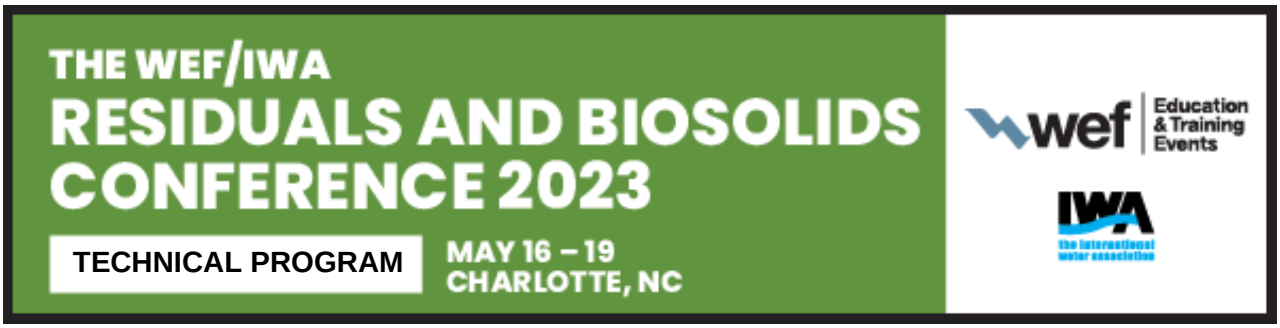


# WEF/IWA Residuals and Biosolids Conference 2023

## May 16-19, 2023

## Charlotte Convention Center, Charlotte, North Carolina, USA

## Workshops & Tours

*(last updated January 26, 2023)*

**Pre-conference Workshops**
*(Additional fees apply)*

## Workshop A: Dewatering Optimization: Practical Ways to Improve Performance
**Tuesday, May 16, 2023**
**8:00 a.m. – 4:30 p.m.**

**Speakers:** David Oerke, Jacobs; Matthew Higgins, Bucknell University; Dan Fronhofer, BDP Industries, Inc; Adam Parmenter, HDR, Inc; Jeff Nicholson, HRSD; Casey Mentzer, City of Sparks; Yong Kim, USGI; Zwelani Ngwenya, Jacobs; Shaun Hurst, Andritz

The Dewatering Optimization – Practical Ways to Improve Performance workshop will focus on practical solutions to improve dewatering performance including drier cake solids, better solids capture, reduced polymer consumption, and reduced O&M costs for raw sludge, aerobically and anaerobically digested biosolids. This workshop will be of primary interest to plant managers, superintendents, operators and maintenance staff from municipalities. Furthermore, this workshop topic is critical and timely to the industry since municipalities are getting more and more pressure to reduce their budgets or to "do more for less" in addition to addressing the challenges of increasing polymer, solids processing and hauling cost.

*The first part of the workshop will take place at the convention center, and the second half will take place onsite at a nearby facility for practical examples.*

**Pre-conference Workshops**
*(Additional fees apply)*

## Workshop B: Accounting and Mitigating GHG Emissions from Biosolids using BEAM

**Tuesday, May 16, 2023**
**8:30 a.m. – 12:00 p.m.**

**Speakers:** Shannon Cavenaugh, Brown & Caldwell; Emma Shen, Jacobs; William Steven Brower, Brown & Caldwell; Christine Polo, Carollo; Andrew Carpenter, Northern Tilth

In light of the findings in the United Nations Intergovernmental Panel on Climate Change Sixth Assessment Report, which clearly states that climate change caused by human activity is accelerating beyond what was previously estimated with consequences already felt across the world, it is crucial that wastewater utilities seek to cut greenhouse gas (GHG) emissions and increase carbon sequestration. The objective of this workshop is to engage participants in the best practices to move towards that critical goal. This workshop will provide valuable background information about sources and sinks of GHG emissions from solids handling processes and end uses, and will use the results of GHG accounting to determine practical approaches to reduce a utility's climate impact. Participants in this workshop will learn how to determine sources and sinks of GHG emissions from residuals treatment and biosolids management at water resource recovery facilities (WRRFs), understand how to calculate GHG emissions and offsets using BEAM (Biosolids Emissions Assessment Model), and gain insight into the ways to reduce WRRF carbon footprints and how the value of GHG reduction can be used in capital planning and prioritization.

**Pre-conference Workshops**
*(Additional fees apply)*

## Workshop C: Fundamentals of Anaerobic and Aerobic Digestion using Process Simulators

**Tuesday, May 16, 2023**
**8:30 a.m. – 5:00 p.m.**

**Speakers:** Paul Dombrowski, Woodard & Curran; Jeanette Brown, Manhattan College; Philip Pedros, Mott MacDonald; Nick Piccolo, Hatch

The operator focused workshop will consist of lecture material covering the fundamentals of digestion systems coupled with treatment system model simulations driving home each major concept presented in the lecture. It is proposed that each attendee will have access to a computer loaded with the simulator software. The material will be focused on both aerobic and anaerobic digestion with added ancillary topics such as pre-thickening, sludge pre-conditioning (hydrolysis), variations in sludge feed concentrations and constituents and will also include considerations of solids processing recycles, including recycle pollutant loads. Examples using primary sludge, secondary sludge and outside the fence line wastes (septage, FOG, food waste) will be incorporated into examples and problems. The simulator platform used will be an updated version of SimuWorks, developed by Hatch (formerly Hydromantis). Simuworks is an overlay software platform that runs on the well-established process modeling software, GPS-X. The SimuWorks/GPS-X platform has been used by the workshop presenters to deliver liquid train fundamental wastewater training programs throughout the United States, including at the 2018 and 2019 WEF Nutrient Conferences, 2022 WEFTEC and at events at Pennsylvania, South Carolina, New England, New York and California WEA events. This platform has also served as a major component of the WEFTEC Operations Challenge Process Control Event since 2016. This will be the first time the Biosolids Simulator version of SimuWorks will be used for a full day operations training program.

**Pre-conference Workshops**
*(Additional fees apply)*

## Workshop D: Delving into Digestion: Anaerobic Digestion Process, Design, and Operation

**Tuesday, May 16, 2023**
**1:30 p.m. – 5:00 p.m.**

**Speakers:** Jeffrey Coyne, C. Michael Bullard, Hazen and Sawyer; Stephanie Spalding, HDR. Inc; Christopher Muller, Brown & Caldwell; Greg Knight, Black and Veatch; Regina Hansen, Ovivo

This workshop focuses on anaerobic digestion process, design, and operation. Process fundamentals and more advanced concepts, which build on the fundamentals presented, will be covered in detail by nationally recognized experts with over 100 years of combined industry experience. The target audience includes a range from young professionals that are new to the industry/topic to more senior professionals looking for a refresher, and from operators to engineers to municipal management staff. The workshop will begin with a brief introduction welcoming the attendees followed by a background discussion. The background discussion will provide context to help set the stage for main workshop presentations. The workshop will also include interactive sessions to increase engagement between the attendees and the presenters, and to reinforce topics and concepts presented.

**Pre-conference Workshops**
*(Additional fees apply)*

## Workshop E: Emerging Contaminants and Pathogens: Recent Global Developments in Science, Treatment Technologies and Regulatory Landscape

**Tuesday, May 16, 2023**
**1:30 p.m. – 5:00 p.m.**

**Speakers:** Banu Ormeci, Carleton University

This workshop is organized by the IWA - SGSM (International Water Association Sludge Management Specialist Group). The workshop will provide an overview of recent developments on emerging contaminants and pathogens and their implications for biosolids treatment, management, and land application. The emerging contaminants will include PFAS and microplastics, which have become particularly important in recent years. Emerging pathogens will include emerging viruses such as SARS-CoV-2 and other respiratory viruses. The workshop will cover the fate of PFAS, microplastics, and emerging pathogens during treatment processes and after land application. In addition, we will present recent research/testing results from Europe and North America on the removal of PFAS using thermal treatment processes. Furthermore, there will be a presentation to summarize the regulatory developments on biosolids treatment and management from around the world and new proposed/established limits of emerging contaminants for land application of biosolids. The speakers will focus on the "big picture" issues and will benefit industry professionals, practitioners, and scientists. Our goal is to bring the most recent advances and developments in Europe, Australia, North America etc. to the conference attendees. We believe that the workshop will be well received and will be of interest to a wide range of audience.

**Facility Tour**
*(Additional fees apply)*

**Charlotte Water's McAlpine Creek Water Facility Tour**
**Friday, May 19, 2023**
**8:00 a.m. – 11:00 a.m.**
**Capacity:** 55

Join us on a tour of Charlotte Water's McAlpine Creek Water Facility (64MGD). There you will see our 1.0 MW combined heat and power system, our dewatering done by centrifuges, and our Class B land application program. You'll also learn more about our plan and design to implement nutrient harvesting and THP at this location.