuaki Sugimoto, Souichirou Tabuchi
- 9:30 am *AI-Based Sensor Anomaly Detection for Collection System Sensor Networks*  
Oliver Fradet, J. Camira-Bernier, Wolffie Miller, Shadab Shishegar

### **Assessing Climate Risk and Its Impact on Utility Operations: Financial Resilience and Insurability**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am Room 235

Facilitators: Audrey Ramming, Aliza Furneaux, Shea Dunifon

- 8:30 am *Introduction to EPA's Creating Resilient Water Utilities (CRWU)*  
Aliza Furneaux
- 8:45 am *Climate Data Maps and Resilience Planning*  
Audrey Ramming
- 9:00 am *Equitable Climate Adaptation*  
Nash Keyes
- 9:15 am *Discussion of Climate Change's Role in Utility Finances*  
Hardeep Anand, Matt Reis, Karri Ving

### **Driving the Circular Water Economy by Reusing Industrial and Municipal Effluents**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am Room 338

Facilitators: Mark Knight, Irena Hix, Tracy Still

- 8:30 am *Design of High Recovery Reverse Osmosis in ZLD and MLD Industrial Plants: A Comparative Analysis of Three Mega Projects*  
Ben Pakzadeh
- 9:00 am *Water Reuse in Sustainable Aviation Fuel Production*  
May Wu
- 9:30 am *Alternative Water Supplies in the Midwest: Reuse Roadmapping in Ohio*  
John Sheets, Erin Stachler, Greta Zornes

### **Energy Conservation: From a Want to a Must**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 346

Facilitators: Bob Dabkowski, David Mason

- 8:30 am *Green Energy, Less Power, Fewer Chemicals, Cleaner Water, Class A Biosolids: A Transformational Program at Chattanooga's MBEC With a Financial Payback*  
Paul Steele, Tim Constantine, Thomas Johnson, Juliet Ohemeng-Ntiamoa, Emma Shen
- 9:00 am *Energy and Other Efficiencies Gained from Influent Flow Equalization*  
Chris Maher, Erik Lorntson, Peter Schauer, Perry Sunderland
- 9:30 am *Efforts by the Bureau of Sewerage of the Tokyo Metropolitan Government to Address Power Shortages*  
Koichi Naito, Keita Futami, Go Shingu

### **Enhancing Water Safety: MBR & RO Technologies for Achieving LRV Credits**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 349

Facilitators: Val Frenkel, Naoko Munkata

- 8:30 am *Reclaimed Water Disinfection: Challenges and Solutions at Brightwater*  
Alison Payauys, Amos Branch, Andrew Salvesson, David Seymour
- 8:45 am *Prepping your Wastewater for Future Potable Reuse*  
Travis Stevens, Mitch Bartolo, Vincent Ines, Luciana Pereyra, Alexander Roberts
- 9:15 am *Performance Evaluation of an Online Membrane Integrity Monitor for Flat Plate MBRs*  
Larry Morris, Michael Adelman, Eric Bruce, Caitlin Glover, Joseph Jacangelo, Geno Lehman, Katerina Messologitis, Donald Ryan, Nao Shimizu, Yasushi Terao
- 9:00 am *Strategies for Gaining Pathogen Removal Credits using Reverse Osmosis Membranes*  
Eric Kong, Hunter Adams, Jorge Arroyo, Keisuke Ikehata, Manish Kumar, Daniel Nix, David Sloan, Mark Southard

### **Financing Stormwater Infrastructure in Communities**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 256

Facilitators: Juli Beth Hinds, Caroline Burger

Invited Speakers: Roger Babcock, Brian Donovan, Emily Platt, Julie Stein, Dallas Shattuck

## **Fundamentals of Biofilm Reactor Design and Operation**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am Room 238

Facilitators: Philip Ackman, Mehran Andalib, Caitlyn Butler

- 8:30 am        *Applications and Advantages of Biofilm Reactors*  
Jenny Reina, Martha Dagneu
- 8:50 am        *Biofilm Fundamentals and Characterization*  
Caitlyn Butler
- 9:00 am        *Operational Considerations of Biofilm Reactors*  
Philip Ackman
- 9:10 am        *Design and Project Considerations of Biofilm Reactors*  
William Leaf
- 9:25 am        *What is Biofilm SRT and Why Does It Matter?*  
Kelly Gordon
- 9:35 am        *Interactive Activity: Considerations in the Design of Biofilm Processes*

## **Innovative Approaches to Wastewater and Stormwater Permitting**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am Room 253

Facilitators: Justin Mattingly, Geoff Edwards, Debora Piemonti, Vishal Vaidyanathan

Invited Speakers: Jamie Hughes, Justin Mattingly, Jeff Navarro, Kevin Shafer, Jacqueline Zipkin

## **Intercepting Odors and Corrosion: Modeling, Mitigation, and Monitoring**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am Room 244

Facilitators: Vaughan Harshman, Ryan McKenna

- 8:30 am        *Studying Odor and Corrosion for 168 Kilometers of Large-Diameter Interceptor*  
Steve Graziano, Melissa Berry, Joel Brown, William Desing, Stephen Downing, Jason Matteo, Scott Schultz
- 9:00 am        *Air Dispersion Model as part of Odor Mitigation Optimization: DC Water - Potomac Interceptor*  
Eyasu Yilma, Kenrick St Louis, Matthew Ward
- 9:30 am        *Remote Smart Monitors Bolster Sewer Odor Mitigation Program for District of Columbia Water and Sewer Authority*  
Eyasu Yilma, Phil Brenner, Abhiram Satyadev



### **Internal Stored Carbon for Nutrient Removal**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 243

Facilitators: Belinda Sturm, Eric Polli

- 8:30 am        *Towards Sustainable WRRFs: Exploring the Potential of Internally Stored Carbon for Efficient BNR*  
Kayla Bauhs, Pusker Regmi
- 9:00 am        *Shedding Light on the Complex of Internal Carbon Driven Denitrifiers in Biofilm & Floc*  
Yuan Yan, Megan Bachmann, Mathew Baldwin, Charles Bott, April Gu, Stephanie Klaus
- 9:30 am        *Tale of Two WRRFs: Optimizing Internal Carbon for Meeting Low Nutrient Limits*  
Pusker Regmi, Kayla, Bauhs, Michael Marinelli, Caroline Nguyen, Alan Rowe, Brad Yeakle

### **Leveraging Drones & Automation to Improve Site Understanding**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 340

Facilitators: Amy Kopale

- 8:30 am        Drones 101: Current Technologies and Applications  
Jim Baker
- 9:00 am        *Streamlining Environmental Monitoring and Mapping with Drones*  
Mark Bickel
- 9:30 am        *Maximizing the Impact of Drone-collected Data with Automation*  
Andrew Reicks

### **Petroleum Refinery Problem Wastewater Constituent Removal Advances**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 240

Facilitators: Mikel Goldblatt, Louis Hagey, Prachi Jain

- 8:30 am        *Benzene Removal in a Petroleum Refinery Moving Bed Biofilm Reactor System*  
Jeffrey Allen, Greg Elliott, David Marrs
- 9:00 am        *Evaluation of Iron-Based Media for Selenium Removal from Water*  
Albert Togna, Robert Loken
- 9:30 am        *Exploring Complex Microbial Community Dynamics in Refinery Water Resource Recovery Facility (WRRF) Bioreactors Using a Novel Data Analysis Toolset*  
Danika Nicoletti, Jordan Schmidt

## **Planning Techniques to Support I/I Mitigation, Master Plans and Design**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 356

Facilitators: Eric Harold, Pradeep Sudini

8:30 am *2D or Not 2D: That is the Question*

Eric Kohnen, Amanda Hon, Allen Li, Ricardo Santaella

9:00 am *Significant I/I and SSO Volume Reduction Achieved by Unique GIM Dynamic Models and Optimized Capacity Improvement Projects Under Consent Decree*

Chunxian Li, Yan Hartkemeyer, Kai Iaukea, Brad Kleckley

9:30 am *Unifying Strategies for Wastewater System Revitalization: Lessons from the City of Copperas Cove*

Tristan Nickel, Daniela Lopez

## **Resilient Communities Tackling Climate Challenges**

Tuesday, October 8, 2024 – 8:30 am to 9:30 am

Room 335

Facilitators: Nicole Cohen, Alex Beck,

8:30 am *Show Me the Value! Virginia Beach's Flood Model Visualization Tool*

Leisha Pica, Shelly Frie

9:00 am *Dragonfly: An Integrated Approach to Resiliency*

Farshad Salehzadeh, Anthony Parente

## **Thickening and Dewatering: Design Considerations**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 354

Facilitators: Tracy Stigers, Emily Gottberg

8:30 am *Elevating Sludge Process Design: The Significance of Plant-Specific Rheology Data*

Luke Thompson, Elaine Leonard

9:00 am *Flux Capacity: Screw Press Sizing of the Future*

Alejandra Arce, Adam Parmenter, Jeff Prevatt

9:30 am *Primary Filtration Waste: How Do We Handle this High Volume Waste? Completing the Carbon Diversion PFD - SAF Pilot Results*

Eric Redmond, Leon Downing, Crystal Harness, Greg Knight, Caitlin Ruff

## **Tools for Urban Flood Management and Forecasting**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 343

Facilitators: Daniel Christian, Victoria Wanjohi

- 8:30 am        *Shifting Focus for the Future: How to Adapt a Current Plan to Create a Resilient Flood Protection System - Case Study Grand Forks, ND South End Drainway and Levee System*  
Amber Lefers
- 9:00 am        *Leveraging an Urban Flood Management Tool for Event Forecasting*  
Michele Samuels, Michael Ariante, Pablo Calabuig
- 9:30 am        *Restoring Predevelopment Hydrology with Smart Stormwater Controls*  
Jennifer Steffens, Dayton Marchese

## **Translating PFAS Risk Assessment into Regulation and Action**

Tuesday, October 8, 2024 – 8:30 am to 10:00 am

Room 344

Facilitators: Scott Schaefer, Pooja Sinha

- 8:30 am        *U.S. EPA Development of Water Quality Criteria for PFAS*  
Colleen Falherty
- 9:00 am        *EPA Updates to the Industrial Pretreatment Program Recommendations for PFAS and Local Limits*  
Jan Pickrel
- 9:30 am        *Success in Michigan: Mitigating PFAS Challenges Via A Robust Industrial Pretreatment Program*  
Gary Hunter

## **Climate-Proofing Our Cities: Transformative Solutions**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm

Room 340

Facilitators: Christopher Wilson, Caroline Burger, Kaylei Kambak

- 1:30 pm        *Design Guidelines for Climate Change Resilient Stormwater Infrastructure: A City of San Diego Case Study*  
Summer Bundy, Sara Dastgheibi, Michelle Hallack-Alegria, Michael McMahon, Ed Othmer, Babak Tehranirad
- 2:00 pm        *Climate-Ready until 2100: Philadelphia Water Department's Path to Adaptive Management*  
Rina Dalal, Allison Lau
- 2:30 pm        *A Stepwise Approach to Developing a Flood Emergency Planning and Climate Adaptation Program with Case Studies from Clayton County, GA and Boston, MA*  
Benjamin Agrawal, Ann Houseman

## **Developments in Hydrothermal Liquefaction for WRRFs**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm

Room 256

Facilitators: Adrian Romero, Sarah Guzman

- 1:30 pm *Invited Speaker Presentation: Practical Principles of HTL*  
Miki Santosa
- 2:00 pm *Characterization and Biodegradability Assessment of Hydrothermal Liquefaction Aqueous Phase Derived from Different Municipal Sludge Streams*  
Ibrahim Alper, David Blair, Cigdem Eskicioglu, Huan Liu
- 2:30 pm *Hydrothermal Liquefaction: Technical Risks and Mitigation*  
Lucy Cotter, Greg Archer, David Blair, Cigdem Eskicioglu, Zeno Farinelli, Huipeng Li, Derek Lycke, Shantell Richards, Ruth Roxburgh, Marie Taponat, Stephanie Wong, Lillian Zarembo

## **Full-scale Demonstrations: Balancing Risks and Rewards for Successful Innovation**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm

Room 349

Facilitators: Tanush Wadhawan, Prithviraj Chavan, Sreerama Murthy Kasi

Invited Speakers: Alexandria Gagnon, Per Nielsen, Tanja Rauch-Williams

## **Greenhouse Gas Strategies in Action: Measure to Mitigate**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm

Room 344

Facilitators: Robert Sharp, Elizabeth Manning

- 1:30 pm *Be Ambitious: Durham Region's Water and Wastewater Net-zero GHG Roadmap*  
Emma Shen, Dennis Beaulne, Joe Green, Ella Murphy, Maika Pellegrino
- 2:00 pm *Invited Speaker Presentation*  
Jeremy Kraemer
- 2:30 pm *How Columbus Used Fugitive Methane Quantification to Implement Fugitive Methane Abatement Solutions as Part of a Major Bioenergy Program*  
Trung Le, Nancy Andrews, Embrey Bronstad, Dante Fiorino, Katie Schaad, Geoffrey Schweinfurth, Emily Weidman, John Willis

## **How Could EPA's 2023 Review of Recreational Water Quality Criteria Affect WRRFs?**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm

Room 335

Facilitators: Kari Brisolaro, Rasha Maal-Bared, Chinmay Gaidhani, Melanie Mann

- 1:30 pm *Providing the Context & Panel Discussion*
- 2:00 pm *Understanding the Role of Human Bacteroides Analysis in Water Quality Investigations*  
Janel Bonn, Garrett Bergey
- 2:30 pm *Implications of the RCWQ on Utilities*  
Katherine Bell

### **Indigenous Environmental Practices: Lessons from the Past for the Future**

Tuesday, October 8, 2024 – 1:30 pm to 2:00 pm Room 356

Facilitators/Presenters: Garry McDonald, Kahao Lim, Charan Tej Tanneru

### **Interactive I/I Program Development: WEF-Town Needs Your Help!**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 354

Facilitators: Scott Belz, Alexandria King

1:30 pm *Intro and SSES Technical Presentations*  
Alexandria King, John Larson, Andy Lukas

### **International Experience: Safeguarding Our Shared Water Resources**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 346

Facilitators: Val Frenkel, Augustina Ostabutey

1:30 pm *Wastewater-based Epidemiology in Wales: From COVID-19 to One Health Monitoring*  
Bhavik Barochia, Gareth Cross, Tom Doyle, Isabel Durance, Kata Farkas, Jasmine Grimsley,  
Davey Jones, William Perry, Joe Shuttleworth, Andrew Weightman, Vikki Williams

2:00 pm *India's Original Direct Potable Reuse Project*  
Viraj DeSilva, Uday Kelkar

2:30 pm *Safe Use of Recycled Wastewater in Ulaanbaatar, Mongolia*  
Travis Watters, Enkhgerel Enkhuvshin, Nonhlanhla Kalebaila, Kumar Ranganathan, Travis  
Watters

### **Maintaining Water Quality During Wet Weather Events**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 338

Facilitators: Andrew Ba Than, Tad Slawecki, Vishal Viadyanathan

1:30 pm *Clean Water Act Compliance During Wet Weather: Lessons and Recommendations*  
Susan Paulsen, Tom Beneke, Lin Liang, Dendy Lofton, Ashley Parks

1:50 pm *Wet Weather and Water Quality: The Regulatory Puzzle Keeps Getting More Complicated*  
Patrick Bradley, Casey McKenzie

2:10 pm *Improving Stakeholder Engagement and Regulatory Decision-Making Through Enhanced  
Visualization and Animation of Water Quality Model Output*  
Brad Udvardy, Savineau Anouk, Volker Janssen, Grace LeRose

2:30 pm *Improving Stakeholder Engagement and Regulatory Decision-Making Through Enhanced  
Visualization and Animation of Water Quality Model Output*  
Debora Piemonti, Bob Baumgartner, Julia Crown, Chris Faulkner, Jamie Hughes, Scott Mansell

## **Manufacturer Highlights for Small Communities: Packaging the Big for the Small**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 235

Facilitators: Brandon Friedland, Faith Oviawe, Jessica Stiner

*Innovative Treatment Products* - Robert Kershner

*Delta Treatment Systems* - Brenda Faz Cresie

*Biomicrobics* - Joe Rebori

*Orenco* – Michael Saunders

*Jet* – Edward Schloss

## **Mechanistic Modeling Developments for Newer Processes**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 244

Facilitators: Gillian Burger, Jayesh Charthal, Martha Dagnev

1:30 pm *Densification Index/SVI Model: An Efficient Way to Predict Benefits of Biomass Densification in Full-scale MBR and MABR Wastewater Treatment Plants*

Hui Guo, Niclas Astrand, Sylvain Donnaz, Dwight Houweling, Chris Shaw

2:00 pm *Significance of Process Control Strategy in Dynamic Modeling and Optimization of Full-Scale Post Aerobic Digestion (PAD)*

Sara Arai, Mehran Andalib, Christopher Marks, Cole Sigmon

2:30 pm *Mathematical Modeling of an Anaerobic Moving Bed Biofilm Reactor*

Joshua Boltz, Yuhang Cai, Bruce Rittmann

## **Microbial Ecology Selection Under Low DO Concentration**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 253

Facilitators: Ahmed Al-Omari, Arifur Rahman

1:30 pm *Low Dissolved Oxygen Operation in Membrane Bioreactors- Revisiting Understanding 15 Years Later*

Eugenio Giraldo

1:40 pm *Advancing Low-Energy Biological Nutrient Removal through Low Dissolved Oxygen Operation: Is Biological Selection the Key?*

Jose Jimenez, Kayla Bauhs, Peter Dold, Stephanie Fevig, Mark Miller, Belinda Sturm, Megan Wittman

1:50 pm *Microbial Adaptation to Low DO Biological Nutrient Removal*

Lilian McIntosh, Charles Bott, Alexandria Gagnon, Stephanie Klaus, Kester McCullough, Haley Morgan, Tanja Rauch-Williams, Peter Vanrollegham

2:00 pm *Panel Discussion*

### **PFAS in Wastewater: What Should Utilities Do Next?**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 238

Facilitators: Janine Burke-Wells, Zonetta English, Majid Khan, Eric Spargimino

- 1:30 pm *Understanding Your Problem: Is There a Problem?*  
Eric Spargimino
- 1:45 pm *PFAS Research to Reality*  
Charles Schaefer
- 2:10 pm *Managing Upstream Sources/PFAS Inputs in the Sewer Shed*  
Erica McKenzie
- 2:35 pm *Communication with Your Stakeholders and Regulators*  
Chuck Larson

### **Primary, Secondary, and Tertiary Applications of Advanced Filtration Technology**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 350

Facilitators: Thor Young, Vednash Gupta

- 1:30 pm *Evaluation of Advanced Primary Treatment Technologies at Water Resource Recovery Facilities for Carbon Diversion and Management*  
Onder Caliskaner, Brian Davis, Derya Dursun, Everado Martinez, George Tchobanaglou, Yuanbin Wu
- 2:00 pm *Activated Sludge Dynamic Filter Achieves Quality Effluent in Small Footprint*  
Dennis Barnes, Benay Akyon, Charles Bott, Wenjun Liu
- 2:30 pm *Advanced Phosphorus Removal with Woven Cloth Filters: Full Scale Experience*  
Matthew Castillo, Jens Landuyt, Petter Olsson, Chandan Satpathy, Mark Stewart, Simbarashe Washaya

### **Protect Your Utility from Cyber Attacks**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 243

Facilitators: Lauren Wisniewski, Beverly Henshaw, Dusti Lowndes

- 1:30 pm *Cybersecurity Threats, Tools, and Resources*  
Clyde Roark
- 2:00 pm *Water Utility Cybersecurity Practices and Perspectives*  
Joe Edwards
- 2:30 pm *Scanning Your Wastewater System for Vulnerabilities*  
Amy Thomas

## **Treatment Challenges and Reuse within the Semiconductor Industry**

Tuesday, October 8, 2024 – 1:30 pm to 3:00 pm Room 240

Facilitators: Ian Fife, Jayesh Charthal, Alexes Garrett, Sara Theodoulou

1:30 pm *End-of-Pipe Zero Liquid Discharge Coupled with Ultrapure Water Recycling: Building Critical Resilience in the Semiconductor Industry*

John Rydzewski

2:00 pm *Managing Unintended Consequences: Mitigating Disinfection Byproduct Formation Via Modified Disinfection Chemistry*

Eric Staunton, Audrey Karl

## **Advancements in Nutrient Removal: Insights from Urban Watersheds**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm Room 344

Facilitators: Heather Harris

3:30 pm *Performance of an Active Phosphorus Removal Filter in an Urban Watershed*

Andy McCabe, Ross Bintner, Janna Kieffer, Sorel Nelson, Keith Pilgrim, Erica Sniegowski

4:00 pm *Filter Marshes: A Nature-Based Solution to Improving Water Quality*

Isabel Hall, Danny Nelson

4:30 pm *Improving Wilmes Lake, One Dose at a Time*

Kyle Axtell, Bridget Osborn

## **Application of Machine Learning and Modeling in Carbon Diversion Technologies**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm Room 243

Facilitators: Arifur Rahman, Michael Liu

3:30 pm *Predicting Primary Clarifier Performance with Traditional and Machine Learning Models*

Nicholas Guho

4:00 pm *Harnessing Machine Learning for Enhanced A-Stage Process Efficiency: A Pioneering Full-Scale Study*

Ahmed Alsayed, Haydee De Clippeleir, Usman Khan, Khoa Nam Ngo, George Wells

4:30 pm *Use of a Hybrid Digital Twin for Carbon Diversion Estimation in Chemically Enhanced Primary Treatment*

Bruce Johnson



## **Benefits and Approaches to Moving Dewatering into the Modeling Realm**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 338

Facilitators: Matthew Higgins, David Oerke, Pusker Regmi

3:30 pm *Benefits of Modeling Dewatering*

Jeffrey Nicholson

3:45 pm *Case Study: Empire WWTP Dewatering Performance - Concept Development and Testing using Biowin and its State*

George Sprouse

4:05 pm *Concept Development to Estimate Polymer Demand and Cake Solids using State Variables from SUMO*

Matthew Higgins

4:25 pm *Modeling Approach III: SUMO Extended Model*

David Oerke

## **Enhancing Nitrogen Removal: Insights into Carbon Sources and Mechanisms**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 340

Facilitators: Mark Miller, Kayla Bauhs

3:30 pm *An Evaluation of Dual External Carbon Source Strategies for the Full Denitrification Process*

Chengpeng Lee, Hossain Azam, Haydee De Clippeleir, Jacob Hatcher, M.A. Sadikul Islam, Khoa Nam Ngo, Rumana Riffat, George Wells

4:00 pm *Optimizing Side Impacts of Using Primary Sludge Fermentate for Shortcut N Removal in Chemical P Removal Facilities*

Shafkat Islam, Hossain Azam, Haydee De Clippeleir, Emilia Kozeracki, David Lapidus, Arash Massoudieh, Sara Mendoza, Khoa Nam Ngo, Bipin Pathak, Rumana Riffat

4:30 pm *Mechanistic Understanding of the Kinetic Difference Between the Methanol and Glycerol-driven Partial Denitrification Anammox in Low Nitrogen Polishing Moving Bed Biofilm Reactors*

Jiefu Wang, Sajana Chitrakar, Wendell Khunjar, Michael McGrath, Gregory Pace, Yewei Sun, Zhiwu Wang

## **Exploring the Future Impacts and Improving Utilities Readiness for AI Implementation**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 256

Facilitators: Sarah Reeves, Salil Kharkar, Prachi Salekar

Invited Speakers: Prabushankar Chandrasekeran, Jeffrey Sparks, Peter Vanrollegham

## **Modeling for Inland Flood Resilience**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 350

Facilitators: Virginia Roach

- 3:30 pm *Peterborough Integrated Flood Model: A Comprehensive Approach to Managing Flood Risk*  
Ricardo Santaella, Ian Boland, Eric Kohnen, Michael Papdacos
- 4:00 pm *Model Redo: How Public Feedback Impacted the Flood Reduction Solutions*  
Caroline Burger, Alaina Baker, Jojo O'Brien
- 4:30 pm *From IDEAs to a Rain Ready San Diego: Solving the Stormwater Planning Puzzle to get the Most Value Out of Your Capital Investment*  
Leila Talebi, Sara Dastgheibi, Iman Hosseini-Shakib

## **N<sub>2</sub>O Unmasked: Understanding and Taming Emissions**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 253

Facilitators: Martha Dagneu, Anna Cleaver, Adrian Romero

- 3:30 pm *Understanding Nitrous Oxide (N<sub>2</sub>O) Impacts on Carbon Footprint When Considering the Full Footprint of Nutrient Removal*  
Leon Downing, Bishay Bhattarai, Synthia Mallick, Prachi Salekar, Fabrizio Sabba
- 4:00 pm *Design WWTPs with Minimal N<sub>2</sub>O Emissions and Best Effluent Quality*  
Gaicommo Bellandi, Wim Audenaert, Simon Duchi, Kristin Isaksson, Christel Kampman, Roberta Muoio, Usman Rehman, Tom Weijtmans, Qing Zhao
- 4:30 pm *Impacts of Carbon Source Selection on GHG Emissions*  
Ryan Coleman, Carol Hee

## **Optimizing Membrane Efficiency for Water Reuse and Disinfection**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 349

Facilitators: Ajay Shrivastav, Bob Dabkowski

- 3:30 pm *Precision in Practice: Water Quality Optimization for UF Plant Efficiency*  
Amos Branch, Dan Hugaboom
- 4:00 pm *Effect of Divalent and Metal Cations on the Organic Compounds Responsible for the Fouling of Ultrafiltration Membrane Treating Algae Laden Water*  
Edwin Castilla-Rodriguez, Hongde Zhou
- 4:30 pm *Give Membranes the Virus Removal Credit They Deserve: Using Rapid In-Field Molecular-Based Methods (WRF 5209)*  
Rasha Maal-Bared, David MacNevin, Emily Wood

### **PFAS in Biosolids: Remove and Track it**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm Room 238

Facilitators: Todd Williams, Ashwin Dhanasekar, Christine Hengel-Prom

- 3:30 pm *PFAS Data Guidelines and Implications to Fate through Thermal Processes*  
Lloyd Winchell, Katherine Bell, Nicholas Merchant-Wells, Martha Wells
- 4:00 pm *Market Value for Various Biosolids Products from Innovative Biosolids Technologies (WRF Project #5169)*  
Asa Lewis, Mohammad Abu-Orf, Micah Blate, Christian Evans, Matthew Higgins, Paul Knowles, Yian Sun, Mark Teshima
- 4:30 pm *Initial Results from PFAS Destruction Testing in Ultra High Temperature Ionic Plasma Synthesis Reforming*  
Brandon Davis, James Henderson

### **Pump Station Design Considerations and Construction Solutions**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm Room 244

Facilitators: James Shelton,

- 3:30 pm *Key Considerations for Constructability and Maintenance Efficiency at the Crum Creek Pump Station*  
Nick Lewis
- 4:00 pm *Climate Change Preparedness and Mitigation of the Aurora Sewage System*  
Dean Whittaker, Jean Daviau, Sinclair Garner, Brian Ho, Jose Manalo, Jose Oliveira, Maira Rafiq, Lauren Stephanoff
- 4:30 pm *Utilizing In-line Pressure Reducing Stations to Solve System Capacity Constraints*  
Charles Starling, Jason Gault, Brock Jones, Charles Starling

### **Resilient Solutions in Response to Nature's Forces**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm Room 335

Facilitators: Jennifer Walsh, Frances Burlingham, Haley Falconer

- 3:30 pm *Our Journey: The Unprecedented Wildfire Response of the Lahaina WWRf*  
Cassandra Martin, Deborah Aweau, Martin Guilmette
- 4:00 pm *Infrastructure Resilience in the Face of Extreme Weather Events: 'Domino Effect'*  
Garry McDonald, David Wilson
- 4:30 pm *The 'Perfect Storm' for Australian Water Utilities*  
Garry McDonald, Peter Dennis, Nicole Holmes, Matthew Snell

### **Water Recovery in Livestock Production**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 235

Facilitators: Kristen Jenkins, Kai Zhang

- 3:30 pm      *Achieving Stable Performance by the Co-digestion of Livestock Manure and Food Waste in an Anaerobic Sequencing Batch Reactor (AnSBR)*  
Victory Fiifi Dsane, Jaemin Choi, Yongju Choi, Minki Jung, Shin Joh Kang, Daehwan Rhu
- 4:00 pm      *Producing Clean Water From a Full-scale Digested Manure Facility*  
Samik Bagchi, Scott Crosby, Robert Levine, Suhas Srivastava
- 4:30 pm      *The Results of MBR Operation of MLSS without Air in High Concentration MLSS Livestock Wastewater Sludge*  
HoChan Jung

### **What IS the Workforce of the Future? Utility Leaders Roundtable**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 354

Facilitators: Zonetta English

Invited Speakers: Tony Parrott, Christine Volkay-Hilditch

### **What Will You Make of Your Biogas?**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 346

Facilitators: John Willis, Cat Gowan, John Norton

- 3:30 pm      *Codigestion Decreases Oneida County WPCP Energy Consumption by 50 Percent*  
John Story, Dale Lockwood III
- 4:00 pm      *How WSSC Water Gets the Biggest Return for Digester Gas Energy*  
John Willis, Robert Taylor
- 4:30 pm      *A Techno-Economic Analysis on Biogas Carbon Capture for Implementation at Water Resource Recovery Facilities*  
Alison Nojima, Peibo Guo, Trung Le, Adam Ross, Alexis Valenti

### **Zero Liquid Discharge (ZLD): Process Selection, Design and Operations**

Tuesday, October 8, 2024 – 3:30 pm to 5:00 pm

Room 343

Facilitators: Daniel Wilson, Michael Falk, Ian Fife, Joe Kasl

- 3:30 pm      *ZLD Definition and Technology Options*  
Daniel Wilson
- 4:00 pm      *Thermal System Design and Construction*  
Vincent Como
- 4:30 pm      *ZLD Operations and Concerns*  
Daniel Sampson

## Wednesday Technical Sessions – October 9, 2024

### **Air Quality Issues Beyond Odors: Bioaerosols and GHGs**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 344

Facilitators: Raymond Porter, Christopher Hunniford

- 8:30 am        *Antibiotic Resistant Bacteria and Genes in Bioaerosols at Wastewater Treatment Plant: Should I Be Worried?*  
Nicole Fahrenfeld, Jim Byrne, Aishwarya Deshpande, Taewon Han, Gediminas Mainelis
- 9:00 am        Invited Speaker Presentation  
John Willis
- 9:30 am        *The Perfect Trifecta of Wastewater Collection: Odor Control, Prevent GHG Emissions, and Reduce BOD*  
Garret Schleis

### **Building the Workforce of Tomorrow**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 238

Facilitators: Patricia Butler, Jayla Berry, Faith Oviawe

- 8:30 am        *Navigating Staffing Issues through the Decades in Niagara Falls*  
Richard Roll, Sean Costello
- 9:00 am        *Utilizing the Motivation Behind the New Workforce to Build a Successful Internship Program through Purpose Driven Work*  
Anna Schroeder, Zeena Williss Kohr
- 9:30 am        *Inclusive Leadership and the Elements of Professionalism*  
Donnell Duncan, Tony Carnell

### **Cybersecurity Threats: Managing Your Facility's Risk**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 356

Facilitators: Steve Mustard

- 8:30 am        *What Every Water Utility Should Know About Cyber Security: Minutes Matter, Seconds Count*  
Chad Humphries
- 8:40 am        *U.S. Environmental Protection Agency Perspective*  
Nushat Thomas
- 8:50 am        *State Regulatory Agency Perspective*  
Jack Segal
- 9:10 am        *Local Utility Perspective*  
Dusti Lowndes

## **Enhancing Digestion to Improve Operations and Resource Recovery: Capture of Control**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 256

Facilitators: Stephanie Spalding, Christine Hengel-Prom

- 8:30 am        *Evaluating the Potential of Recovering Vivianite for Phosphorus Removal and Improving Class A Biosolids Applications*  
Peibo Guo, Melissa Bollmeyer, Haydee DeClippeleir, April Gu, Nam Ngo, Chris Peot, Matthew Reid, Yuan Yan
- 9:00 am        *Phosphorus Sequestration in Biosolids, Nuisance Struvite Control via PAD and Chemical Addition to TH-AD Digestate*  
Caitlin Harris, Charles Bott, Dana Gonzalez, Holly Anne Matel, Jeffrey Nicholson, BJ Ward, Arba Williamson, Chris Wilson
- 9:30 am        *Follow the Nitrate Pathway to Cleaner Digestion & More Biogas*  
Matthew Williams, Richard Pressley, Justin Wippo

## **Exploring Force Main Condition Assessment Programs**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 354

Facilitators: Jennifer Steffens, Jim Shelton

Invited Speakers: Jay Kniker

## **Full-scale Intensification Experience**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 343

Facilitators: Eric Redmond, Prachi Salekar

- 8:30 am        *Asset Reduction Through Intensification*  
Kevan Brian
- 9:00 am        *Combining Metabolic, Kinetic and Physical Selection to Achieve Full-Scale Continuous Flow Densified Activated Sludge and Nutrient Removal at Robert W. Hite Treatment Facility*  
Rudy Maltos, Liam Cavanaugh, Daniel Freedman, Alonso Griborio, Wendell Khunjar, Ron Latimer, Alyssa Mayer, Haley Noteboom, Ryan Priest, Tanja Ruach-Williams, Anna Scopp, Yewei Sun
- 9:30 am        *MABR-DAS: Coupling MABR & Densification for Enhanced Biological Selection*  
Niclas Astrand, Jean Gagnon, Jeff Peeters

## **Infrastructure Needs: State and Federal Lessons from the Clean Watersheds Needs Survey**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 335

Facilitators: Joshua Klein

Invited Speakers: Lynette Claudon, Nathan Walker

## **Leveraging Advanced Condition Assessments for Facility Planning Activities**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 346

Facilitators: David Chamberlain, Shannon Harney

- 8:30 am        *569 - Large In-Plant Pump Station Condition Assessment: It's All in the Planning*  
Jesse Wallin, Kyle O'Dea
- 9:00 am        *From Zero to 100 Miles in Less than Four Years*  
Luis Leon, Mathew Watson
- 9:30 am        *Lessons Learned from Seven Years of MSI*  
Stephen Johnson, Kristin Feng, Mazen Kawasmi, Lauren Kubin, Marty Luke

## **Leveraging Machine Learning for Facility Operations**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 253

Facilitators: Gillian Burger, Manel Garrido

- 8:30 am        *Understanding the Potential for Reinforcement Learning-Based WRRF Control Optimization*  
Henry Croll, Karou Ikuma, Say Kee Ong, Soumik Sarkar
- 9:00 am        *Market Analysis of WRRF Real-Time, AI-Driven Optimization Solutions*  
Steven Kestel, Thomas Debruyne, Omar Hammond, Coenraad Pretorius
- 9:30 am        *Utilizing Intelligent O&M to Harness Machine Learning Across the Water and Wastewater Industry*  
Jashua Registe, John Rickermann

## **Lithium Recovery Using Advanced Water Treatment Technologies**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 349

Facilitators: Kristen Jenkins, Sara Menzies

- 8:30 am        *Lithium: An introduction to What, Where and How*  
Jeff Easton
- 9:00 am        *Reducing Energy Use and Costs of Zero Liquid Discharge for Lithium Brine Mining, Battery Manufacturing, and Battery Recycling*  
Erik Desormeaux, Eric Kadaj
- 9:30 am        *From Solubility Curves to Digital Twins: The Journey to Real-Time Optimization and Planning in Lithium Extraction*  
Leslie Miller

## **Optimizing IPR/DPR Projects: Harnessing the Power of Ozone**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 235

Facilitators: Graham Juby, Chinmay Gaidhani, Isabelle Sexton

- 8:30 am *Design and Operation of Ozone/BAC for Water Reuse - Experiences from Europe and USA*  
Uwe Hußner, Benay Akyon, Thomas Franz, Achim Ried, Steffen Ruetting
- 8:50 am *Pure Water Monterey: A Case Study for Ozone Sidestream Injection in Water Reuse Applications*  
Jim Lauria, Erich DeLang, Tom Steinke
- 9:10 am *Comparing Chemical and Biological Secondary Treatment for Water Reuse*  
Alex Booton, Payton Loftis, Brooke Mayer, Daniel Zitomer
- 9:30 am *Design and Optimize Advanced Oxidation Processes: The AMOZONE Model for Drinking Water Production*  
Giacomo Bellandi, Wim Audenaert, Christian Davenel, Julien Garnier, Alexis Martin, Laurent Moulin, Roberta Muoio, Brent Pieterse

## **Peracids Challenge Traditional Disinfectants**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 338

Facilitators: Josh Goldman, Brian Hilts

- 8:30 am *Technoeconomic Evaluation of Alternatives for TTHM Compliance in Class A Reuse Effluent*  
Nicole Stephens, Tyler Hadacek, Colton Stiles
- 9:00 am *Performic Acid Disinfection at Capital Region Water: Including Stormwater Events*  
Iris Porat, Brian Hart, Jennifer Hanson, Christopher Hill, Raymond E Hoke, Jess Rosentel, Ingrid Skold, Marco Stammegna
- 9:30 am *Reliable Wastewater Disinfection with Peracids: Integrating Batch Kinetics and Hydrodynamics*  
Kyriakos Manoli, Katherine Bell, Allegra DaSilva, Carlos Diaz Rangel, Eunkyung Jang, Yuri Lawryshyn, Sierra Mitobe, John Norton, Shubhashin Oza, Anggy Parra, Domenico Santoro, Lomesh Tikariha

## **PFAS Management for Industrial Dischargers**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 244

Facilitators: Lucy Pugh, Chandler Mancuso

- 8:30 am *Perspectives on Managing PFAS in the Surface Finishing Industry*  
Jeff Hannapel
- 9:00 am *A Solid Waste Industry's Perspective on PFAS*  
John Davis
- 9:30 am *Legacy of Defense, Future of Responsibility: The USAF and PFAS*  
David Kempisty



### **Progression of PdNA: Development to Full-Scale**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 240

Facilitators: Pusker Regmi, Prachi Salekar

- 8:30 am        *History and Current Status of PdNA at DC Water*  
Haydee DeClippeir
- 9:00 am        *Cracking the Code of Nitrite Accumulation: Insights into Partial Denitrification Fundamentals*  
Parin Izadi, Mehran Andalib, Rania Hamza, Art Umble
- 9:30 am        *Full-scale Mainstream Deammonification via Partial Nitrification-Denitrification-Anammox*  
Gregory Pace, Sajana Chitrakar, Wendell Khunjar, Munshi Md Rasel, Yewei Sun, Jiefu Wang, Zhiwu Wang

### **Resilient Development: Insights from Urban and Coastal Areas**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 243

Facilitators: Nitin Katiyar

- 8:30 am        *An Adaptive Tale: Optimizing Resilient Development*  
Elise Ibendahl, Jennifer Baldwin, Joseph Clarke, Richard Crowder
- 9:00 am        *A Resilient Stormwater and Coastal Management Plan for Hollywood Florida*  
Michael Schmidt, Jonathan Goldman, Feng Jiang, Vincent Morello, Thomas Nye
- 9:30 am        *Conceptual Designs, Modeling, and Long-Term Resilience Planning help Boston adapt to Coastal Stormwater Challenges*  
Charles Wilson, Walter Jewell

### **The ABCs of Bioaugmentation**

Wednesday, October 9, 2024 – 8:30 am to 10:00 am

Room 350

Facilitators: Malcolm Fabiyi, Kent Sorenson, John Tilletson

- 8:30 am        *Microbial Bioaugmentation: Overview and Uses*  
Malcolm Fabiyi, Justin Whitley
- 8:50 am        *Metagenomic Analysis as a Tool for Understanding Microbial Populations*  
John Tilletson
- 9:10 am        *Genetic Bioaugmentation: New Approaches to Treatment Using Engineered Biology for Treating Emerging Contaminants Like PFAS*  
Kent Sorenson

## **Accommodating Industrial Effluents in Municipal Treatment Facilities**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 340

Facilitators: Rachel Hanson

- 10:30 am      *Development of Facility-Specific Zinc and Copper Nitrification Inhibition Thresholds for Local Limits Analysis*  
Leila Barker, Bob Baumgartner, Rajeev Kapur, Peter Schauer
- 11:00 am      *Evaluating the Impacts of Leachate Co-Treatment on Biological Nutrient Removal in a Full-Scale Municipal Wastewater Treatment Plant Using Machine Learning*  
Rasha Maal-Bared, Rui Li, Alfredo Suarez
- 11:30 am      *Case Study of Anaerobic, High Strength Wastewater Treatment System for City of Portage la Prairie, MB, Canada*  
Lai Shun Jason Ho, Mike Allison, Daniel Bertoldo, Karly Friesen

## **Advancements in Non-RO Treatment for IPR/DPR: Exploring Cutting-Edge Solutions**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 235

Facilitators: Germano Salazar-Benites, Graham Juby

- 10:30 am      *Redefining FAT in Potable Reuse: The Skinny on CBAT*  
Pranjali Kumar, Eva Steinle-Darling, Rosa Yu
- 11:00 am      *Optimizing Dissolved Organic Nutrient Management: Exploring Carbon-Based Advanced Treatment Strategies*  
Jeffrey Hlad, Daniel Freedman, Wendell Khunjar, Gayathri Ram Mohan, Eric Peterson, Tanja Rauch-Williams, Anna Scopp, Jiefu Wang
- 11:30 am      *A (Nearly) Full Public Reuse Regional Utility Evaluates Potable Reuse as an Alternative Water Supply*  
Paul Steinbrecher, Jason Assouline, Pranjali Kumar

## **Anoxic Reactor Design for Low Energy BNR**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 335

Facilitators: Joseph Rohrbacher, Caroline Nguyen

- 10:30 am      *A Utilities Path to Implementing Disruptive Emerging Technologies: From Demonstration to the Full-Scale Implementation of MABR Technology*  
Per Nielsen, Tim Constantine, Julian Sandino
- 11:00 am      *Leveraging Glycerol-Driven and Primary-Effluent-Driven PdNA within Advanced Wastewater Treatment Facility*  
Yewei Sun, Ariana Coracero, Bryce Danker, Mojtaba Farrokh Shad, Wendell Khunjar, Ron Latimer, Bruce Mansell, Paul Pitt, Yian Sun, Raymond Tsai

## **Federal Funding Case Studies**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm Room 335

Facilitators: Jennifer Ivey, Brandon Friedland, Jessica Stiner

- 10:30 am *Choose Your Own Adventure: A Pathway for Finding Grant Funding*  
Emily Platt
- 11:00 am *Funding Mitigation and Building Resilience*  
Gary O'Neal, Allison McLeary
- 11:30 am *Successes of a \$82M, Federally Funded Gravity Sewer Rehabilitation Program*  
Timothy Vanderwalker, Tim Noyes, Todd Swingle

## **How Can 3D Scanning and Virtual Reality Be Leveraged for Water Utilities?**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm Room 344

Facilitators: Salil Knarkar

- 10:30 am *3D Point Clouds: Bringing Older Facilities into the Digital Age*  
Bret Bienkowski
- 11:00 am *Enhancing Operational Resilience and Safety with Extended Reality Technologies*  
Scott Aldridge
- 11:30 am *3D/VR: The New Norm for Asset Management*  
Erik Livay, Alison Ford, Christopher Lorrain

## **Impacts of Innovative Solutions on Stormwater Data Gathering and Analysis**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm Room 346

Facilitators: Mark Van Auken, Caroline Burger, Gregg Novick, Greg Williams

Panelists/Case Study Presenters: Mohammed Billah, Colette Easter, Dayton Marchese

## **One Water Approaches from Urban Strategies to Coastal Resilience**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm Room 240

Facilitators: Carrie Turner, Madeleine Harris, Jamie Hughes

- 10:30 am *Navigating One Water Planning through Municipal Water Programs*  
Trent Stober, Dave Clark, Julie Stein, Harry Zhang
- 11:00 am *Federal, State, Regional, and City Resources Combine with a Common Goal: Create a Better Environment*  
Brendan Ward, Lesley Gordon, Brian Page
- 11:30 am *Nature Based Living Shorelines: The Challenges and Lessons Learned*  
Andrew Ba Than, Erin Hague, Jake Oldenburger

## **Outcome and Value-driven Asset Management: Of the People, For the People, By the People**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm Room 253

Facilitators: Aditya Ramamurthy

Invited Speakers: Kelly Balo, Gregory Hottinger, Mia Sabanovic, Martin Tower

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

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 338

Facilitators: Malcolm Taylor, Jeanette Brown

10:30 am *Characterization Methods for PFAS in Wastewater and Biosolids*

Taryn McKnight

11:10 am *Heating Up Biosolids: The Impact of Drying, Pyrolysis, and Gasification on the Fate of PFAS*

Patrick McNamara

## **Process Intensification Using Hydrocyclones**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 343

Facilitators: Jose Jimenez, Eric Polli

10:30 am *Intensification at the Ajman STP using inDENSE...™ Gravimetric Selection Technology - Long-term Full-Scale Demonstration*

Chandler Johnson, Vivek Aravindakshan, Daniel Dair, Alexandre Haudeville, Yoomin Lee, El Hadj Zaitra

11:00 am *Seeking Nitrification and Excess Biological Phosphorus Removal in Cold Weather Using Densified Sludge Control*

Mike Hunter, Mehran Andalib, Parnian Izadi, Ranveer Katyal, Amy Lester, Saif Molla, Sudir Murthy, Lukian Opyr, Dagny Sanche, Esmond Tang, Julian Xheko

11:30 am *Effect of Hydrocyclones on Floc Size, Morphology, and Microbial Community*

Robert Nerenberg, Niclas Astrand, Andrei Badilla-Aguilar, Kyle Bibby, Francisca Schiaffino Pereira, Cason Wilburn

## **Revolutionizing Septic to Sewer Conversions**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 244

Facilitators: Michael Piller, David Jurgens, Savannah Steinly

10:30 am *Creative Solutions for Mandated & Court Ordered Improvements*

Richard Wischmann, Mike Saunders, Roger Wright

11:00 am *Septic-to-Sewer Conversion Technology Optimization*

Thomas Brzezinski, Oscar Duarte, Edward Fontanin, Lucas Siegfried

11:30 am *Invited Speaker Presentation*

Gary McSmith

## **Stakeholder Engagement Strategies to Promote Green Infrastructure and Environmental Justice**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 356

Facilitators: Terry Cole Fairchild, Ryan Popko

- 10:30 am *Vision to Reality: Building Community Through a Wet Weather Treatment Facility*  
Tina Hastings, Kristine Cramer, Ryan Dunne, Jason Fristensky, Mark Johnson, Elizabeth Matson, Claire Rennhack, Julian Sandino, John Siczka
- 11:00 am *Everything, Everywhere, All at Once: Proactively Engaging the Community During High-Profile Water Construction Projects*  
Taylor Rippe, Alex Miller, Robert Parson, Lara Schopp
- 11:30 am *Steps Toward Environmental Justice: Community-Driven GI In Minneapolis*  
Conner Dunteman, Liz Stout

## **Synergizing Digital Solutions and Ozonation for Treatment of Micropollutants**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 243

Facilitators: Parisa Chegounian, Jayesh Charthal, Jeff Moeller

- 10:30 am *15 Years of Ozonation for Micropollutants Removal in Europe: A Review*  
Arne Wieland, Uwe Hubner, Harald Stapel
- 11:00 am *Full-scale Ozonation Plant for Maximum Micropollutant Removal and Minimal Bromate Formation, Phase 2: Digital Twin Design for Real-time Monitoring*  
Giacomo Bellandi, Wim Audenaert, Roberta Muoio, Ruud Schemen, Peter van Horne, Pieter Vlasschaert
- 11:30 am *Realization of a Digital Twin of an Operating 2.200 m<sup>3</sup>/h O<sub>3</sub>/H<sub>2</sub>O<sub>2</sub> and UV/H<sub>2</sub>O<sub>2</sub> Advanced Surface Water Treatment Plant*  
Steffen Ruetting, Giacomo Bellandi, Thomas Franz, Uwe Hubner, Brent Pieterse

## **Three Different Flavors of Improvement for Preliminary/Primary Treatment**

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 349

Facilitators: Michael Liu, Jayla Berry, Jianfeng Wen

- 10:30 am *Field Testing Texas' Largest Fine Grit Removal System: Implementational Insights*  
Amy Robinson, Patrick Herrick, Samir Mathur, Gary Wesselschmidt
- 11:00 am *Innovative Baffle System Tripling Primary Sedimentation Capacity and Saving Millions*  
Hany Gerges, Steve Delight, Michael Falk, David Greenfield, Bill Schilling, Jackie Yee
- 11:30 am *Piloting Primary Filtration: Impacts on Removals, Secondary Loading, and Disinfection*  
Daniel Thompson, John Dyson, Amit Kaldate, Lauren McBennett Mappa

## Using Side-Stream Enhanced Biological Phosphorus Removal to Improve EBPR Performance

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 350

Facilitators: Nicholas Tooker, Andrea Busch, Jordan Lewis

- 10:30 am *Sidestream EBPR is About the Fundamentals: Simple Strategies to Enhance Biological Phosphorus Removal*  
Brian Lubenow, Nigel Beaton, Alexandra Doody, Eric Staunton, Bob Vangysegghem
- 11:00 am *Navigating Carbon Limits: Lessons Learned from Small and Full-scale S2EBPR Operation in a C-limited Facility*  
Fabrizio Sabba, Leon Downing, McKenna Farmer, Zhen Jia, George Wells
- 11:30 am *Five Years after Start-up of Side-stream Fermenter at the Wakarusa River WWTP: The Bad and the Good*  
Edmund Kobylinski, Melinda Harger, Sreerema Murthy Kasi, Jay Lovett, Leah Morris, Belinda Sturm

## What's New in UV?

Wednesday, October 9, 2024 – 10:30 am to 12:00 pm

Room 238

Facilitators: Gary Hunter, Keith Borgeous

- 10:30 am *Machine Learning in the Dark: Disinfection with <55% UV Transmittance*  
Anthony Pimentel, Gary Hunter, Hamed Torkzadeh
- 11:00 am *Full-scale Comparison Between 280nm UV LEDs and Conventional 254nm Low-Pressure Disinfection*  
Sean MacIsaac, Graham Gagnon, Bailey Reid, Amina Stoddart
- 11:30 am *Bye-Bye Railcars! Nashville's 350 MGD UV Disinfection Facility is Online!*  
Douglas Yarosz, Michael Binkley, Jimmy Howell, Erin Mackey, Mike Shortt

## Automation and Analysis: Data-Driven Strategies Improve Utility Processes

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 349

Facilitators: Kevin Slaven

- 1:30 pm *Automation and Analysis: Data-Driven Strategies Improve Utility Processes and Analyze Performance at WSSC Water*  
Daniel Scrutchfield, Andres Villarraga
- 2:00 pm *Major Brazil Utility BRK Ambiental used Generative Design to Transform WWTP Project Evaluation and Reduce Conceptual Design Costs by 80%*  
Sahil Chaini, Adam Tank
- 2:30 pm *Data Centric "Smart" Digital Platform for Wastewater Treatment Plant Proactive Optimization and Maintenance*  
Bo Cao, Jennifer Baldwin, Pratistha Paudel, Fazle Rabbi

## **Coastal Water Management: Strategies to Eliminate Ocean Discharge**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 235

Facilitators: Tess Laffer, Ryujiro Tsuchihashi

- 1:30 pm      *Strategic Water Reclamation: CCUA Journey to 100% Reclaimed Water Utilization*  
Paul Steinbrecher, Marcel Dulay
- 2:00 pm      *Ocala Wetland Recharge Park: A Nature-Based Solution for Beneficial Reuse*  
Allison Lewis, Gabriela Sullivan, Rafael Vazquez-Burney
- 2:30 pm      *The World's Largest Reclaimed Water-to-Wetlands Project: A Decade Later*  
Michael Bomar, Al Shortt

## **Don't Miss the Bypass!**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 338

Facilitators: Erik Johnson, Andrew Peters

- 1:30 pm      *Large Pump Station Rehabilitation: Temporary Bypass System Design is Key!*  
Manasi Parekh, Samuel Ramirez, Kartik Vaith
- 2:00 pm      *Thinking Outside the Box: Innovative Emergency Repairs on Twin Outfall Relief Sewers*  
Atilana Bolton, Steve Bian, Christopher Garrett, Anna Pridmore
- 2:30 pm      *Can You Dig It? Chimborazo Sewer and the Chamber of Secrets*  
Brandon Cooper, George GuhseSusan Hamilton, Quinton Nottingham

## **Evaluating Plantwide Impacts of AGS and DAS**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 343

Facilitators: Bryce Figdore, Andrew Matsumoto

- 1:30 pm      *Operational Considerations for Integration of AquaNereda Reactor Expansion with an Existing Activated Sludge Facility*  
Leon Downing, Jennifer Loconsole, Eric Redmond
- 2:00 pm      *Getting a Grip on AGS Waste Solids: Settleability and Phosphorus Release*  
Eric Evans, Dillon Devitt, Ashley Geesman, Abby Kigin, Ronald Sova, Matthew Thompson
- 2:30 pm      *Evaluating Full-Scale Impacts of Activated Sludge Densification on Disinfection Efficacy: A WRF Tailored Collaboration*  
Brian Hilts, Josh Goldman, Baris Kaymak, Rasha Maal-Bared, Rudy Maltos

## **Green Infrastructure Implementation at Home and Abroad**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 243

Facilitators: Carol Hufnagel, Benjamin Hefner

- 1:30 pm      *Reimagining Green Infrastructure in Urban Redevelopment: Engineering Out Catch Basins*  
Peter Enright
- 2:00 pm      *A Global Perspective on Green Infrastructure Optimization*  
Michael Trapp
- 2:30 pm      *Creating a Water Sensitive City Strategy for Fishermans Bend Urban Renewal Area in Melbourne, Australia*  
Ryan Brotchie

## **Innovations in Partial Nitrification Anammox Processes**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 344

Facilitators: Martha Dagnew, Elizabeth Blair, Prachi Salekar

- 1:30 pm      *A New Strategy to Control NOB in the Mainstream Anammox Process using Centrate from Anaerobic Digester*  
Victory Fiifi Dsane, Umesh Ghimire, Shin Joh Kang, Jon Liberzon, Daehwan Rhu, Parviz Samar, Shahrouzeh Saneie, Sandeep Sathyamoorthy
- 1:40 pm      *MABR Enabled Partial Nitrification Anammox Under Low Temperature Environment*  
Ahmad Shabir Razavi
- 1:50 pm      *Resilience in Action: Withstanding High-strength Sulfate Containing Wastewater, The Case of Korea's First Full-scale PN-Anammox*  
Victory Fiifi Dsane, Younggyun Choi, Yunkyu Choi, Minki Jung, Shin Joh Kang, Jeongmin Kim, Taeseok Oh, Satoshi Okabe, Daehwan Rhu
- 2:00 pm      Panel Discussion



## **Innovations in Phosphorus Management: From Models to Solutions**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 340

Facilitators: Mehran Andalib, Ajay Shrivastav

- 1:30 pm      *Comparing Modeling Tools Visual MINTEQ and OLI Studio to Evaluate Scaling Tendency of Aerated Anaerobically Digested Solids: A Pilot Study*  
Caitlyn Harris, Katherine Bell, Charles Bott, Holly Anne Matel, Christopher Muller, Jeffrey Nicholson, Shubhashin Oza, Barbara Ward, Christopher Wilson
- 2:00 pm      *Phosphorus Sequestration and Recovery with Calcium: Validating Chemical Equilibrium and Process Models with Case Studies*  
Sara Arabi, John Gage, Roberto Luna, Christopher Marks, Cole Sigmon, Shelley Trujillo, Art Umble, Thomas Worley-Morse
- 2:30 pm      *Ann Arbor Tackles Stringent Effluent Phosphorus Limits with a Cost-Effective Side-Stream Phosphorus Removal Solution*  
Derek Lycke, Jennifer Drinan, Colin Fitzgerald, Allen Gelderloos, Nicholas Jaworski, Mengfei Li, Keith Sanders, Heather Stewart

## **Making Money with Biogas: Co-Digestion and RNG**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 356

Facilitators: Erik Larson, Lindsay Muth

- 1:30 pm      *Strengthening Partnerships with Local Industries through a Co-digestion Program*  
Ornella Sosa-Hernandez, Peter Schauer, Kevin Wegener
- 2:00 pm      *The Challenges and Benefits of Renewable Natural Gas Production: An Oregon Story*  
Luke Werner, Steven Barnhardt, Benjamin Bosse, Spencer Goodro, Mark van Eeckhout
- 2:30 pm      *Going Green with Renewable Natural Gas from LACSD's Carson WWTP*  
Joe Miceli, Johnmar Deguzman, Tom Fang, Adam Klaas, Paul Stout

## **Non-PFAS Up and Coming Concerns**

Wednesday, October 9, 2024 – 1:30 pm to 2:30 pm

Room 346

Facilitators: Jayesh Charthal

- 1:30 pm      *Cost Effective Approaches for Control of Multiple Constituents of Emerging Concern (CECs): WRF #5171*  
Gayathri Ram Mohan, Conner Murray, Christine Owen
- 2:00 pm      *Antimicrobial Resistance Information for Water Professionals: Why We Should Care?*  
Rasha Maal-Bared

## **Partnerships and Collaboration: Cornerstones for Successful Collaborative Project Delivery**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 350

Facilitators: Phillip Sexton

- 1:30 pm      *Leveraging Innovation and Alternative Delivery to Achieve a Sustainable and Drought Resilient Water Supplies*  
Sunny Wang, Alex Waite
- 2:00 pm      *Size Doesn't Matter - Successful Alternative Delivery for Small Utilities*  
Benjamin Miller
- 2:30 pm      *To the RESCU: Lessons from Using Progressive Design-Build to Deliver Agency's Largest Program*  
Kimberley Hackett, Aren Hansen

## **PFAS Removal and Destruction Using Novel Technologies**

Wednesday, October 9, 2024 – 1:30 pm to 3:00 pm

Room 244

Facilitators: Lucy Pugh, Chandler Mancuso

- 1:30 pm      *Comparing Four Innovative Technologies for Enhanced Leachate Treatment: An Evaluation of PFAS Foam Fractionation Efficacy*  
Fabrizio Sabba, Leon Downing, Gary Hunter, Chistian Kassar
- 2:00 pm      *Destroying PFAS with Foam Fractionation and SCWO: A Practical Experience*  
Trevor Whitson, Rick Gillespie
- 2:30 pm      *Evaluation of Surface-Active Foam Fractionation Coupled with Electrochemical Oxidation to Address PFAS-Contaminated Groundwater*  
Hanna Temme

## **WIFIA and SRF Funding Accelerate Nutrient Removal in Wichita, Kansas**

Wednesday, October 9, 2024 – 1:30 pm to 2:30 pm

Room 335

Facilitators: Andrew Sawyers, Majid Khan, Dallas Shattuck

- 1:30 pm      *Introduction and WIFIA, CWSRF Overviews*  
Jorianne Jernberg
- 2:00 pm      *City of Wichita, KS Case Study*  
Joni Chamberlain, Michael Dean, Jorianne Jernberg, Dallas Shattuck

Technical Spotlights (including Mobile Sessions)

Monday, October 7, 2024 – Booth 841, Hall B2

**Technology Spotlight: Made in America – BABAA Compliance without Waivers (Non-Mobile)**

**Technology Spotlight: Operations Challenge 101**

**Technology Spotlight: Influent to Effluent**

**Technology Spotlight: Monitors for Odor and Corrosion - Detection for Protection**

**Technology Spotlight: Industrial Water Reuse Equipment**

**Technology Spotlight: Online Instrumentation for Disinfection Processes – Disinfect with Confidence**

Tuesday, October 8, 2024 – Booth 841, Hall B2

**Technology Spotlight: Small Diameter Rehabilitation Technologies**

**Technology Spotlight: Decision Support Systems and Digital Twins for Operations and Maintenance (Non-Mobile)**

**Technology Spotlight: BNR Optimization – Leveraging Sensors and Analyzers**

**Technology Spotlight: Enhanced Primary Treatment – Beyond Conventional Settling**

**Technology Spotlight: Transformation of PFAS in Biosolids**

**Technology Spotlight: Blower Technology – Fundamentals on the Floor**

**Technology Spotlight: Liquid Treatment Technologies for PFAS at WRRFs (Non-Mobile)**

Wednesday, October 9, 2024 – Booth 841, Hall B2

**Technology Spotlight: Membrane Bioreactors**

## Workshops

Saturday, October 5, 2024

**W01 Wastewater Microbiology**

**W02 Operationalizing Digital Twins to Advance Process Control and Optimization**

**W03 Thickening Optimization: Improve Performance and Benefit Multiple Plant Processes**

**W04 Operation & Maintenance from Water Reuse to Advanced Water Purification**

Sunday, October 6, 2024

**W05 Refinery and Petrochemical Wastewater Treatment: Process Control Strategies**

**W06 Aeration Control for Practitioners: Advanced Control and Optimization Techniques for Aeration, Process and Energy**

**W07 Advanced Primary Treatment Technologies for Carbon Diversion & Management at WRRFs**

**W08 Wastewater Microbiology**

**W09 Activated Sludge and Biological Nutrient Removal Process Control: Hands-On in the Real World**

**W10 Water Environment Federation/The Water Research Foundation: Doing More with Less – Implementing Machine Learning Process Controls at Water Resource Recovery Facilities**

**W11 Water Environment Federation/The Water Research Foundation: Renewable Revenue Streams through Best Practices and Safe Operation of Renewable Natural Gas Facilities**

**W12 Smart Infrastructure for Sewer Solutions**

**W13 Understanding and Applying Disinfection Fundamentals**

**W14 The Future of Water Reuse Using Carbon-Based Advanced Treatment (CBAT) to Implement “One Water” Initiatives**

**WEFTEC 2024**

**W15 Fundamentals of Collaborative Delivery**

**W16 Learning to Communicate: Connecting with Audiences and Telling Your Story**

**W17 Assessing Sewer Septicity: Applying Tools to Save Money and Trouble**

**W18 Navigating the Water Sector's Path to Net Zero**

## **WEFTEC 2024 Program Community**

The WEFTEC Technical Program is a product resulting from the efforts of WEF Staff and the volunteers of the WEFTEC Program Community.

### *Program Community Leadership*

Kent Nichols, Chair

Eakalak Khan, Vice Chair

A. Tom Sandy, Past Chair/Advisor

Garry Macdonald, Global Liaison

### *Program Community Symposia Leads*

Karyn Stickel, Chair - Collection System

Jonathan Kunay, Vice Chair - Collection Systems

Melanie Mann, Chair – Disinfection & Public Health

Jay Swift, Vice Chair – Disinfection & Public Health

Liam Cavanaugh, Chair – Facility Operations

Alyssa Mayer, Vice Chair – Facility Operations

Alex Tabb, Chair – Future Issues & Global Insights

Frances Burlingham, Vice Chair – Future Issues &

Global Insights

Kristen Jenkins, Chair – Industrial

Mark Knight, Vice Chair – Industrial

Belinda Sturm, Chair – Municipal

Tim Constantine, Vice Chair – Municipal

Pusker Regmi, Chair - Research

Christopher Degroot, Vice Chair – Research

Sreerama Murthy Kasi, Vice Chair - Research

Jeanette Brown, Chair – Residuals & Biosolids

Paul Bizier, Vice Chair – Residuals & Biosolids

Caroline Burger, Chair – Stormwater

Scott Rybarczyk, Vice Chair – Stormwater

Majid Khan, Chair – Utility Management

Michael Martin, Vice Chair - Utility Management

Phillip Sexton, Vice Chair - Utility Management

Graham Juby, Chair – Water Reuse

Germano Salazar-Benites, Vice Chair - Water Reuse

Jamie Hughes, Chair – Watershed

Geoff Edwards, Vice Chair - Watershed

### *Program Community*