

## NYWEA Spring Meeting 2024, Buffalo NY

Technical Sessions Draft—**Contact Hours Pending (will post as soon as available)**

*All Presentations are ½ Hour unless otherwise noted.*

Session 1 – Tuesday June 4, 1:30-4:30 pm

**Buffalo Sewer and Southtowns/Erie Co, Operator and Engineer Perspectives (2 Hours)**—More info to come

Session 2—Water Reclamation 1, Tuesday June 4, 1:30-4:30 pm

Christopher Boyd, Charter Machine Co.

### **Double Your Cake Solids with Elode**

The Charter Elode drying technology has been full scale pilot testing across the US for the past 2 years with over 100 municipal sites visited. Elode drying technology doubles the cake solids coming off of any dewatering equipment in under 1 min by only using electricity. This technology does not use heat or any other fuel, just setting up a DC electric field to realign sludge particles to allow water to drain off and therefore make the already dewatered cake solids much drier. This presentation will review all of the pilot testing data and show the trends, sweet spots, limitations and more, including full scale installation from Henderson KY that has been running since September 2023.

Ian Watson, USP Technologies

### **A Transformative Model-Based Disinfection Control Solution to Optimize Cost and Performance**

Wastewater treatment facilities (WRFs) have traditionally relied on chemical disinfection methods alongside conventional control measures, such as flow pacing. However, this approach often results in a significant overdosing of disinfectants, roughly twice the required amount. ICT™, a model-based disinfection control technology, has emerged as a transformative solution. ICT™ aims to address the various factors affecting disinfection performance, such as hydraulics, chemical background demand, and disinfection kinetics.

Jeff Tudini, AECOM; Mary Plesh, Erie County

### **Village of East Aurora WRRF Filter Evaluation**

Effluent filter system analysis, process review, and conditions assessment conducted at Erie County's East Aurora WRRF. Evaluating the potential for rehabilitating the existing sand filters and conducting an alternatives analysis, which includes considering replace-in-kind and new technology options such as disk cloth media filters.

Jacob Metch, HDR

### **Optimization Guidance and Strategies to Reduce Nutrient Discharges from WRRFs**

Guidelines for optimizing nutrient removal at WRRFs were developed for the Water Research Foundation (project 4973). This presentation will provide an overview of the guide and online application developed to support the decision-making process with a focus on optimizing treatment cost, performance reliability, and nutrient reduction.

## Session 3—Research & Innovation, Tuesday June 4, 1:30-4:30 pm

David Clark, Andrew Thuman HDR

### **Holistic Approach to Improved Nutrient Management with The Water Research Foundation Framework for Success (WRF4974)**

Utilities, regulators, and stakeholders are searching for innovative approaches to address water quality challenges due to nutrient enrichment and a changing climate. Through a series of interactive workshops, this WRF project developed a framework to advance nutrient management that fosters innovation and new opportunities. The project goal is to focus on approaches that may be applied nationally and tailored to address unique water quality improvement needs and varying watershed contributions from point and nonpoint sources.

Micah Blate, Hazen and Sawyer

### **Doing More with Less: Densified Activated Sludge (DAS) Systems for Water Resource Recovery Facilities**

Water resource recovery facilities (WRRFs) are increasingly being challenged to achieve stringent treatment requirements while reducing space, infrastructure, energy and resource needs. Process intensification approaches can help utilities navigate these goals by leveraging innovative technologies. One such technology is densified activated sludge (DAS). This typically results in 50th percentile sludge volume indices (SVI<sub>30min</sub>) that are less than 50 mL/g and 98th percentile SVI<sub>30min</sub> less than 100 mL/g.

David Englund, Schneider Electric

### **Next Generation Automation**

What will automation look like in 10 years—will it look the same as today? Are you prepared for the next generation of controls, where everything is connected and “Smart”? Today’s control systems are very Hardware centric, but the future is all about software centric systems—giving you the ability to easily implement control at the edge and choose the best-in-class products from multiple vendors. Join us as we discuss the new emerging standards.

Matthew Czora, Arcadis; Corky Kelsey, Monroe County

### **Ultimate Flexibility for Enhanced Aeration Basin Operation**

Aeration system operational flexibility is critical to enhancing secondary treatment performance. The Frank E. Van Lare Water Resource Recovery Facility (FEV) Aeration Improvements Project demonstrated this through piloting, full scale testing, and implementing capital improvements which ultimately proved that having multiple aeration basin operational modes can enhance an operator’s ability to meet permit with dynamic influent conditions.

## Session 4— Regulatory & PFAS, Wednesday June 5, 9 am-12 pm

Liz Ricci, NYS Environmental Facilities Corporation

### **The Why Behind the Engineering Report Outline**

Engineers usually want to know the “why?” behind whatever they are doing. This session will give a brief overview of the driving factors behind select aspects of the DEC/EFC Engineering Report Outline and context for how the requested information best serves municipalities.

Monica Moss, NYSDEC

**SPDES Permitting: Understanding Low Flows and Dilutions**

As part of the full review of a SPDES permit, each receiving waterbody is assessed for the low flow condition and each outfall is given a corresponding dilution ratio. This session will focus on how low flows are established, how dilution ratios are calculated, and how that impacts the final effluent limitations in a permit. The presentation will also touch on discharges to groundwater, lakes, and intermittent streams.

Mary Firestone, Mid-Atlantic Biosolids Association

**PFAS: The Latest on an Ever-Evolving Regulatory Landscape—National Update**

The topic of PFAS is inescapable and actively developing in the region and across the country. We will provide an overview on the EPA PFAS Strategic Roadmap, the EPA Proposed Designation of PFOA and PFOS as CERCLA Hazardous Substances, the Senate EPW Committee development of PFAS legislation, and the latest PFAS research. Become informed and empowered to assist your organization's biosolids handling professionals with this difficult topic, as well as the citizens of your communities.

Magdalena Gasior, Val S. Frankel, TYLin: Greeley and Hansen Water Solutions

**PFAS: Regulations, Challenges, and Path Forward**

This presentation will guide how to set the PFAS program, what strategy should be followed, and what treatment technologies can be used when treatment is required. How to prepare for upcoming regulations and the path forward to address the PFAS challenges to protect public health will be discussed. This presentation offers insightful information relevant for wastewater treatment and water reuse applications.

**Session 5—Stormwater/Green Infrastructure/Odor Control,  
Wednesday June 5, 9 am-12 pm**

Tony Li, NYCDEP

**How a Decade of Experience has Changed the NYC DEP Green Infrastructure Standard Specifications (One Hour)**

This presentation will highlight the integral components of New York City's Right-of-way Green Infrastructure Standard Specifications and how they have changed over the last 10 years. NYCDEP has been able to successfully construct over 10,000 GI assets, making it the largest GI program in the country. The GI specifications must be detailed, accurate, and accessible to facilitate proper installation with different parties. The specifications are critical to ensure assets function properly.

Jessica Ping, Calista Noll, TYLin: Greeley and Hansen Water Solutions; Smitha Krishnan, Sam Schwartz  
**Develop a Comprehensive Odor Control Plan for the Middlesex County Utilities Authority (MCUA)**

This project aims to develop a comprehensive odor control plan for the MCUA CTP in NJ through data collection, odor sampling, AERMOD modeling, and evaluation of control strategies. By addressing existing odor concerns, identifying emission sources, and proposing effective mitigation strategies, the project aims to reduce environmental impact, enhance operational efficiency, and improve community wellness. Through proactive measures and stakeholder engagement, this systematic approach sets a precedent for best practices in odor control management.

Mathew Simpson, Biorem Environmental, Inc.

**The Challenges of Estimating Adsorbent Media Life**

A common air emissions and odor control technology is physical adsorption by activated carbon. Often activated carbon adsorber are sized without a proper consideration of the compounds that are being targeted or of the environment into which the adsorber is being placed. Foul air that is collected from wastewater treatment plant processes is very complex; the perceived odors are due to more than just hydrogen sulfide.

**Session 6—Collection Systems, Wednesday June 5, 9 am-12 pm**

Mackenzie App, M.E. Simpson Co., Inc.

**Modernizing Our Collection System Toolbox**

Gravity collection systems in the United States are increasingly degrading and failing. But how does an agency effectively treat this issue when limited workforce and finances are two of the largest problems agencies are currently facing? Well, having a new look at how cutting-edge technologies and a pragmatic approach to degrading collections systems might just be the key. Having these modern technologies in our toolbox will help immensely!

Richard Pope, Hazen and Sawyer

**Collection Systems: Pipe Designs Can Exacerbate Odors**

Do engineers understand how the physical layout of a sewer pipe network can exacerbate odor formation and release. That release encompasses stripping odors, filling the headspace and eventually escaping into the ambient atmosphere. This presentation focuses on a common physical sewer layout, the steep slope intersection with a much flatter slope. Four different case histories will chronicle issues with this particular physical layout, and the steps that were taken to address it.

Jerry Connolly, Will Stradling, Siewert Equipment

**Case Study Reviews of Pressure Sewer in New and Retrofitted Collection Systems**

This presentation will provide the tools required for a municipality and engineer to make an informed decision regarding technologies used for new sewer collections systems as well as repair and/or replacement of existing sewers.

Samuel Wilbur, Delve Underground

**Sliplining the Existing Sunrise Highway Aqueduct on Long Island for the Bay Park Conveyance Project**

The Bay Park Conveyance project is a coordinated effort across jurisdictions by the New York State Department of Environmental Conservation (NYSDEC) and the Nassau County Department of Public Works to reduce nitrogen content in the Bay Park outfall area of Long Island. This presentation about the slipline component of the Bay Park Conveyance project will be structured into three main sections: a project summary, technical details about the slipline design, and lessons learned.

## Session 7—EHS Panel, then Career Development Presentation/Panel, Wednesday June 5, 9 am-12 pm

**EHS Panel (One Hour)**—More info to come

Rosaleen Nogle, Buffalo Sewer Authority

### **Pulling Back the Curtain on PE Licensure**

1. Qualifications for the FE Exam
2. Overview of the FE Exam today
3. Changes in NYS Law regarding educational requirements effective April 1, 2024
4. Experience required under New York State code for licensure
5. Recommendations for experience
6. Dos and Don'ts of application process
7. Expectations for application
8. Changes to the PE Civil-WRE Exam effective April 2024
9. Process for changes to the PE Environmental Engineering Exam
10. Expectations for electronic PE Exam and feedback received by NCEES to date

**Career Development Panel**—Will discuss the licensure changes and how these changes can impact not only professionals obtaining licensure, but those in senior, mid-career and staff supervisory roles. The panelist include mid-career professionals, staff managers and a mix of Young Professionals.

## Session 8—Asset Management, Wednesday June 5, 2-3:30 pm

Bill Snyder, Orenco Systems

### **Liquid Only Sewer and Packed Bed Textile Filters**

Liquid-only-sewer combined with packed bed textile filters is ideally suited for small communities. This approach reduces initial capital costs, provides a stable operation and maintenance cost, avoids unaffordable renewal and replacement costs and can be maintained simply and easily. Collection mains are small diameter, shallow bury pressure pipes. Onsite units are installed when service is required. Treatment is modular and can be phased and/or expanded as need for wastewater treatment capacity occurs.

Zachary Monge, Jacobs

### **Using AI and Machine Learning for Asset Management Guidance**

This presentation will focus on the utilization of AI & Machine Learning (ML) & discuss how AI technology helps utilities by providing reliable & accurate data & prescriptive asset management guidance for effective collection system management. We will look at two applications of AI: visual recognition AI, used for automated coding of CCTV defects & predictive AI used for determining pipe degradation.

Thomas T. Nitza, Jr., Gwendolyn Burke, Walden Environmental Engineering

### **Better Asset Management Planning: Tales from the Sewer Side**

The NYS Environmental Facilities Corporation (EFC) partnered with the NYS Department of Environmental Conservation (DEC) to develop a more robust Asset Management Plan (AMP) process for municipalities to assist with the effective management of their infrastructure investments. At this time,

this improved AMP process has been built in the context of sanitary sewer systems. However, looking forward, it is clear that this program will benefit the drinking water community as well.

## Session 9—Water Reclamation 2, Wednesday June 5, 2-3:30 pm

Chelsea Catchpole, Patricia O'Loughlin, Arcadis

### **Importance of Construction Sequencing During Design for a Successful Project**

The Erie County Department of Environment and Planning (ECDEP) is undertaking an extensive upgrade to their Southtowns Advanced Wastewater Treatment Facility (AWTF) to increase the rated capacity to 55 MGD under the Phase 2 Expansion Project. The presentation will discuss the planned improvements to the Southtowns AWTF under the Phase 2 Expansion Project, focusing on the importance of developing a Maintenance of Plant Operations (MOPO) and hydraulic analysis during design to achieve a successful project.

Jamie Johnson, AECOM; Tim Blake, Buffalo Sewer Authority

### **Who's on First? Lessons Learned & Progress Updates of BSA's Secondary Rehabilitation Project**

The Buffalo Sewer Authority (BSA) Bird Island Treatment Facility Wet Weather Capacity project represents the largest investment in clean water infrastructure in western New York in over 40 years. The Wet Weather Capacity project will be undertaken in three phases over 10 years. This abstract will focus on Phase I which is in active construction. We will discuss lessons learned, regulatory hurdles, and provide a general update on how construction is progressing.

Colin Christie, Xylem

### **Cutting Maintenance, Saving Energy, Improving Mixture and Adding Condition Monitoring by Replacing Old Mixers with Innovative Mixing Technology in Biological Nutrient Removal**

All 12 mixers in the activated sludge trains' selector basins at Lake County's Vernon Hills Water Reclamation Facility were replaced using new innovative technology. The new mixing technology not only solved the maintenance problems but also saved energy and improved mixing quality. Before replacing all 12 mixers, a demonstration of the new technology mixer proved that maintenance problems were resolved, and mixing energy was cut in half compared to the old mixers.

## Session 10—Ethics, Wednesday June 5, 2-3:30 pm

Richard Roll, Niagara Falls Water Board

### **Career Ethics (1.5 Hours)**

Various professional society codes of ethics will be reviewed and compared, particularly the WEF Code of Conduct adopted in 2021. Preservation of public safety and welfare will be emphasized. Examples of ethics-related and conduct-related engineering failures will be analyzed. Opportunities and responsibilities for personal intervention will be discussed. A quiz based on the NYS Education Department Office of the Professions online test will be taken as time allows.

## Session 11—Energy Conservation & Sustainability, Thursday June 6, 9 am-12 pm

Ariel Judd, GHD

### **Turning Back the Clock: A Unique Approach to Cogeneration**

This presentation will detail how the Watertown WPCP was able to implement commonly used CHP technology in a unique way to offset their electricity demand without generating electricity and highlight some of the unique aspects of implementing this design scheme. The author will share considerations taken to size the replacement biogas driven engines for two of the five 100-horsepower influent pump electric motors and will discuss key learnings and outcomes of the project.

Thomas Bourgeois, US DOE's NY/NJ Onsite Energy Technical Assistance Partnership

**Assessing Hybrid Energy Systems with Assistance of US DOE's Onsite Energy TAPs**

WRRF's are critical players in New York's nation-leading climate plan. NY's Scoping Plan highlights WRRF's as a tremendous opportunity for reducing GHG emissions. Attendees are apprised of the various forms of assistance that can be made available via the US DOE's Onsite Energy TAPs. Onsite energy encompasses a broad range of technologies that are suitable to serve large energy loads. Properly integrated they reduce emissions, improve resiliency and contribute to a clean energy economy

Larry Stanley, ABB

**Emergency Generators and VFD's Don't Mix**

In today's technology, VFD's (Variable Frequency Drives) are reliable and tend to be very operator friendly. When there is a standby generator involved, however, specific design considerations are required to make sure the generator and the VFD operate well together. This presentation will review the specific design considerations for both the generator and VFD to ensure trouble-free operation.

Steve Wardell, Clean Waters, Inc.

**Reduce Polymer Costs Today**

This presentation will share our best three ideas for reducing your polymer costs. These are easy to implement and will substantially impact your polymer costs.

**Session 12—Residuals & Biosolids, Thursday June 6, 9 am-12 pm**

Rick Kenealy, Town of Webster; Rich Straut, Barton and Loguidice

**Adapting the Webster WRRF for Economic Development and the Reality of Regulatory Challenges**

As the Town of Webster embarked on a generational transformation of its Water Pollution Control Facility into a Water Resource Recovery Facility, opportunity to support significant economic growth of the community were presented. The drive to support that economic growth was met with greater challenges with respect to meeting environmental regulations. This presentation will discuss the balance of interests to improve the plant to meet community development needs while complying with tightening regulations.

Andrew Kuzio, Arcadis; Alan Oates, Monroe County

**WRRF Recycle and Solids Handling Improvements**

This presentation covers Monroe County and Arcadis' work to evaluate and implement improvements to the solids handling process at Monroe County's Frank E. Van Lare Water Resource Recovery Facility, including evaluation of the factors contributing to sludge holding tank stratification, bench scale testing of improvement alternatives, selection of a holding tank mixing system, and design development of a comprehensive sludge mixing and transfer pump station improvement project.

Bill Brower, Brown and Caldwell

**Quantifying & Mitigating Fugitive Methane from Digesters and Solids Handling**

Methane is a major contributor to climate change. WRRFs have been estimated to contribute around 5-8% of global anthropogenic methane emissions which are largely attributable to fugitive, or unintended, releases. The wastewater sector now has the ability to quantify fugitive methane. The City of Columbus embarked on a field campaign to quantify fugitive methane emissions and develop a list of abatement options. The end solution resulted in a 96 percent decrease in emissions.

Sanjeev Verma, Centrisys

**Achieving Both: Sludge Minimization and Energy Recovery**

Biosolids management: based on solids minimization and energy recovery. Rising sludge disposal costs and changes in guidelines and requirements are pushing more end users to look to solids minimization. This driver is here to stay. In this session we will review products, solutions and a process that helps reduce overall carbon footprint, ensure ease of operations and review a road map that helps with the larger objectives of sludge minimization as well as energy recovery.

**Session 13—CSO & Collection Systems, Thursday June 6, 9 am-12 pm**

Ambar Mesa, James Gowans, Veolia

**Sewer Surveillance for Infiltration Mitigation**

During winter of 2023-2024, NOAA categorized Long Island as having roughly 40% precipitation above normal levels. Nassau County saw five heavy rain events, causing power outages and flooding. Nassau County collection system, lift stations, and wastewater treatment plants were affected due to the high flows. To minimize the impacts of current extreme events and to endure future climate changes, Veolia has developed infiltration and inflow (I&I) analyses, and rehabilitation projects for the old sewer infrastructure.

Edward Bradfuhrer, GHD

**Data Management and Visualization in a Large Infiltration and Inflow Study in Tonawanda, NY**

A large flow metering program was implemented to evaluate the performance of the Town of Tonawanda Sewer System. Results of the analysis were visualized spatially and used to rank subbasins by response severity. This information was used in subsequent work plans to determine where work should be performed and the type of work that should be planned.

John Davis, Danfoss LLC

**Is It Time to Replace Your Across the Line Starter with a VFD?**

This presentation shows how upgrading your current VFD's or across line starters will save you money on operational cost, life cycle cost, and improve your system reliability.

AJ McGinn, Brierley Associates

**Solving the Logistical and Technical Challenges of Building a Large CSO Tunnel Under Washington, DC: Design/Build Delivery Northeast Boundary CSO Tunnel**

This presentation will reveal some of the challenges and solutions for the D/B construction of a \$580 Million CSO project under Washington, DC. The main tunnel, constructed in soft ground, has an inside diameter of 23-ft and is approximately 27,000-ft in length and ranges in depth from about 60- to 140-ft.



