

#WEFIWABiosolids | www.wef.org/residualsbiosolids

2023

WEF/IWA RESIDUALS AND BIOSOLIDS CONFERENCE

CONFERENCE
MAY 16 – 19

WORKSHOP
MAY 16

EXHIBITION
MAY 17 – 18

CHARLOTTE CONVENTION CENTER
CHARLOTTE, NC

This conference is jointly hosted by the Water Environment Federation and International Water Association, in cooperation with North Carolina One Water and the IWA USA National Committee.





One Water Solutions Start Here

Through holistic planning, we help communities map out a sustainable water future. Our One water approaches focus on affordable, equitable and implementable design.



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Charlotte, North Carolina





WEF/IWA Residuals & Biosolids Conference

May 16-19
Charlotte Convention Center

www.wef.org/ResidualsBiosolids
#WEFIWABiosolids



This conference is jointly hosted by the Water Environment Federation and International Water Association, in cooperation with North Carolina One Water and the IWA USA National Committee.

May 17, 2023

Dear Colleagues and Biosolids Enthusiasts:

On behalf of the Water Environment Federation, the International Water Association, NC OneWater, and the IWA USA National Committee, we welcome you to Charlotte, NC and to the 37th Annual Residuals and Biosolids Conference!

We have been enthusiastically developing what we hope will be a truly fulfilling conference to remember. We would like to give a special thanks to WEF's super staffers, the WEF Biosolids Steering Committee, the IWA Sludge Management Specialists Group, and the large number of dedicated volunteers, working long hours and many early morning meetings to develop a diverse, topical and engaging technical program. Additionally, we would like to thank all of you who submitted abstracts on your research. Without the volume and excellent quality of abstracts we received there would not be a technical program to speak of. We would also like to offer our thanks to the generous support of our exhibitors, sponsors, and to you for supporting this conference and for being the voice for biosolids and organics management in the Americas and around the globe.

The WEF/IWA Residuals and Biosolids Conference 2023 continues in the tradition of bringing the latest in biosolids research, technological advancements and proven applications in an interactive forum between academia, utilities and private operators, regulators, educators, science and engineering professionals, contractors and manufacturers. In light of recent probing questions into the land application of biosolids from the standpoint of micro constituents and nutrient management on a U.S. national level and the local level in the state of North Carolina a sizable portion of the conference has been dedicated to inform and educate on the regulations, regulatory drivers and the potential implications if changes in land application rules are enacted. WEF/IWA and the volunteers for this conference care deeply for the environment and are at the forefront of discovering and advocating for the most practical ways of managing resources to ensure humanity and nature can coexist beneficially.

The conference will commence on Tuesday with focused workshops on regulatory trends, digestion of organics, biosolids advocacy and marketing, comprehensive biosolids planning. This will be followed by an evening of fun and networking at the Friends of Biosolids Social Event hosted by NC OneWater.

On Wednesday morning the Opening General Session will be our opportunity to give the official welcome to everyone as we kick off the technical and exhibit portions of the conference. As the business and charge of residuals and biosolids management continue to expand in its mission of resource recovery our keynote speakers and morning presentations will cover a variety of topics in biosolids research, energy and resource recovery, and utility and community resiliency.

Tuesday afternoon through Friday offers an excellent array of technical presenters. Presentations will cover the latest research, innovations, resource recovery, land management, planning and economics, and bioenergy. Thursday night comes with a second exciting social event hosted by NC OneWater with the IWA Networking Event. The conference is rounded out Friday morning with a Dewatering Demo and facility tour of Charlotte Water's McAlpine Creek Water Facility. Thank you for joining us in Charlotte to learn, develop, and work together as professionals to recover the valuable organic resources of our community and to help promote and educate our communities to partners with us in this most exciting journey. We are sure you will love the local flair, food and nightlife of this year's WEF/IWA Residuals and Biosolids Conference.

Thank you and welcome this 2023 Residuals and Biosolids Conference

Jackie Jarrell, Charlotte Water, WEF Co-Chair
Alexander Kraemer, Harvest Technology, WEF Co-Chair
Dilek Sanin, Middle East Technical University, IWA Co-Chair
Richard Tsang, CDM Smith Inc, IWA Co-Chair

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Section headers are color coded by **General Conference Information** (aqua), **Program** (yellow), and **Exhibits & Sponsors** (red).

CONFERENCE COMMITTEE



Jackie Jarrell
Charlotte Water
WEF Conference Co-Chair



Alexander Kraemer
Harvest Technology
WEF Conference Co-Chair



Dilek Sanin
Middle East Technical University
IWA Conference Co-Chair



Richard Tsang
CDM Smith Inc
IWA Conference Co-Chair

CONFERENCE COMMITTEE

SPECIALTY CONFERENCE STEERING COMMITTEE

Jose Antonio Barrios
Perez, IWA
Ciudad Universitaria

Carolyn Christy,
WEF
Trinnex

Kathryn Crestani,
WEF
NEORS

Bill Davis, WEF
*Richland County
Government*

Ramesh Goel, IWA
University of Utah

Pavel Jenicek, IWA
*University of
Chemical
Technology*

Olya Keen, WEF
*University of North
Carolina*

Mohamed
Mahmoud, IWA

*Environmental and
Climate Change
Research Institute at
the National
Research Center*

Manuel Moncholi,
WEF
Stantec

Banu Ormeci, IWA
Carelton University

Kazuyuki Oshita,
IWA
Kyoto University

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*University of
Technology*

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RFW Consulting

Todd Williams, IWA
Jacobs

Alicia Wilson, WEF
SCPW Summerville

Guoren Xu, IWA
*Harbin Institute of
Technology*

Yan Zhou, IWA
*Nanyang
Technological
University*

CONFERENCE COMMITTEE

SPECIALTY CONFERENCE ABSTRACT REVIEW COMMITTEE

Amy Hanna <i>Hazen and Sawyer</i>	Houssam Eljerdi <i>Pima County Government</i>	Michael Nelson <i>USP Technologies</i>
Arvind Damodara Kannan <i>Carollo Engineers</i>	Jim Groman <i>Ovivo</i>	Monica Oristian <i>Alexandria Renew Enterprises</i>
Ashwin Dhanasekar <i>The Water Research Foundation</i>	John Fitch <i>The Bergren Associates</i>	Muhammad Farooq Saleem Khan <i>Yibin University</i>
Bethany Thompson <i>Eastman Chemical Company</i>	John Sheets <i>CDM Smith</i>	Murthy Kasi <i>Olsson</i>
Bipin Pathak <i>DC Water</i>	Jose Bicudo <i>Associated Engineering</i>	Paul Fletcher <i>OHM Advisors</i>
Christen Wood <i>Jacobs</i>	Joseph Marino <i>Brown and Caldwell</i>	Pooja Sinha <i>Stantec</i>
Daniel Xiao <i>Ovivo</i>	Joyce Chang <i>Jacobs</i>	Raj Chavan <i>Atkins, North America</i>
David Grace <i>Beca</i>	Karthik R Manchala <i>Greeley and Hansen</i>	Ribeiro Thierry <i>UniLaSalle</i>
Dawn Taylor <i>Medina County Sanitary Engineers</i>	Kyriacos m Pierides <i>Amay Associates</i>	Richard Lancaster <i>Atkins</i>
Derya Dursun <i>Hazen and Sawyer</i>	Lance Rodeman <i>BCR Environmental</i>	Ruth Borgmann <i>Hazen and Sawyer</i>
Eider Alvarez Puras <i>Johnson Controls</i>	Mahmood Gheni Jebur <i>University of Arkansas</i>	Sam Hawkinson <i>Brown and Caldwell</i>
Eric Tanko <i>N/A</i>	Matthew Williams <i>WesTech Engineering, LLC</i>	Thomas W Darby <i>Hermitage Municipal Authority</i>
Hollis Terry <i>Athens-Clarke County</i>		Trudy Johnston <i>Material Matters, Inc</i>

REGISTRATION

All events are held in the Charlotte Convention Center.

The Registration Desk in Concourse C will be open at the following times:

Tuesday, May 16	7:00 a.m. – 5:00 p.m.
Wednesday, May 17	7:30 a.m. – 5:00 p.m.
Thursday, May 18	8:00 a.m. – 5:00 p.m.
Friday, May 19	8:00 a.m. – 11:00 a.m.

PRESENTER AND MODERATOR INFORMATION

All presenters, alternates, and moderators should sign in at the conference Registration Desk and attend their assigned briefing.

Presenters and alternates participating Wednesday, Thursday, and Friday should attend their assigned briefing. Please attend only once unless speaking on multiple days. The Speaker Briefing and room schedule is as follows:

Wednesday, May 17 — Room W205 ABCD *Sessions 1 through 8	7:45 a.m. – 8:15 a.m.
Thursday, May 18 — Room W205 ABCD *Sessions 9 through 22	7:45 a.m. – 8:15 a.m.

WI-FI

Complimentary standard Wi-Fi is provided in all event guestrooms and meeting spaces in the. Please use the following information to access Wi-Fi.

Network name: Complimentary Internet

Once you click on that, a splash page will pop up with instructions.

COMMITTEE MEETINGS

WRF Unregulated Contaminants Research Project

Wednesday, May 17 | 12:00 p.m. – 1:00 p.m.

Room: W211

Biosolids Product Use & Communications

Wednesday, May 17 | 1:00 p.m. – 2:00 p.m.

Room: W210

National Biosolids Partnership (NBO)

Wednesday, May 17 | 2:00 p.m. – 3:00 p.m.

Room: W211

Mid-Atlantic Biosolids Association Meeting

Wednesday, May 17 | 3:15 p.m. – 3:45 p.m.

Room: W210

Solids Separation

Thursday, May 18 | 7:00 a.m. – 8:15 a.m.

Room: W210

CRROPS Meeting

Thursday, May 18 | 7:00 a.m. – 8:15 a.m.

Room: W211

Association of Biosolids and Byproducts Associations

Thursday, May 18 | 10:15 a.m. – 10:45 a.m.

Room: W211

Green House Gas Focus Group

Thursday, May 18 | 11:45 a.m. – 12:45 p.m.

Room: W210

Bioenergy Technology Focus Group

Thursday, May 18 | 12:30 p.m. – 2:00 p.m.

Room: W211

Specialty Conference Focus Group

Thursday, May 18 | 1:00 p.m. – 2:00 p.m.

Room: W210

Young Professionals Focus Group

Thursday, May 18 | 3:15 p.m. – 3:45 p.m.

Room: W210

Residuals and Biosolids Community Meeting

Friday, May 19 | 7:00 a.m. – 8:15 a.m.

Room: W207AB

RECEPTIONS AND MEAL FUNCTIONS

Staff have arranged to have a variety of food options to accommodate vegan and vegetarian preferences. Please advise staff if you have additional special dietary requirements.

Networking Luncheons

Lunch will be provided for all registered attendees on both full days of the WEF/IWA Residuals and Biosolids Conference. Use this opportunity to meet your fellow participants from across the country and abroad while enjoying a luncheon.

Wednesday, May 17 and Thursday, May 18

Exhibit Hall C

11:45 a.m. – 1:30 p.m.

Wednesday Luncheon sponsored by: Komline

Networking Receptions

Join fellow Residuals and Biosolids and Odor and Air Pollutant Conference attendees, speakers, and exhibitors in the Exhibit Hall to network and relax while enjoying a complimentary beverage and light hors d'oeuvres. Grab a Bingo Card provided by the Young Professional Focus Group and complete the board to potentially win a prize.

Wednesday, May 17

Exhibit Hall C

4:45 p.m. – 6:15 p.m.

Networking Reception sponsored by: Atkins

Networking Breaks will take place in the Exhibit Hall at the following times:

Wednesday, May 17

10:00 a.m. – 10:45 a.m. and 3:00 p.m. – 3:45 p.m.

Thursday, May 18

10:00 a.m. – 10:45 a.m. and 3:00 p.m. – 3:45 p.m.

Friday, May 19 - Outside session rooms

10:00 a.m. – 10:15 a.m.

NC ONEWATER RECEPTIONS

NC OneWater is hosting two networking events. Separate Registration is required. Space is limited. Learn more and register at <https://bit.ly/3HcoD86>

Friends of Biosolids Event – Hosted by NC OneWater

Tuesday, May 16, 6:30 p.m.

NASCAR Hall of Fame (*Separate registration required*)

IWA Social Event Hosted by NC OneWater

Thursday, May 18, 6:30 p.m.

Fahrenheit Charlotte (*Separate registration required*)

CONFERENCE SAFETY AND SECURITY

The Westin Charlotte

601 South College Street, Charlotte, NC 28202

Phone: (704) 375-2600

- Dial the Loss Prevention Extension (#2357) for First Aid and security needs/emergencies. 911 will be notified for medical emergencies.
- The hotel has four AEDs on property and onsite CPR and First Aid certified security officer 24 hours daily.
- In case of an emergency evacuation, the Hotel Emergency Response Team will guide you to the nearest exit.

Charlotte Convention Center

501 South College Street, Charlotte, NC 28202

Phone: (704) 339-6000

- Notify Security at (704) 339-6090. 911 will be notified for medical emergencies. Security is AED/CPR trained.
- If a fire is suspected: Contact Center Security at 704.339.6090, who will then report the fire to the Charlotte Fire Department.
- First Aid can be found in Room 106, across from Registration.

WEF SOCIAL MEDIA POLICY

WEF strongly encourages the use of social media to share your experiences at our event. This includes sharing interesting quotes or information, taking pictures with colleagues, and using the event hashtag: **#WEFIWABiosolids**. However, to protect intellectual property, videotaping, filming, or live-streaming of any technical session is prohibited. Any participant violating this policy must relinquish the media and may be removed from the conference. Also, promotional or commercial use of photographs taken at WEFTEC and other WEF conferences is strictly prohibited. If you are interested in content, materials, or products, please consider talking to the speaker who may provide the information or grant permission.

CODE OF CONDUCT

WEF is committed to providing a professional, safe, and welcoming environment during its in-person and virtual events for all water professionals and their guests. WEF expects all attendees, exhibitors, speakers, sponsors, media, and other participants to uphold our commitment to diversity and inclusion by helping us provide a positive conference environment for everyone.

As a conference participant you agree to the following:

- To treat all individuals with respect and create a collegial, inclusive, and professional environment.
- To value a diversity of views and opinions by communicating openly with respect for others.
- Not to verbally abuse any individual or to discriminate, harass, or intimidate on the basis of gender, race, gender identity and expression, sexual orientation, physical or mental disability, physical appearance, age, religion, national origin, veteran status, citizenship, or professional rank.

Anyone requested to stop unacceptable behavior is expected to comply immediately. WEF management may take any action deemed necessary and appropriate, including removal from the event (and any remaining portions thereof) without warning and without refund of registration fee.

Additionally, if you are a WEF Member, you agree to uphold the WEF Member Code of Conduct while attending WEF Events.

Reporting Concerns

To report a Code of Conduct violation, you may email WEF Executive Director, at executivedirector@wef.org.

For the complete Code of Conduct, please visit <https://www.weftec.org/about/about-weftec/code-of-conduct/>.

WEF VISION & CORE VALUES



WEF's Vision

Life free of water challenges

WEF's Core Values

- Lead boldly with purpose and agility
- Focus on our customers through empathy and service
- Collaborate for collective impact
- Integrate diversity, equity, and inclusion in all we do

For more information about WEF's new strategic plan, mission, and vision, visit <https://www.wefwaterfuture.org/>.

CONTINUING EDUCATION

Continuing Education credit files will be made available online after the event.

Participating attendees will receive an email within 4 weeks after each event informing them when CE Credit documentation becomes available. Attendees will be able to view and download a certificate and transcript detailing their event participation using the link provided in the event follow up messaging. These details are also posted under the Events & Education tab of www.WEF.org.

How Do I Receive Credit For this Conference?

In order to receive credit for participation in any of the education sessions attendees will be required to scan their badge when entering and exiting each session room. Credits obtained during this event will be available at the end of the conference using the link provided in the post event email and WEF site listed above.

Pre-Conference Workshops:

WEF offers Continuing Education Units (CEUs) for participation in workshops. One CEU is the equivalent to 10 hours of training or formal instruction. These are distributed for structured, relevant professional training above and beyond that of initial certification or employment in a particular field.

Technical Sessions:

WEF offers Professional Development Hours (PDHs) for participation in technical sessions. A PDH is defined as one hour spent engaged in an activity that contributes to the advancement or enhancement of professional skills or scientific knowledge of a professional engineer or operator.

When Will I Receive Credits For this Conference?

Certificates and transcripts are available for download during and post conference. WEF will send an email after the conference to inform attendees where they can obtain their credits. Please keep in mind that most state licensing boards require the individual licensees to report continuing education credits.

Note: Educational Credits will not be recorded, and documentation will not be distributed unless the attendee is a confirmed registrant of this event and the proper steps are completed as indicated in the directions provided.

Are WEF Continuing Education Credits Approved in My State?

Most state engineering boards will accept WEF event credits as issued by WEF. WEF applies for approval in many states for operators and will be happy to work with individuals and Member Associations for additional state or agency approvals upon request. In addition, WEF has been approved as a Training Provider through the following: The Florida Board of Professional Engineers, the New York State Department of Education, and the Ohio EPA.

Please visit www.wef.org for specific state approval information for each event.

CONTINUING EDUCATION

What Else Do I Need to Know?

WEF follows the International Association of Continuing Education and Training (IACET) guidelines along with strict state-specific CE Credit regulations. We strive to maintain these policies and procedures regarding our Continuing Education Program to meet with and receive state recognition of our events. WEF calculates education credits following a standardized method that is widely accepted by certification and licensing agencies. However, many states differ in the type and/or number of credits they will approve for educational events. Because of this, participants are responsible for exploring their state requirements and for ensuring that WEF conference credits are accepted.

Service and Support...

WEF maintains a database of all continuing education files for a minimum of 7 years. You may contact WEF's Customer Service Team between the hours of 8:30 a.m. and 5:00 p.m. EST, Monday through Friday for questions related to WEF Programs - 1-800-666-0206 or csc@wef.org.

State Credit Calculations:

Each state has its own set of CE credit requirements. Some licensing boards use different acronyms for approved training credits. In most instances the credits issued by WEF can be converted to meet state specific requirements that vary from the system used by WEF. This is usually managed at the state level using the following conversion:

1.0 CEU = 10 Hours of session time

1.0 PDH = 1 Hour of session time

1.0 General Contact Hour = 1 Hour of session time

For example: **1.7 CEU Credits = 17.0 PDH** depending on individual state regulations.

**CEU & PDH credits are available for Workshops to Professional Engineers licensed in the state of New York (NYSED).*

Please note: courses that are not related to professional practice, such as accounting/financial planning, basic Auto CAD, general office management, insurance, marketing, real estate, risk management, DE&I, etc. are not approved for continuing education credits by some state licensing boards, including the NYSED.

For more information regarding WEF's Continuing Education Program, please visit the Events & Education tab at www.WEF.org.

MOBILE APP AND MY SHOW PLANNER

Mobile App and My Show Planner for #WEFIWABiosolids and #WEFOdorsAir



WEF is pleased to offer both a **Mobile App** and a mobile-friendly **My Show Planner**.

Set up your My Show Planner account to begin saving your favorite sessions, speakers, exhibitors, and sponsors to your plan and receiving recommendations.

Scan the QR code to download “**RBC & OAP 23**” app now from the Google Play OR App Store. All other web-enabled devices can access the Planner via the web: rbcoap23.mapyourshow.com.

We need your feedback! Please provide feedback on individual presentations, sessions, workshops, and more using the mobile app!

ONLINE PROCEEDINGS

Conference proceedings consisting of manuscripts from all of the technical presentations have been made available through an online portal. Advance registrants will receive an email with instructions on how to access the WEF/IWA Residuals and Biosolids Conference 2023 online proceedings before the start of the conference. Onsite registrants will receive an email with instructions to access proceedings following the event’s conclusion.

Not attending this year’s Conference? Copies of proceedings may be ordered on Access Water after the conference ends. You may call 1-800-666-0206 or visit www.AccessWater.org to place your order.

SPONSORS

We would like to thank the following sponsoring companies for their contributions to the conference and program.



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Opening General Session

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SESSIONS AT A GLANCE

Session Number	Session Title	Start Time	End Time	CE Credits
Tuesday, May 16				
Workshop A	Dewatering Optimization: Practical Ways to Improve Performance	8:00 AM	4:30 PM	0.6 CEUs
Workshop B	Accounting and Mitigating GHG Emissions from Biosolids using BEAM	8:30 AM	12:00 PM	0.3 CEUs
Workshop C	Fundamentals of Anaerobic and Aerobic Digestion using Process Simulators	8:30 AM	5:00 PM	0.6 CEUs
Workshop D	Delving into Digestion: Anaerobic Digestion Process, Design, and Operation	1:30 PM	5:00 PM	0.3 CEUs
Workshop E	Emerging Contaminants and Pathogens: Recent Global Developments in Science, Treatment Technologies and Regulatory Landscape	1:30 PM	5:00 PM	0.3 CEUs
Wednesday, May 17				
OGS	Opening General Session	8:30 AM	10:00 AM	1.5 GCH
Session 01	Impacts of Thermal Processes on PFAS - Updates from Water Research Foundation Projects	10:45 AM	11:45 AM	1.0 PDH
Session 02	Today's Alchemy Miracle: How Hydrothermal Liquefaction turns Sludge into Diesel and Jet Fuel	10:45 AM	11:45 AM	1.0 PDH
Session 03	Digestion Optimization and Troubleshooting	10:45 AM	11:45 AM	1.0 PDH
Session 04	Process Case Studies in Dewatering	10:45 AM	11:45 AM	1.0 PDH
TS I	Technology Spotlight I	12:30 PM	1:20 PM	0.83 GCH
Session 05	Regulatory and Market Trends in Land Application	1:30 PM	4:45 PM	2.5 PDH
Session 06	Microplastics and other Emerging Contaminants	1:30 PM	4:45 PM	2.5 PDH
Session 07	Intensifying Digestion	1:30 PM	4:45 PM	2.5 PDH
Session 08	Dewatering and Polymer Optimization	1:30 PM	4:45 PM	2.5 PDH
Thursday, May 18				
Session 09	Biogas	8:30 AM	11:45 AM	2.5 PDH
Session 10	PFAS Challenges and Treatment	8:30 AM	11:45 AM	2.5 PDH
Session 11	Circular Water Economy	8:30 AM	11:45 AM	2.5 PDH

SESSIONS AT A GLANCE

Session Number	Session Title	Start Time	End Time	CE Credits
Thursday, May 18				
Session 12	Innovative Processes in Anaerobic Digestion	8:30 AM	11:45 AM	2.5 PDH
TS II	Technology Spotlight II	10:15 AM	10:45 AM	0.5 GCH
TS III	Technology Spotlight III	12:55 PM	1:20 PM	0.5 GCH
Session 13	Case Studies	1:30 PM	4:45 PM	2.5 PDH
Session 14	Co-Digestion	1:30 PM	4:45 PM	2.5 PDH
Session 15	New Research in Anaerobic Digestion	1:30 PM	3:00 PM	1.5 PDH
Session 16	Advances and Innovations in Thermal Processes I	1:30 PM	4:45 PM	2.5 PDH
Session 17	Regional Biosolids Session: What Do You Need to Know before Solidifying Your Plans?	3:45 PM	4:45 PM	1.0 PDH
Friday, May 19				
Facility Tour	Charlotte Water's McAlpine Creek Water Facility Tour	8:00 AM	11:15 AM	3.0 GCH
Session 18	Managing Biosolids in the Carolinas	8:30 AM	11:15 AM	2.5 PDH
Session 19	Resource Recovery	8:30 AM	11:15 AM	2.5 PDH
Session 20	Upgrading Biogas to RNG	8:30 AM	10:00 AM	1.5 PDH
Session 21	Advances and Innovations in Thermal Processes II	8:30 AM	11:15 AM	2.5 PDH
Session 22	Turning Waste Products into Premium Products	10:15 AM	11:15 AM	1.0 PDH

PRE-CONFERENCE WORKSHOPS

(Additional fees required)

Workshop A: Dewatering Optimization: Practical Ways to Improve Performance

Tuesday, May 16, 2023

Room: W207AB

8:00 a.m. – 4:30 p.m.

0.6 CEUs

8:00 a.m. Introduction and review of workshop agenda and goals

David Oerke, Jacobs - Chair, Pre-Conference Task Force,
WEFRBC Solids Separation Subcommittee

8:10 a.m. Use MENTI survey questions to rank dewatering challenges

Stephanie Spalding, HDR

8:20 a.m. Update on Dewatering Optimization Through Experimentation, Analysis of Data, Training, Controls and Communication

Mike Gates, Chris Maher, Clean Water Services

9:00 a.m. Mechanical Optimization of Dewatering Equipment

Adam Parmenter, HDR

9:30 a.m. Successful Start-Up and Dewatering Optimization on THP Digested Biosolids at HRSD

Jeff Nicholson, HRSD

10:00 a.m. Coffee and Networking Break

10:30 a.m. Design Considerations and Case Studies for Dewatered Solids Conveyance and Pumping

Zwelani Ngwenya, Jacobs

11:00 a.m. Dewatering Equipment Selection and Sludge Characteristics Study Update

Shaun Hurst, Andritz

11:30 a.m. Interactive Breakout Problem Solving Session with “what has worked,” lessons learned, and O&M challenges

David Oerke, Jacobs; Stephanie Spalding, HDR

12:15 p.m. Travel to Irwin WWRF by Bus with Box Lunches Provided

1:00 p.m. Irwin Tour and Viewing of Dewatering Equipment

4:30 p.m. Workshop adjourns

PRE-CONFERENCE WORKSHOPS

(Additional fees required)

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

Tuesday, May 16, 2023

Room: W206B

8:30 a.m. – 12:00 p.m.

0.3 CEUs

- 8:30 a.m. Workshop Overview/Introductions**
Shannon Cavanaugh, Brown & Caldwell; Emma Shen, Jacobs
- 8:40 a.m. GHG Emissions from Solids Treatment and End Use: Sources, Sinks, and Climate Impact**
Bill Brower, Brown & Caldwell
- 9:00 a.m. BEAM*2022: Biosolids Emissions Assessment Model Background and Applications**
Andrew Carpenter, Northern Tilth
- 9:20 a.m. GHG Mitigation Opportunities from Biosolids and Biogas Handling**
Christine Polo, Carollo
- 9:45 a.m. BEAM Tutorial for GHG Accounting for Solids Management**
Andrew Carpenter, Northern Tilth
- 10:00 a.m. Coffee and Networking Break**
- 10:30 a.m. Interactive Exercise 1.** Use BEAM*2022 to calculate GHG inventories for participants who brought data for their WRRF or for example data
- 11:15 a.m. Large group discussion. Discuss strategies to reduce emissions**
- 11:25 a.m. Interactive Exercise 2.** Use BEAM*2022 to propose strategies to reduce the calculated inventories by 25%
- 11:45 a.m. Large group discussion. Discuss results of GHG inventories and effective strategies to reduce emissions, and how to implement these at municipalities**
- 12:00 p.m. Workshop adjourns**

PRE-CONFERENCE WORKSHOPS

(Additional fees required)

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

Tuesday, May 16, 2023

Room: W206A

8:30 a.m. – 5:00 p.m.

0.6 CEUs

- 8:30 a.m. Introductions**
Paul Dombrowski, Woodard & Curran
- 8:45 a.m. Overview of Biosolids Regulations**
Susan Guswa, Woodard & Curran
- 9:15 a.m. Common Disposal and Reuse Options**
Susan Guswa, Woodard & Curran
- 9:40 a.m. Projecting Sludge Quantities and Characteristics, Performing Solids Mass Balances**
Susan Guswa, Woodard & Curran
- 10:00 a.m. Networking and Coffee Break**
- 10:30 a.m. Fundamentals of Modeling Digesters and a Description of Using the Biosolids Process Simulator**
Nick Piccolo, Hatch
- 11:00 a.m. Fundamentals of Anaerobic Digestion Operation**
Jeanette Brown, Manhattan College
- 12:00 p.m. Lunch**
- 1:30 p.m. Anaerobic Digestion Simulation Examples and Attendees Working on Simulator Problems**
Jeanette Brown, Manhattan College; Nick Piccolo, Hatch
- 2:00 p.m. Fundamentals of Aerobic Digestion Operation**
Philip Pedros, Mott MacDonald
- 3:00 p.m. Networking and Coffee Break**
- 3:30 p.m. Aerobic Digestion Simulation Examples and Attendees Working on Simulator Problems**
Philip Pedros, Mott MacDonald; Nick Piccolo, Hatch

Workshop C agenda continued on next page

PRE-CONFERENCE WORKSHOPS

(Additional fees required)

Workshop C agenda continued from previous page

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

Tuesday, May 16, 2023

Room: W206A

8:30 a.m. – 5:00 p.m.

0.6 CEUs

4:00 p.m. Attendee Completed Digester Simulator Problems and Solutions

Nick Piccolo, Hatch

4:45 p.m. Summary and Concluding Statements

Paul Dombrowski, Woodard & Curran

5:00 p.m. Workshop adjourns

PRE-CONFERENCE WORKSHOPS

(Additional fees required)

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

Tuesday, May 16, 2023

Room: W207AB

1:30 p.m. – 5:00 p.m.

0.3 CEUs

- 1:30 p.m. Introduction**
Jeff Coyne, Hazen and Sawyer
- 1:35 p.m. Anaerobic Digestion Process**
Christopher Muller, Brown & Caldwell
- 2:05 p.m. Advanced Process/THP Design Basics**
Stephanie Spalding, HDR. Inc
- 2:35 p.m. Anaerobic Digestion Part 1: Unit Process Design Basics**
Michael Bullard, Hazen and Sawyer
- 3:00 p.m. Coffee and Networking Break**
- 3:30 p.m. Anaerobic Digestion Unit Process Design Part 2: How to Design a Digester**
Michael Bullard, Hazen and Sawyer
- 3:50 p.m. Gas Handling and Utilization - Gas Safety and Gas Handling**
Regina Hansen, Ovivo
- 4:20 p.m. Gas Handling and Utilization - Gas Upgrading and Beneficial Use**
Greg Knight, Black and Veatch
- 4:55 p.m. Closing**
Jeff Coyne, Hazen and Sawyer
- 5:00 p.m. Workshop adjourns**

PRE-CONFERENCE WORKSHOPS

(Additional fees required)

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

Tuesday, May 16, 2023

Room: W206B

1:30 p.m. – 5:00 p.m.

0.3 CEUs

1:30 p.m. Welcome and Introductions

1:40 p.m. Microplastics

Dr. Banu Ormeci, Carleton University

2:00 p.m. PFAS

Todd Williams, Jacobs

2:20 p.m. Emerging Pathogens

Dr. Laura Boczek, U.S. Environmental Protection Agency

2:40 p.m. Regulations

Dr. David Tobias, U.S. Environmental Protection Agency

3:00 p.m. Coffee and Networking break

3:30 p.m. Panel Discussion

4:30 p.m. Q&A and closure

5:00 p.m. Workshop adjourns

TECHNICAL PROGRAM

Opening General Session

Wednesday, May 17

8:30 a.m. – 10:00 a.m.

Room: W209ABC

1.5 GCHs

- 8:30 a.m. Welcome and Introductions – Chairs of RBC**
Jackie Jarrell, Charlotte Water, WEF Co-Chair
Alexander Kraemer, Harvest Technology, WEF Co-Chair
Dilek Sanin, Middle East Technical University, IWA Co-Chair
Richard Tsang, CDM Smith Inc, IWA Co-Chair
- 8:40 a.m. Welcome to Charlotte**
Angela Charles, Charlotte Water Director
- 8:45 a.m. Conference Welcome**
Howard Carter, City of Saco, Maine
- 8:50 a.m. NC OneWater and SC WEA Welcome**
Michelle Mayes, Incoming chair NC OneWater RBC
Rebecca West, Incoming chair SC WEA RBC
- 9:00 a.m. Panel Discussion - Community Based Solutions - The Beneficial Impact of Biosolids in our Communities that Support a Circular Economy and Equitable Services**
Facilitator Maile Lono-Batura, WEF
Speakers: Charles Stephens, National Rural Water Association; Ib Pedersen, VCS; Janine Burke, NEBRA; Farokh Kakar, Brown and Caldwell
- 9:50 a.m. Closing**
- 10:00 a.m. Session adjourns for networking break on exhibit floor**

TECHNICAL PROGRAM

**Session 01: Impacts of Thermal Processes on PFAS - Updates from
Water Research Foundation Projects**

Wednesday, May 17, 2023

Room: W206A

10:45 a.m. - 11:45 a.m.

1.0 PDHs

**10:45 a.m. The Impact of Torrefaction and Pyrolysis on PFAS:
Analysis of Parent Compound Removal and
Transformation in Biochar and Py-Liquid**
Patrick McNamara, Black & Veatch

**11:05 a.m. Prospective Fate of PFAS through Thermal Oxidation at
WRRFs**
John Ross, Brown and Caldwell

11:25 a.m. Understanding Pyrolysis for PFAS Removal
Derya Dursun, Hazen and Sawyer

11:45 a.m. Session adjourns for networking luncheon

TECHNICAL PROGRAM

Session 02: Today's Alchemy Miracle: How Hydrothermal Liquefaction turns Sludge into Diesel and Jet Fuel

Wednesday, May 17, 2023

Room: W206B

10:45 a.m. - 11:45 a.m.

1.0 PDHs

10:45 a.m. Introductory Remarks on Community Wastes and Product-Fuel Carbon Intensities

John Willis, Brown and Caldwell

10:55 a.m. HTL Process Overview

Michael Thorson, Pacific Northwest National Laboratory

11:10 a.m. HTL Alignment with Petroleum Industry Needs

Glenn Fuller, Kern Oil

11:25 a.m. GLWA's 110 ton/day HTL Feasibility Study

Xavier Fonoll Almansa, Great Lakes Water Authority

11:30 a.m. Facilitated Panel Discussion

11:45 a.m. Session adjourns for networking luncheon

TECHNICAL PROGRAM

- Session 03: Digestion Optimization and Troubleshooting**
Wednesday, May 17, 2023 **Room: W207AB**
10:45 a.m. - 11:45 a.m. **1.0 PDHs**
- Moderators:** Dilek Sanin, Middle East Technical University; Chris Wilson, HRSD
- 10:45 a.m. Feasibility of Advanced Digestion Options to Reduce Biosolids Volume**
Jose Bicudo, Rony Das, Associated Engineering; Sara Elkadi, Tanya Bogoslawski, Deacon Liddy, GHD; Luke Dempsey, Rod MacLean, City of Kelowna
- 11:15 a.m. Importance of Digester Foaming Control in Moving Towards Energy Neutrality**
Amy McDonald, Josef Cesca, Gokul Bharambe, David Parry, Jacobs; Jose Gonzalez, Sydney Water Corporation
- Alternate An Optimization Tool - Relationship Between Ultraviolet-Visible Spectra and Soluble Species in the Liquid Phase of Wastewater Sludge During Digestion**
Eskandar Poorasgari; Banu Ormeci, Carleton University
- 11:45 a.m. Session adjourns for networking luncheon**

TECHNICAL PROGRAM

Session 04: Process Case Studies in Dewatering
Wednesday, May 17, 2023
10:45 a.m. - 11:45 a.m.

Room: W207CD
1.0 PDHs

Moderators: Alicia Wilson, Summerville CPW; Joseph Marino, Brown and Caldwell

10:45 a.m. Process Capability Assessment of Centrifugal Sludge Thickening Under Various Operating Conditions
Zhongtian Li, Rashi Gupta, Carollo Engineers

11:15 a.m. Building for the Future: A Commonsense Approach for Kalamazoo Water Reclamation Plants' Dewatering Facility Upgrade
Ryan Stoughton, City of Kalamazoo; Joshua Gable, Centrisys/CNP

Alternate Better Processes and Best Practices: Rethinking Thickening and Dewatering
Edward Fritz, Operators Unlimited

11:45 a.m. Session adjourns for networking luncheon

TECHNOLOGY SPOTLIGHT

Technology Spotlight I **Wednesday, May 17th** **12:30 p.m. - 1:20 p.m.**

*Please eat lunch first and then the three exhibitors listed below will each be holding the same 20-minute presentation two times in a row. Participants are invited to join a different presentation at each of the times listed below. Choose the top two you would like to attend. Each presentation happens at the exhibitor's booth. Presentations kickoff concurrently at: **12:35 p.m.** and **1:00 p.m.** in each of the three booths.*

12:30 p.m. Technology Spotlight Introduction at entrance to exhibit hall
12:35 p.m. 3 Simultaneous Presentation A
1:00 p.m. 3 Simultaneous Presentation B

Booth 305 **Carbon Neutrality Biosolids Drying Achieved in Bottrop. Biosolids Incineration Plant no longer requires supplemental coal.**
Alexander Kraemer, Thermal Process Systems, Inc.

Booth 224 **Optimizing Dewatering Under Changing Sludge Characteristics**
Scott McKay, SMK Consulting at Fournier Booth

Booth 803 **Performance Optimization for Centrifuge Biosolids Dewatering**
Sean Tierney, Frazenburg

TECHNICAL PROGRAM

Session 05: Regulatory and Market Trends in Land Application
Wednesday, May 17, 2023 **Room: W206A**
1:30 p.m. - 4:45 p.m. **2.5 PDHs**

Moderators: Angie Price, Renewable Water Resources; Sarah Guzman, Black & Veatch

1:30 p.m. Biosolids Beneficial Use and Disposal Trends in South Carolina and Georgia

Nickolas Hines, Material Matters Inc

2:00 p.m. Biosolids Law 2023: Key Regulatory and Litigation Developments

Andrew Silton, James Slaughter, Beveridge & Diamond PC

2:30 p.m. Lystek THP: Land Application and Biosolids Markets

Mike Beswick, Lystek

3:00 p.m. Networking break

3:45 p.m. Anecdotes, Analyses, and Unexpected Advantages: Why Degraded Landscapes Benefit More from Biosolids

John Lavery, SYLVIS Environmental Services Inc.

4:15 p.m. Guidance Document for Wastewater Agencies Who Oversee Biosolids Land Application Contractors

Rebecca Overacre, East Bay Municipal Utility District; Greg Kester, California Association of Sanitation Agencies

4:45 p.m. Session adjourns for networking reception in exhibit hall

TECHNICAL PROGRAM

Session 06: Microplastics and other Emerging Contaminants
Wednesday, May 17, 2023 **Room: W206B**
1:30 p.m. - 4:45 p.m. **2.5 PDHs**

Moderators: Olya Keen, UNC Charlotte; Trudy Johnston, Material Matters

1:30 p.m. Alkaline-Thermal Hydrolysis Prior to Anaerobic Digestion Affects Fate of Microplastics

Dilara Hatinoglu, University of Maine; Faika Dilek Sanin, Middle East Technical University

2:00 p.m. Behaviour of Microplastics in Methane Fermentation of Sewage Sludge, Japan

Wenjing Guo, Kazuyuki Oshita, Sai Liu, Kenji Shiota, Masaki Takaoka, Kyoto University

2:30 p.m. Thermophilic Digestion is Enhanced in The Presence of Polyamide Microplastics

Faika Dilek Sanin, , Middle East Technical University

3:00 p.m. Networking break

3:45 p.m. A Surveillance Study: Pharmaceutical and Personal Care Products (PPCPs) in Biosolids

Shubhashini Oza, Shirin Estahbanati, Jeremy Harafield, Daniel Wolgemuth, Brown & Caldwell; John Norton, Xavier Fonoll Almansa, Majid Khan, Great Lakes Water Authority; Christopher Muller, Katherine Bell, Brown & Caldwell

4:15 p.m. Behavior and Flow of Microplastics in Sludge Treatment Systems in Japan

Sai Liu, Kazuyuki Oshita, Wenjing Guo, Masaki Takaoka, Kyoto University

4:45 p.m. Session adjourns for networking reception in exhibit hall

TECHNICAL PROGRAM

Session 07: Intensifying Digestion

Wednesday, May 17, 2023

1:30 p.m. - 4:45 p.m.

Room: W207AB

2.5 PDHs

Moderators: Rebecca West, RFW Consulting Services; José Bicudo, Associated Engineering

1:30 p.m. Optimizing Energy and Nutrient Control with Two-Stage Anaerobic Digestion

Justin Wippo, Richard Pressley, Thermal Process Systems

2:00 p.m. Where Should my THP Go? Drivers to Implementing Thermal Hydrolysis at Woodman Point, Perth, Australia

Gokul Bharambe, Lydia Wong, Peter Burrowes, David Parry, Jacobs

2:30 p.m. South San Francisco-San Bruno Water Quality Control Plant Employs High-Solids Digestion to Enable Food Waste Co-Digestion & Advance Energy Neutrality with Lowest Lifecycle Cost

Margaret Laub, Anaergia

3:00 p.m. Networking break

3:45 p.m. The Impact of Solids Retention Time Reduction on the Thermal Hydrolysis Pretreatment-Enhanced Mesophilic Anaerobic Digestion

Yitao Li, Hao Luo, Virginia Tech; Mary Strawn, Lisa Racey, Fasil Haile, Arlington County Water Pollution Control Bureau; Brian Balchunas, Chris Moline, Lawrence Hentz, HDR Inc; Zhiwu Wang, Virginia Tech

Session 07 Agenda continues on next page

TECHNICAL PROGRAM

Session 07 Agenda continued from previous page

Session 07: Intensifying Digestion

Wednesday, May 17, 2023

1:30 p.m. - 4:45 p.m.

Room: W207AB

2.5 PDHs

Moderators: Rebecca West, RFW Consulting Services; José Bicudo, Associated Engineering

4:15 p.m. Growing Up Together: Sidestream Startup Concurrent with THP Digestion to Meet Strict Recycle Limits

Paul Le Bel, Amy Hanna, Matthew Van Horne, Hazen and Sawyer; Robert Wierzbicki, PC Construction; Joe Uglevich, Stantec

Alternate Effects of Primary Sludge Blending and Alum Addition on Thermal Hydrolysis-Enhanced Anaerobic Digestion of Waste Activated Sludge and Recalcitrant Dissolved Nitrogen Formation

Hao Luo, Virginia Tech; Caroline Nguyen, Malcolm Taylor, Washington Suburban Sanitary Commission, Zhiwu Wang, Virginia Tech

4:45 p.m. Session adjourns for networking reception in exhibit hall

TECHNICAL PROGRAM

Session 08: Dewatering and Polymer Optimization

Wednesday, May 17, 2023

Room: W207CD

1:30 p.m. - 4:45 p.m.

2.5 PDHs

Moderators: Michael Nelson, USP Technologies; Derya Dursun, Hazen and Sawyer

1:30 p.m. Finding the Right Polymer for Your Operation...It's Not Just the Unit Price

Maggie Macomber, Charlotte Water; Jonathan Lapsley, David Wagoner, CDM Smith

2:00 p.m. Multi-Point Polymer Addition to Reduce Overall Polymer Demand

Ryan Iwata, Brown and Caldwell; Steven Beightol, Matthew Higgins, Bucknell University

2:30 p.m. Affinity Laws for Decanter Centrifuges: Impacts of G Force on Dewatering Centrifuge Capacity and Performance. An Explanation of the G-Volume Scaling Methodology

Jim Hanson, GEA North America

3:00 p.m. Networking break

3:45 p.m. Increasing the Accuracy of Project Planning Through Meta-Analysis of Dewatering System Performance

Christian Primm, David Pann, HUBER Technology, Inc.

4:15 p.m. Addressing Biosolids Hydrogen Sulfide Odor Complaints While Meeting Effluent Metals Limits – A “Win-Win” for a Brewery

Lam Nguyen, Brenda Blake, Michael Fagan, USP Technologies

4:45 p.m. Session adjourns for networking reception in exhibit hall

TECHNICAL PROGRAM

Session 09: Biogas
Thursday, May 18, 2023
8:30 a.m. - 11:45 a.m.

Room: W206A
2.5 PDHs

Moderators: Kazuyuki Oshita, Kyoto University; Stephanie Lavey, Alexandria Renew Enterprises

8:30 a.m. Pursuing Bioenergy Projects in a Dynamic Funding Environment

Alison Nojima, Brown and Caldwell, San Francisco, California;
Alexis Valenti, Brown and Caldwell, Rancho Cordova, California

9:00 a.m. What's It Worth to You? Arlington Regen Biogas Utilization Evaluation

Brian Bakke, Stephanie Spalding, HDR Inc; Mary Strawn, Arlington County Water Pollution Control Bureau; Brian Balchunas, HDR Inc;

9:30 a.m. Biogas Action Planning in Tallahassee – Plans for the Future with Improvements for the Now

Eric Auerbach, Mariana Costa Tomazelli, Arcadis; Sondra Lee, City of Tallahassee

10:00 a.m. Networking break

10:45 a.m. Digester Gas to Biomethane – Design, Construction and Commissioning Lessons Learned

Laura Locke, AECOM Canada Ltd.; Laura Ng, Metro Vancouver

11:15 a.m. San Jose Cogeneration Facility Project Case Study

Andrew Lehane, City of San Jose; Nathan Ebbs, David Parry, Jacobs

Alternate Road Trip III: A Path to The Road Less Traveled

Daniel Hull, Brown and Caldwell; Robert Taylor, Washington Suburban Sanitary Commission; John Willis, Brown and Caldwell

Alternate Biogas to RNG - A Case Study

Matt Freed, Bartlett & West; Kristina Gerber, Veolia WTS

11:45 a.m. Session adjourns for networking luncheon

TECHNICAL PROGRAM

Session 10: PFAS Challenges and Treatment

Thursday, May 18, 2023

8:30 a.m. - 11:45 a.m.

Room: W206B

2.5 PDHs

Moderators: Richard Tsang, CDM Smith, Inc.; Bipin Pathak, DC Water

8:30 a.m. Quantifying Supercritical Water Oxidation Efficiency Treating PFAS Laden Sludge, Ion Exchange Resin and Aqueous Film Forming Foam

Sudhakar Viswanathan, 374Water Inc.; Marc Deshusses, Duke University & 374Water Inc.; Doug Hatler, Kobe Nagar, 374Water Inc.

9:00 a.m. Lab-scale Evaluation of PFAS Decomposition and Flue Gas Qualities from Biosolids Incineration Process

Jon Orr, Jeff Moccock, Argun Erdogan, Hong Zhao, Veolia Water Technologies; Takahiro Yamada, Moshan Kohandawala, Saikumar Chalivendra, University of Dayton Research Institute

9:30 a.m. Impact of Several Biosolids Stabilization Technologies on PFAS

Todd Williams, Scott Grieco, Bahman Bani, Jacobs

10:00 a.m. Networking break

10:45 a.m. Cost Implications of PFAS Destruction in Biosolids: A Case Study from the Minnesota Pollution Control Agency

Anna Munson, Derya Dursun, Micah Blate, Mohammad Abu-Orf, Hazen and Sawyer; Ali Ling, Becca Vermace, Andy McCabe, Katie Wolohan, Barr Engineering; Scott Kyser, Minnesota Pollution Control Agency

Session 10 Agenda continues on next page

TECHNICAL PROGRAM

Session 10 Agenda continued from previous page

Session 10: PFAS Challenges and Treatment

Thursday, May 18, 2023

8:30 a.m. - 11:45 a.m.

Room: W206B

2.5 PDHs

Moderators: Richard Tsang, CDM Smith, Inc.; Bipin Pathak, DC Water

**11:15 a.m. Master Planning When the Ground Keeps Shifting:
Portland (Maine) Water District's Biosolids Master
Planning Experience in the Age of PFAS**

Natalie Sierra, Brown and Caldwell; Scott Firmin, Dustin Price,
Portland Water District; Tracy Chouinard, Brown and Caldwell

**Alternate Two Birds, One Stone: Utilizing Biosolids Thermal
Processing Technologies for PFAS removal**
Ramola Vaidya, Mamatha Hopanna, Sebastian Smoot, HDR

**Alternate Determining Background Concentrations of PFAS in
Massachusetts Soils**
Tom Schwartz, Northeast Biosolids and Residuals Association;
Lisa McIntosh, Lisa Campe, Woodard and Curran, Inc.

11:45 a.m. Session adjourns for networking luncheon

TECHNICAL PROGRAM

Session 11: Circular Water Economy

Thursday, May 18, 2023

8:30 a.m. - 11:45 a.m.

Room: W207AB

2.5 PDHs

Moderators: Adrian Romero, Jacobs; Ashwin Dhanasekar, The Water Research Foundation

8:30 a.m. Pairing Table-top Analysis with Bench-Scale Testing to Assess Food Waste Co-digestion Feasibility

Christine Polo, Carollo Engineer, Inc.; Jan Hauser, City of Oxnard; Matthew Higgins, Bucknell University; Rashi Gupta, Alyssa DiGirolamo, Tanja Rauch-Williams, Christian Tasser, Carollo Engineer, Inc.

9:00 a.m. Global Lessons for Benchmarking and Reducing Fugitive Methane Emissions from Sludge Treatment and Biogas Handling

Emma Shen, Adrian Romero, Aprilia Vellacott, Amanda Lake, Jacobs

9:30 a.m. Assessing the GHG Emission Tradeoffs of Energy Recovery with Thermal Drying

Nicole Stephens, Steven Lobo, Amir Alansari, Scott Abrams, Stantec; John Holloway, Damon Forney, Town of Cary

10:00 a.m. Networking break

10:45 a.m. Developing a Robust and Resilient Anaerobic Digestion Process for Co-Digestion of Food Waste and Municipal Solid Waste

Emma Guertin, Brown and Caldwell; Francis De Los Reyes, North Carolina State University

TECHNICAL PROGRAM

Session 11 Agenda continued from previous page

Session 11: Circular Water Economy

Thursday, May 18, 2023

8:30 a.m. - 11:45 a.m.

Room: W207AB

2.5 PDHs

Moderators: Adrian Romero, Jacobs; Ashwin Dhanasekar, The Water Research Foundation

11:15 a.m. Camden Bioenergy Facility Energy Independence Project

Charles Winslow, Jay Surti, GHD

Alternate Brownfield Restoration with Biosolids in Metropolitan Chicago: Soil Health Reconstruction

Theresa Johnston, Guanglong Tian, Albert Cox, Heng Zhang, Edward Podczewinski, Metropolitan Water Reclamation District of Greater Chicago

Alternate Greenfield Wastewater Resource Recovery Facility in Southern California Leverages State of the Art Technology to Deliver Complete Resource Recovery & Community Resilience

Margaret Laub, Anaergia

11:45 a.m. Session adjourns for networking luncheon

TECHNICAL PROGRAM

Session 12: Innovative Processes in Anaerobic Digestion

Thursday, May 18, 2023

Room: W207CD

8:30 a.m. - 11:45 a.m.

2.5 PDHs

Moderators: Manuel Moncholi, Stantec; Muhammad Farooq Saleem Khan, Yibin University

8:30 a.m. Pilot-Scale Anaerobic Digestion and Dewatering of Aerobic Granular Sludge

Muriel Steele, Charlotte Water; Bryce Figdore, HDR Inc; Matthew Higgins, Bucknell University

9:00 a.m. Phosphorus Release and Recovery from Digested Anaerobic Sludge in an Electrochemical System

Zixuan Wang, Zhen He, Washington University in St. Louis

9:30 a.m. Condition-Based Monitoring of Biogas Compressor Using Nonintrusive Sensors and Machine Learning

Zhongtian Li, Rashi Gupta, Carollo Engineers

10:00 a.m. Networking break

10:45 a.m. Enhancing Anaerobic Digestion Performance with the Microbial Hydrolysis Process

David Parry, Maddy Fairley-Wax, Corey Klibert, Jacobs; Scott McClelland, Encina Wastewater Authority; Alan Johnston, Mike Daniels

11:15 a.m. IntensiCarb™- A Novel Vacuum Evaporative Process for the Intensification of Anaerobic Digestion

Christopher Muller, Brown and Caldwell; Ali Kadir, Western University; Ahmed Al-Omari, Brown and Caldwell; Domenico Santoro, Eunkyung Jang, USP Technologies; Katherine Bell, Brown and Caldwell; Frances Omoye, Western University; John Norton, Xavier Fonoll Almansa, Great Lakes Water Authority; George Nakhla, Western University

11:45 a.m. Session adjourns for networking luncheon

TECHNOLOGY SPOTLIGHT II

Technology Spotlight II

Thursday, May 18th

10:15 a.m. - 10:45 a.m.

*The two exhibitors listed below will each be holding a 20-minute presentation once each. Participants are invited to join a different presentation at each of the times listed below. Choose the presentation you would like to attend. Each presentation happens at the exhibitor's booth. Presentations kickoff concurrently at: **10:15 a.m.** in each of the two booths.*

10:15 a.m. 2 Simultaneous Presentation A

Booth 902

Advanced dewatering for most conventional to most innovative conditioning Special focus on PXVNeo HydroThermal Carbonisation plant, first HTC on municipal sewage sludge in the US

Jean-Francois Mischler, Bucher Unipektin AG

Booth 215

Truck Loading System: the FOIL

Robert Christy, RDP Technologies

TECHNOLOGY SPOTLIGHT III

Technology Spotlight III

Thursday, May 18th

12:55 p.m. - 1:20 p.m.

*The two exhibitors listed below will each be holding a 20-minute presentation once each. Participants are invited to join a different presentation at each of the times listed below. Choose the presentation you would like to attend. Each presentation happens at the exhibitor's booth. Presentations kickoff concurrently at: **1:00 p.m.** in each of the two booths.*

12:55 p.m. Technology Spotlight Introduction at entrance to exhibit hall
1:00 p.m. 2 Simultaneous Presentation A

Booth 323 **Understanding the physio-chemical mechanism for PFAS elimination under supercritical conditions**
Sudhakar Viswanathan, 374Water Inc.

Booth 525 **Double your cake solids in under 1 min**
Christopher Boyd, Charter Machine Co

TECHNICAL PROGRAM

Session 13: Case Studies

Thursday, May 18, 2023

1:30 p.m. - 4:45 p.m.

Room: W206A

2.5 PDHs

Moderators: Kathryn Crestani, NEORS; Tyler Hewitt, Atkins North American

1:30 p.m. Multi-utility Collaboration to Address Biosolids Management Challenges in the South Carolina Low Country
C. Michael Bullard, Olivia Flynn, Hazen and Sawyer; Mark Cline, Charleston Water System; Allan Clum, Mount Pleasant Waterworks; Jarred Jones, North Charleston Sewer District

2:00 p.m. Relief of Undigestion: Optimizing a Biosolids Drying Facility in Response to Major Feedstock Changes
Sean Murnan, Manuel Irujo, Shawn Browning, New England Fertilizer Company

2:30 p.m. Fort Worth's Alternative Delivery Biosolids Management Solution
Peter Burrowes, Jacobs; Steven Nutter, Fort Worth Water Department; Matthew Berg, Timothy Lyons, Jacobs; Suzanna Abbe, Fort Worth Water Department

3:00 p.m. Networking break

3:45 p.m. Evolution of an Intelligent Biosolids System
Chris Maher, Mike Gates, Clean Water Services

4:15 p.m. Two Birds with One Stone: Addressing Off-Season Woes and Producing a Class A Product at SHVUA
Thomas Johnson, Mark Houle, Andrew Mechel, Jacobs

Alternate NYC's Biosolids Master Plan
Jane Gajwani, Natalia Perez, New York City Department of Environmental Protection; Jen McDonnell, New York City Department of Sanitation; Paul Knowles, Mohammad Abu-Orf, Hazen and Sawyer; John Lavery, SYLVIS; Jennifer Muir, JK Muir; Carl Lagasca, AECOM; Mikael Amar, formerly New York City Department of Environmental Protection

TECHNICAL PROGRAM

Session 14: Co-Digestion

Thursday, May 18, 2023

1:30 p.m. - 4:45 p.m.

Room: W206B

2.5 PDHs

Moderators: Natalie Sierra, Brown and Caldwell, Ruth Spierling, LACSD

1:30 p.m. WRF Research Highlights: New Discoveries and Tools to Support Your Co-Digestion Program

Stephanie Fevig, The Water Research Foundation;
Mohammad Abu-Orf, Hazen and Sawyer; Ganesh Rajagopalan, AECOM; Tanja Rauch-Williams, Carollo Engineers

2:00 p.m. Business Case Evaluation of Co-digestion for Wasatch Resource Recovery and Wasatch Integrated Waste Management

Juliet Ohemeng-Ntiamoah, David Parry, Jacobs; Matthew Myers, Wasatch Resource Recovery; Nathan Rich, Wasatch Integrated Waste Management

2:30 p.m. An Evaluation Study of Santa Rosa's Existing Co-digestion Program: Why Truck Along when You can Optimize?

Maxwell Armenta, Alison Nojima, Brown and Caldwell; Renae Gundy, City of Santa Rosa Water Administration

3:00 p.m. Networking break

3:45 p.m. Co-digestion of Organic Wastes in Anaerobic Digesters: Potential Benefits, Unintended Consequences and Lessons Learned from Multiple Studies

Ganesh Rajagopalan, AECOM

4:15 p.m. WRF Project# 5307: Evaluation of Source Separated Organic Feedstock Pretreatment and Management Practices

Micah Blate, Mohammad Abu-Orf, Derya Dursun, Kelly Landry, Conner Murray, Hazen and Sawyer; Robert Sharp, Manhattan College

Alternate Advancing Resource Recovery with Sustainable Food Waste Management

Michael Keleman, Casey Furlong, InSinkErator

4:45 p.m. Session adjourns

TECHNICAL PROGRAM

Session 15: New Research in Anaerobic Digestion

Thursday, May 18, 2023

1:30 p.m. - 3:00 p.m.

Room: W207AB

1.5 PDHs

Moderators: Raj Chavan, Atkins North America; Nickolas Hines, Material Matters

1:30 p.m. On Establishing Microbial Community-Process Function Relationships in Anaerobic Digestion

Nicholas JN Benn, Thomas Florian, Antonio Martins, Marquette University; Kaushik Venkiteshwaran, University of South Alabama; Dong Hye Ye, Georgia State University; Daniel Zitomer, Marquette University

2:00 p.m. Bio-aging of Polyethylene And Its Impact on Sorption of Organics

Maha Dassouki Dit Tahan, Faika Dilek Sanin, Middle East Technical University

2:30 p.m. Impacts of Free Nitrous Acid on Problematic Bacteria During Food Waste Storage for Anaerobic Digestion

Camila Proano, Jakob Brinkman, University of Maryland; Xueming Xu, Virginia Tech; Marya Anderson, Guangbin Li, University of Maryland

Alternate Thermal Hydrolysis for All: Options for Small and Medium Size Plants

Coenraad Pretorius, GHD; Jeremy Kraemer; Jay Surti, GHD

3:00 p.m. Session adjourns for networking break

TECHNICAL PROGRAM

Session 16: Advances and Innovations in Thermal Processes I
Thursday, May 18, 2023 **Room: W207CD**
1:30 p.m. - 4:45 p.m. **2.5 PDHs**

Moderators: Todd Williams, Jacobs; Guoren Xu, University of Chinese Academy of Sciences / Harbin Institute of Technology

1:30 p.m. Pyrolysis, Gasification, and Incineration – How They Compare

Lloyd Winchell, John Ross, Brown and Caldwell; Dominic Brose; Thais Bremm Pluth; Xavier Fonoll Almansa, John Norton, Great Lakes Water Authority

**2:00 p.m. Designing for the Future of Solids Management
Optimizing Biodrying and Pyrolysis Treatment Design**
Anthony Tartaglione, Hazen and Sawyer; David Ernst, Town of Windsor; Allan Briggs, Derya Dursun, Mohammad Abu-Orf, Hazen and Sawyer

**2:30 p.m. Design and Performance Evaluation of a Solar Assisted
Dryer with Decentralized Thermal Recovery Gasification
System**
Alexander Kraemer, Harvest Technology, LLC; Steffen Ritterbusch, engineering4environment

3:00 p.m. Networking break

**3:45 p.m. Full-Scale Biosolids Drying and Pyrolysis for PFAS
Destruction and Organic Nutrient Recovery**
Graham Van Every, Connor McClelland, Margaret Laub, Devon Barry, Anaergia

**4:15 p.m. Advanced Thermal Conversion of Sewage Sludge to
Biochar**
Ross Wilson, Esme Piechozcek, Richard Lancaster, Sarah-Jane Westlake, Atkins; Yadira Bajon Fernandez, Ewan McAdam, Cranfield University; Ken Shapland, Kenviro Consulting Limited.

4:45 p.m. Session adjourns

TECHNICAL PROGRAM

Session 17: Regional Biosolids Session: What Do You Need to Know before Solidifying Your Plans?

Thursday, May 18, 2023

Room: W207AB

3:45 p.m. - 4:45 p.m.

1.0 PDHs

Moderators: Vanessa Borkowski, Charles Alix, Stantec; Richard Tsang, Eric Spargimino, CDM Smith; Dru Whitlock, Stantec

3:45 p.m. Introduction
Vanessa Borkowski, Stantec

3:47 p.m. Facility Introductions

- a. Questions
 - i. Please describe your facility's process (liquid and solid streams).
 - ii. Why did you or are you considering regionalization?
 - iii. What is or will be your role in the regionalized facility?
- b. Karla Sangrey, Upper Blackstone Clean Water
- c. Mike Engelmann, Pinellas County Utilities
- d. Quinton Fletcher, City of Atlanta
- e. Jeffrey Ziegenbein, Inland Empire Utilities Agency

4:27 p.m. Facilitated questions from the audience

4:42 p.m. Closing remarks

4:45 p.m. Session adjourns

FACILITY TOUR

(Additional fees apply)

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

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. After this tour, we will go to the Irwin Facility to see some Dewatering Demonstrations before heading back to the convention center.

TECHNICAL PROGRAM

Session 18: Managing Biosolids in the Carolinas

Friday, May 19, 2023

8:30 a.m. - 11:15 a.m.

Room: W206A

2.5 PDHs

Moderators: Sergio Gomes, Varec Biogas, Inc./Ovivo; Juliet Ohemeng-Ntiamoah, Jacobs

8:30 a.m. The Changing Landscape of Biosolids Management in North Carolina Over the 21st Century's First Two Decades
Robert Forbes, Todd Williams, Jacobs; A. Rubin, North Carolina State University; Michelle Mayes, Jacobs

9:00 a.m. One South Carolina Utility's Biosolids Plan: Forging a Path Amidst Rising Tip Fees and Regulatory Uncertainty
Tom Nangle, Brown and Caldwell; Rick Jolley, Spartanburg Water

9:30 a.m. From Master Planning to THP. Charlotte Water's Approach to Regionalize Solids Handling and Treatment.
Giovanna Forti Portiollo, Charlotte Water; Kwok-Wai Tsang, CDM Smith Inc; Joseph Lockler, Charlotte Water

10:00 a.m. Networking break

10:15 a.m. Implementation of Raleigh Water's Bioenergy Recovery Project
Erika Bailey, John Kiviniemi; Lisa Joseph, Jeffrey Bognar, Raleigh Water; Amy Hanna, C. Michael Bullard, TJ Lynch, Hazen and Sawyer; Greg Knight, Christine deBarbadillo; Kurtis Proffit, Black & Veatch; Chad Link, Crowder Construction

10:45 a.m. Survey for the City of Raleigh of Existing THP Biosolids Characteristics and End-Use
William Brower, Brown and Caldwell; Ronald Alexander, R. Alexander Associates, Inc.; Marla Dalton, City of Raleigh

Alternate Do I Need to Dry The Cake? An Overview of Sludge Drying Technologies and Drivers for Implementation in the Carolinas
Charles Goss, AECOM

Alternate Taking Back Control of Residuals: Flipping the Script From Disposal to Reuse
Will Allen, Brandon Gott, Peter Lusardi, GHD Consulting Services; Bill Hart, City of Asheville

11:15 a.m. Conference adjourns

TECHNICAL PROGRAM

Session 19: Resource Recovery

Friday, May 19, 2023

8:30 a.m. - 11:15 a.m.

Room: W206B

2.5 PDHs

Moderators: Raj Chavan, Atkins North America, Michael Keleman, InSinkErator

8:30 a.m. National Bioresources Strategy for the England
Paul Shaffer, CIWEM; Esme Piechozcek, Garry Strange, Peter Talboys, Richard Lancaster, Ross Wilson, Sarah-Jane Westlake, Atkins; Ewan McAdam, Yadira Bajon Fernandez, Cranfield University; Ken Shapland, Kenviro Consulting Limited.

9:00 a.m. TUAS Water Reclamation Plant - A Resource Recovery Factory
Colin Newbery, Gokul Bharambe, Peter Burrowes, Jacobs; Mark Wong Wei Qiang, Abel Chia, Nunthinee Sundaramurthi, Liow Wee Siang, Public Utilities Board Singapore

9:30 a.m. The Opportunity for Water Resource and Recovery Facilities to Advance Regional GHG Reduction Goals
Jay Surti, Charles Winslow, John Story, MHD

10:00 a.m. Networking break

10:15 a.m. Demand-Driven Gas Production Using Co-Substrates from the Dairy Industry
Christian Hubert, Bettina Steiniger, Christian Schaum, Bundeswehr University Munich

10:45 a.m. Anaerobic Co-digestion of FOG and Municipal Solids Enhances Volatile Solids Destruction at Full-Scale Facility: How Adding FOG Improved Digester Performance and the Microbial Community that Facilitated FOG Destruction
Thomas Solon, Renewable Water Resources; Sudeep Popat

Alternate Bioplastic Production from Salty Food Waste
Xueyao Zhang, Virginia Tech; Naresh Amradi, Amro Hassanein, Stephanie Lansing, University of Maryland; Zhiwu Wang, Virginia Tech

11:15 a.m. Conference adjourns

TECHNICAL PROGRAM

Session 20: Upgrading Biogas to RNG for Increasing Utility Revenues and Reducing GHG Emissions

Friday, May 19, 2023
8:30 a.m. – 10:00 a.m.

Room: W207AB
1.5 PDHs

Speakers: Silvia Fuentes, WSSC Water; Jeff Prevatt, Pima County Regional

Upgrading biogas to RNG standards for pipeline injection and RIN sales are an excellent complement to the water reclamation portfolio of renewable products providing an additional source of revenue. While many utilities utilize digester biogas for cogeneration and thermal demands, many continue to flare excess biogas. Upgrading biogas to RNG can provide an additional source of utility revenue while simultaneously reducing carbon emissions.

This Session provides an overview of the processes involved in upgrading of biogas to renewable natural gas standards for pipeline injection and ultimate distribution and sale of renewable identification number (RIN) credits.

TECHNICAL PROGRAM

Session 21: Advances and Innovations in Thermal Processes II

Friday, May 19, 2023

Room: W207CD

8:30 a.m. - 11:15 a.m.

2.5 PDHs

Moderators: Tracy Stigers, Brown and Caldwell; Tyler Hewitt, Atkins North America

8:30 a.m. Does Thermal Hydrolysis Alter Efficiency besides the Rate of Anaerobic Digestion?

Hao Luo, Virginia Tech; Fasil Haile, Mary Strawn, Arlington County Water Pollution Control Bureau; Zhiwu Wang, Virginia Tech

9:00 a.m. Assessing Impacts of Thermal Hydrolysis on Mainstream Non-Biodegradable Organic Carbon and Nutrients at the Broad Run WRF

Ankit Pathak, Wendell Khunjar, Hazen & Sawyer; Kendra Sveum, Bradley Schmitz, Loudoun Water; Rafael Iboleon, Zhiwu Wang, Virginia Tech

9:30 a.m. Integrating Hydrothermal Pre-treatment and Vacuum Fermentation for Volatile Fatty Acids and Methane Recovery from Municipal Sludge

Farokh Laqa Kakar, Brown and Caldwell; Frances Okoye, Hussain Aqeel, Steven Liss, Elsayed Elbeshbishy, Toronto Metropolitan University

10:00 a.m. Networking break

10:15 a.m. Biosolids and Algae – Two Problematic Birds, One Sustainable Stone

Dan Levy, Will Lovins, Charles Goss, AECOM; James Oyler, Genifuel Corporation

10:45 a.m. Dry Another Day

Julianne Amenta, Hazen and Sawyer; Kendra Sveum, Loudoun Water; Matthew Vanhorne, Hazen and Sawyer

Alternate Demonstration of Supercritical Water Oxidation to Diversify End Products, Destroy PFAS and Reduce Air Emissions

Derya Dursun, Mohammad Abu-Orf, Lynn Grijalva, Hazen and Sawyer; Belton Copp, 374Water Inc.

11:15 a.m. Conference adjourns

TECHNICAL PROGRAM

Session 22: Turning Waste Products into Premium Products

Friday, May 19, 2023

Room: W207AB

10:15 a.m. – 11:15 a.m.

1.0 PDHs

Speaker: David Buurma, LaSalle Agri

Learn about the challenges of producing and marketing biosolids-derived fertilizers from the largest distributor of biopellets/fertilizers in Ontario. Presentations will discuss how to produce a quality product, create a strong brand, and build a reliable distribution system. Topics covered include:

- Storage
- Spreading Application Process
- Equipment Customization
- Policy Opposition
- Expanding into new markets
- Public Acceptance

This session will expand on each item and how this organization has overcome obstacles and taken advantage of market opportunities.

11:15 a.m. Conference adjourns

EXHIBITION INFORMATION

Exhibition Schedule

Wednesday, May 17

10:00 a.m. – 6:15 p.m.	Exhibit Hall Open
10:00 a.m. – 10:45 a.m.	Networking Break
11:45 a.m. – 1:30 p.m.	Networking Luncheon
12:30 p.m. – 1:20 p.m.	Technology Spotlight I: Residuals
3:00 p.m. – 3:45 p.m.	Networking Break
3:45 p.m. – 4:45 p.m.	Technology Spotlight I: Odors
4:45 p.m. – 6:15 p.m.	Networking Reception

Thursday, May 18

10:00 a.m. – 3:45 p.m.	Exhibit Hall Open
10:00 a.m. – 10:45 a.m.	Networking Break
10:15 a.m. – 10:45 a.m.	Technology Spotlight II: Residuals
10:45 a.m. – 11:45 a.m.	Technology Spotlight II: Odors
11:45 a.m. – 1:30 p.m.	Networking Luncheon
12:55 p.m. – 1:20 p.m.	Technology Spotlight III: Residuals
3:00 p.m. – 3:45 p.m.	Networking Break

Children under 18 entering the Exhibition must be accompanied by a parent or guardian at all times. The parent or guardian must obtain a child badge at registration, and assumes all risk and responsibility for the child's safety.

Due to the proprietary nature of the displays, photography of displays and materials is forbidden without exhibitors' express permission.

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As of April 24, 2023

For Company Descriptions, view Exhibitors in the mobile app.

374Water Booth 323
<https://374water.com>
Phone: 973-534-8751
3710 Shannon Rd, Unit 51877
Durham, NC 27717

Advantek Waste Management Services Booth 805
www.advantekwms.com
Phone: 713-449-4780
11000 Richmond Ave, Ste 190
Houston, TX 77042

Alpine Technology, Inc. Booth 206
www.alpinetechnology.com
Phone: 512-619-5916
1906 Winter Park Rd
Austin, TX 78746

Anaergia Inc Booth 723
www.anaergia.com
Phone: 905-766-3333
4210 South Service Rd
Burlington, ON L7L 4X5
Canada

Andritz Separation, Inc. Booth 823
<https://andritz.com>
Phone: 817-465-5611
1010 Commercial Blvd S
Arlington, TX 76001

BCR Environmental Booth 324
www.bcrinc.com
Phone: 904-819-9170 x130
100 N Laura St, Ste 601
Jacksonville, FL 32202

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- BDP Industries, Inc** **Booth 625**
www.bdpindustries.com
Phone: 518-695-6851
PO Box 118
Greenwich, NY 12834
- Bioair Solutions LLC** **Booth 404**
www.bioairsolutions.com
Phone: 856-258-6969
110 Kresson Gibbsboro Rd, 303
Voorhees, NJ 08043
- Bio-Nomic Services, Inc.** **Booth 912**
www.bio-nomic.com
Phone: 704-529-0000
530 Wood Lawn St
Belmont, NC 28012
- Boerger, LLC** **Booth 405**
www.boerger.com
Phone: 612-435-7300
2860 Water Tower Pl
Chanhassen, MN 55317
- Bohn Biofilter** **Booth 914**
<http://bohnbiofilter.com>
Phone: 520-624-4644
PO Box 44235
Tucson, AZ 85733
- Brown Bear Corporation** **Booth 315**
www.brownbearcorp.com
Phone: 641-322-4220
PO Box 29, 2248 Ave of Industry
Corning, IA 50841

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For Company Descriptions, view Exhibitors in the mobile app.

BUCHER UNIPEKTIN AG..... Booth 902

www.bucherunipektin.com/environment

Phone: 0041 448572300

MURZLENSTRASSE 80

NIEDERWENINGEN, AL 8166

Switzerland

CAMBI, Inc..... Booth 423

<https://cambi.com>

Phone: 484-318-8623

279 Great Valley Pkwy

Malvern, PA 19355

CB&I Storage Tank Solutions LLC..... Booth 216

www.cbi.com

Phone: 815-439-3118

14105 S ROUTE 59

Plainfield, IL 60544

Charter Machine Company..... Booth 525

www.CharterMachine.com

Phone: 732-425-7489

55 Wester Ave

Metuchen, NJ 08840

CTEH, LLC..... Booth 112

<https://CTEH.com>

Phone: 501-801-8500

5120 Northshore Dr

North Little Rock, AR 72118

Denali Water Solutions..... Booth 722

www.DenaliCorp.com

Phone: 315-952-1538

3308 Bernice Ave

Russellville, AR 72802

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Detection Instruments Corp...... **Booth 213**

www.detectioninstruments.com

Phone: 602-797-0630

18441 N 25th Ave, Ste 101

Phoenix, AZ 85023

Eco Oxygen Technologies, ECO2 **Booth 913**

www.eco2tech.com

Phone: 317-706-6484

9339 Priority Wy W Dr, Ste 100

Indianapolis, IN 46240

EGGER Pumps & Iris Valves..... **Booth 103**

www.eggerpumps.com

Phone: 478-250-9880

140 Willingham Dr

JULIETTE, GA 31046

ELODE USA, INC **Booth 921**

www.ELODEUSA.com

Phone: 201-568-7778

97 Oak St

Norwood, NJ 07648

Evoqua Water Technologies **Booth 622**

www.evoqua.com

Phone: 816-721-7195

210 Sixth Ave, Ste 3300

Pittsburgh, PA 15222

Fab-Tech Inc...... **Booth 915**

www.fabtechinc.com

Phone: 802-655-8800

480 Hercules Dr

Colchester, VT 05446

FKC..... **Booth 905**

<http://fkcscrewpress.com>

Phone: 360-452-9472

2708 W 18th St

Port Angeles, WA 98363

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For Company Descriptions, view Exhibitors in the mobile app.

Fournier Industries inc Booth 224

www.fournierdewatering.com

Phone: 418-423-4241

*3787 West, Frontenac Blvd
Thetford Mines, QC G6H 2B5
Canada*

Frazenburg Booth 803

www.frznbrg.com

Phone: 515-423-8982

*2301 Dean Ave
Des Moines, IA 50317*

Greener Day Solutions LLC..... Booth 917

<https://greenerdaysolutions.com>

Phone: 928-300-4939

*24820 N 16th Ave, Ste 100 Phoenix,
AZ 85085*

Hayward Gordon ULC Booth 225

www.haywardgordon.com

Phone: 905-693-8595

*5 Brigden Gate
Halton Hills, ON L7G 0A3
Canada*

Helix Environmental Solutions..... Booth 105

www.helixlabs.com

Phone: 817-876-1714

*5050 Quorum Dr, Ste 700
Dallas, TX 75254*

HUBER Technology, Inc...... Booth 413

www.huber-technology.com

Phone: 704-949-1010

*1009 Airlie Pkwy
Denver, NC 28037*

Infratech Solutions..... Booth 116

<https://infratechsolutionsllc.com>

Phone: 910-617-0291

*6004 Wellesley Dr
Wilmington, NC 28409*

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JDV Process Equipment Corp **Booth 813**

<https://JVDEquipment.com>

Phone: 973-366-6556

104 Fulton St

Boonton, NJ 07005

Jim Myers & Sons, Inc. **Booth 223**

www.jmsequipment.com

Phone: 704-554-8397

PO Box 38778

Charlotte, NC 28278

Kiewit **Booth 822**

www.kiewit.com/markets/water

Phone: 913-302-8228

8900 Renner Blvd

Lenexa, KS 66219



Komline **Booth 312**

<https://komline.com>

Phone: 908-234-1000

12 Holland Ave

Peapack, NJ 07977

KRAFT POWER CORPORATION **Booth 725**

WWW.KRAFTPOWER.COM

Phone: 704-504-3033

10615 Texland Blvd, Ste 500

Charlotte, NC 28134

KROFTA TECHNOLOGIES **Booth 117**

www.krofta.com

Phone: 225-916-4095

401 South St, PO BOX 7

Dalton, MA 01227

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For Company Descriptions, view Exhibitors in the mobile app.

Landia, Inc. Booth 906

www.landiainc.com
Phone: 919-466-0603
111 Triangle Trade Dr
Cary, NC 27513

Lasalle Agri Booth 115

www.lasalleagri.com/
Phone: 587-999-5280
7162 Lasalle Line
Watford, ON N0M 2S0
Canada

LCI Corporation Booth 523

www.lcicorp.com/en/sludge-drying/thin-film-sludge-dryer
Phone: 704-398-7571
4433 Chesapeake Dr
Charlotte, NC 28216

Lipp America Tank systems LLC Booth 903

www.lipp-ats.com
Phone: 616-201-6761
29770 Hudson Dr
Novi, MI 48377

Lystek International Corp Booth 202

www.lystek.com
Phone: 226-444-0186
125 McGovern Dr, Unit 1
Cambridge, ON N3H 4R7
Canada

Merrell Bros Inc Booth 424

www.merrellbros.com
Phone: 574-699-7782
8811 W 500 N
Kokomo, IN 46901

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NEFCO-New England Fertilizer Company..... **Booth 222**
 www.nefcobiosolids.com
 Phone: 617-773-3131
 500 Victory Rd
 North Quincy, MA 02171

Orege..... **Booth 113**
 www.orege.com
 Phone: 864-434-0468
 100 Chamisa Rd
 Covington, GA 30016



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 www.ovivowater.com/en
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 4246 S Riverboat Rd, Ste 300
 Salt Lake City, UT 84123

Oxbo..... **Booth 106**
 www.oxbo.com
 Phone: 651-263-8686
 100 Bean St
 Clear Lake, WI 54005

Penn Valley Pump Co Inc..... **Booth 623**
 www.pennvalleypump.com
 Phone: 215-343-8750
 998 Easton Rd
 Warrington, PA 18976

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Polydyne Inc **Booth 815**

<https://polydyne.snf.com>

Phone: 912-884-3366

1 Chemical Plant Rd

Riceboro, GA 31323

Process Wastewater Technologies LLC..... **Booth 406**

www.pwtech.us

Phone: 410-238-7977

9004 Yellow Brick Rd, Ste D

Rosedale, MD 21237

Putzmeister **Booth 824**

www.putzmeisteramerica.com

Phone: 262-497-0292

1733 90th St

Sturtevant, WI 53177

RDP Technologies Inc..... **Booth 215**

<https://RDPTech.com>

Phone: 610-650-9900

960 Brook Rd, Unit 8

Conshohocken, PA 19428

REXA, Inc...... **Booth 407**

www.rexa.com

Phone: 508-584-1199

4 Manley St

West Bridgewater, MA 02379

Roto Pumps **Booth 114**

www.rotopumpsna.com

Phone: 803-833-4453

5889 S Garnett Rd

Fort Mill, SC 74146

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- Schwing Bioset, Inc.**..... Booth 317
www.schwingbioset.com
Phone: 715-247-3433
350 SMC Dr
Somerset, WI 54025
- Sedron Technologies** Booth 904
www.sedron.com
Phone: 360-399-6193
133 W State St, #105
Sedro-Woolley, WA 98284
- Sentrimax Centrifuges (USA) Inc.**..... Booth 313
www.sentrimax.com
Phone: 949-606-2147
108 Sentry Dr
Mansfield, TX 76063
- Source Technologies, LLC** Booth 104
www.sourcetechnologiesllc.com
Phone: 859-223-1444
157 Venture Ct, Ste 9
Lexington, KY 40511
- SPIRAC** Booth 916
www.spirac.com
Phone: 770-632 9833
75 Jackson St, Ste 300
Newnan, GA 30263
- Synagro Technologies, Inc.**..... Booth 412
www.synagro.com
Phone: 610-952-2390
435 Williams Ct, Ste 100
Baltimore, MD 21220
- Thermal Process Systems**..... Booth 305
www.thermalprocess.com
Phone: 219-663-1034
627 E 110th Ave
Crown Point, IN 46307

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- Tomorrow Water** Booth 919
www.tomorrowwater.com
Phone: 714-578-0676
1225 North Patt St
Anaheim, CA 92801
- Valmet, Inc.** Booth 907
www.valmet.com
Phone: 720-503-2275
3720 Davinci Ct, Ste 300
Norcross, GA 30092
- Vaughan Company, Inc.** Booth 314
www.chopperpumps.com
Phone: 360-249-4042 x227
364 Monte Elma Rd
Montesano, WA 98563
- VeloDyne** Booth 807
<https://velodynesystems.com>
Phone: 303-530-3298
543 S Pierce Ave
Louisville, CO 80027
- Veolia Water Technologies** Booth 205
www.veoliawatertech.com
Phone: 919-677-8310
4001 Weston Pkwy
Cary, NC 27513
- Vogelsang USA** Booth 107
www.vogelsangusa.com
Phone: 330-296-3820
PO Box 751
Ravenna, OH 44266
- World Water Works, Inc.** Booth 416
<https://worldwaterworks.com>
Phone: 405-943-9000
4000 SW 113th St
Oklahoma City, OK 73173

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As of April 24, 2023

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AirClean USA LLC Booth 705

<https://aircleanusa.com>

Phone: 786-554-8679

1200 Brickell Ave, 800 #6

Miami, FL 33131

AirSep Corporation Booth 802

www.airsep.com

Phone: 716-691-0202

260 Creekside Dr

Buffalo, NY 14228

Alfa Laval Booth 816

www.alfalaval.us

Phone: 866-253-2528

5400 International Trade Dr

Richmond, VA 23231

Anua Booth 514

www.anuainternational.com

Phone: 410-382-5637

4106 Bernau Ave

Greensboro, NC 27407

Bactee Systems Corporation Booth 706

www.bactee.com

Phone: 701-775-8775

2534 17th Ave S, Ste 3D

Grand Forks, ND 58201

Biorem Technologies Booth 604

<https://biorem.biz>

Phone: 585-924-2220

100 Rawson Rd

Victor, NY 14564

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Continental Carbon Group Booth 517

continental-carbon.com
Phone: 905-643-7615
321-1100 South Service Rd
Stoney Creek, ON L8E0C5
Canada

Daniel Company Booth 703

www.danielmechanical.com
Phone: 909-213-0491
1939 W 11th St, Ste E
Upland, CA 91786

DN Tanks Booth 804

www.dntanks.com
Phone: 855-368-2657
11 Teal Rd
Wakefield, MA 01880

Dumpster-Veyor Booth 707

www.cordellmfg.com
Phone: 757-880-1272
95 West Butler Ave
Chalfont, PA 18914

Ecoverde Booth 506

www.ecoverdetechologies.com
Phone: 602-707-6250
2315 E Washington St
Phoenix, AZ 85034



ENVIRONMENTAL SOLUTIONS

ECS Environmental Solutions Booth 607

www.ecs-env.com
Phone: 254-493-1375
PO Box 127
Belton, TX 76513

Exhibitor Directory Continues on Next Page

ODORS & AIR POLLUTANTS EXHIBITOR DIRECTORY

For Company Descriptions, view Exhibitors in the mobile app.

EMA Resources, Inc...... Booth 715

www.emaresourcesinc.com
Phone: 336-751-1441
755 Yadkinville Rd
Mocksville, NC 27028

Flottweg Separation Technology, Inc...... Booth 617

www.flottweg.com
Phone: 859-448-2300
10700 Toebben Dr
Independence, KY 41051

GEA Group..... Booth 516

https://gea.com
Phone: 201-767-3900
100 Fairway Ct
Northvale, NJ 07647

Hahn Plastics (North America) Ltd..... Booth 605

www.hahnplastics.ca/Biofilter-raised-flooring-system/6000522
Phone: 519-218-8800
50 Northland Rd, Unit 400
Waterloo, ON N2V 1N3
Canada

Hartzell Air Movement..... Booth 615

www.hartzellairmovement.com
Phone: 937-773-7054
910 S Downing St
Piqua, OH 45356

INDUSCO Environmental..... Booth 612

www.induscoenviro.com
Phone: 251-621-2338
PO Box 790
Daphne, AL 36526

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IPEX USA LLC Booth 814

www.ipexna.com
Phone: 800-463-9572
1425 North Service Rd E, Unit 3
Oakville, ON L6H 1A7
Canada

Kemira Water Solutions Inc. Booth 606

www.kemira.com
Phone: 678-819-4693
1000 Parkwood Cir, Ste 500
Atlanta, GA 30339

Kusters Water, A Division of Zima Corporation Booth 505

www.kusterswater.com
Phone: 412-735-0565
101 Zima Park Dr
Spartanburg, SC 29301

Likusta Booth 704

www.likusta.com
Phone: +49 6404 91000
Gottlieb-Daimler-Str 11
Lich, NC 35423
Germany

Neutralox Booth 806

www.watertech.ca
Phone: 403-252-9056
11979 40th St SE, Ste 309
Calgary, AB T2Z 4M3
Canada

PC Construction Booth 702

www.pcconstruction.com
Phone: 704-251-2826
2550 W Tyvola Rd, Ste 190
Charlotte, NC 28217

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For Company Descriptions, view Exhibitors in the mobile app.

Perry Fiberglass Products Inc...... **Booth 507**

www.perryfiberglass.com
Phone: 321-609-9036
5415 Village Dr
Rockledge, FL 32955

PureAir Filtration **Booth 812**

www.pureairfiltration.com
Phone: 678-358-3828
2905 Amwiler Rd, Ste E
Atlanta, GA 30360

Purified Air Solutions **Booth 614**

www.pyure.com
Phone: 905-503-4141
158 Don Hillcock Dr, Unit 11
AURORA, ON L4H 0G9
Canada

Scicorp International Corporation..... **Booth 513**

www.SciCorp.net
Phone: 905-829-1749
3300 RIDGEWAY DR, Unit 13
MISSISSAUGA, ON L5L 5Z9
Canada

SmartCover Systems..... **Booth 713**

www.smartcoversystems.com
Phone: 855-291-1980
2110 Enterprise St
Escondido, CA 92029

St. Croix Sensory, Inc. **Booth 714**

www.fivesenses.com
Phone: 651-439-0177 x16
1150 Stillwater Blvd N
Stillwater, MN 55082

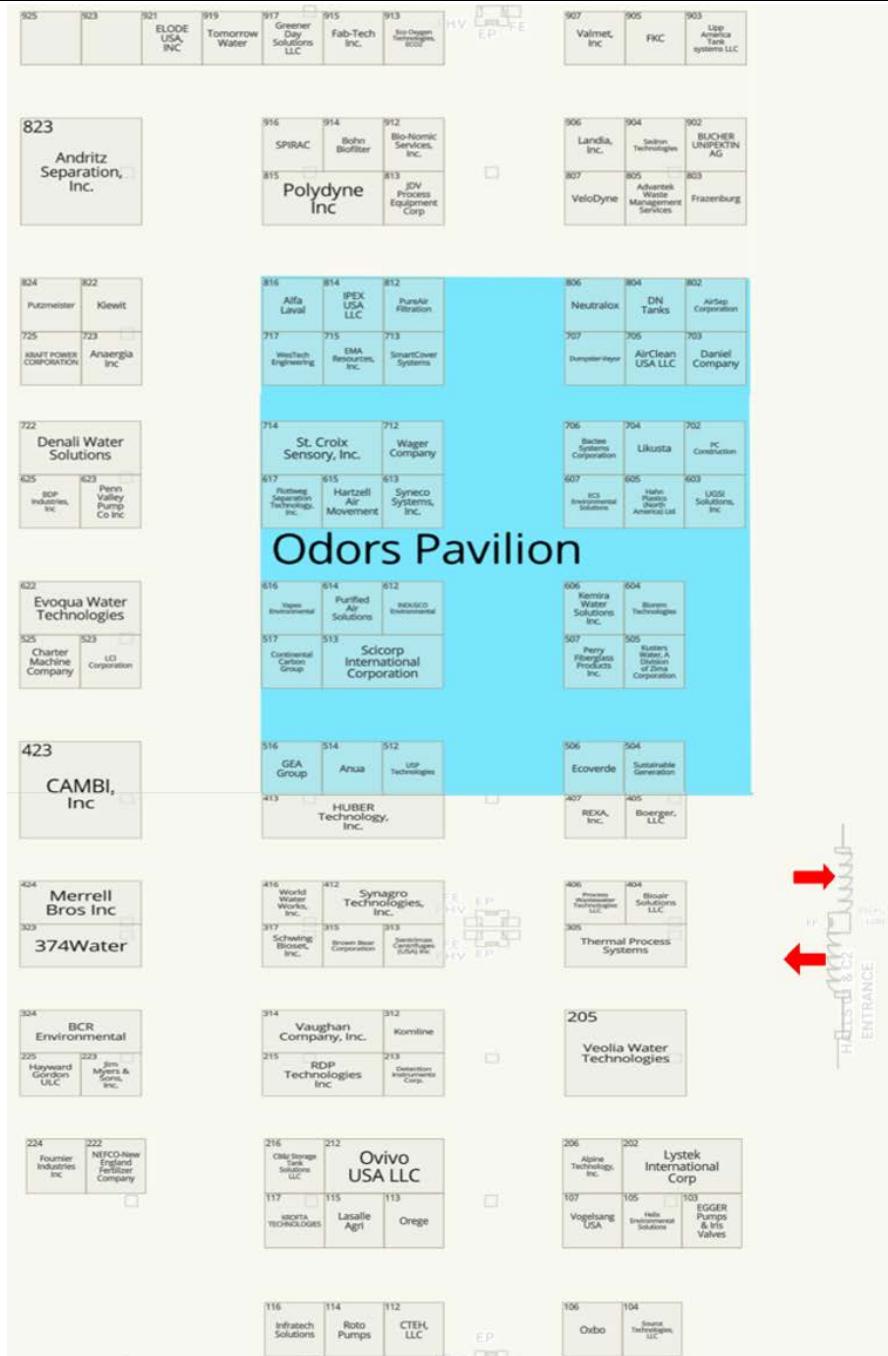
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For Company Descriptions, view Exhibitors in the mobile app.

- Sustainable Generation** Booth 504
<https://sustainable-generation.com>
Phone: 312-315-7416
*110 S Poplar St, Ste 400
Wilmington, DE 19801*
- Syneco Systems, Inc.** Booth 613
www.synecosystems.com
Phone: 952-927-9215
*625 Slack Dr
LeSueur, MN 56058*
- UGSI Solutions, Inc.** Booth 603
www.ugsicorp.com
Phone: 724-814-3756
*1901 W Garden Rd
Vineland, NJ 08360*
- USP Technologies** Booth 512
<https://usptechnologies.com>
Phone: 804-935-2542
*5640 Cox Rd, Ste 300N
Glen Allen, VA 23060*
- Vapex Environmental** Booth 616
www.vapex.com
Phone: 407-977-7250 x111
*2971 Oxbow Cr, Ste B
Cocoa, FL 32926*
- Wager Company** Booth 712
www.wagerusa.com
Phone: 336-413-5630
*570 Montroyal Rd
Rural Hall, NC 27045*
- WesTech Engineering** Booth 717
www.westech-inc.com
Phone: 801-290-1942
*3665 S W Temple St
Salt Lake City, UT 84115*

EXHIBITION FLOOR PLAN



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*R. Alexander
Associates, Inc.*
Presenter Session
18

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Stantec
Presenter Workshop

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*GHD Consulting
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18

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Presenter Session
21

Maxwell Armenta

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Presenter Session
14

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Arcadis
Presenter Session
09

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09

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15

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05

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Jacobs
Presenter Session
07

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03, Moderator
Session 07

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14

Vanessa

Borkowski
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Workshop

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Spotlight III

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18, Workshop B

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C

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D, Session 13

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Jacobs
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13

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B

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Moderator Session
15, 19

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Hazen
Coordinator
Workshop D

Kathryn Crestani

NEORS D

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Dhanasekar**
*The Water Research
Foundation*
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11

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Woodard & Curran
Coordinator
Workshop C

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Hazen and Sawyer
Presenter Session
01, 16, 21,
Moderator Session
08

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Utilities*
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17

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Foundation*
Presenter Session
14

Quinton Fletcher
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Presenter Workshop

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Almansa**
*Great Lakes Water
Authority*
Presenter Session
02

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Jacobs**
Presenter Session
18

**Giovanna Forti
Portioli**
Charlotte Water
Presenter Session
18

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Bartlett & West
Presenter Session
09

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Operators Unlimited
Presenter Session
04

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WSSC Water
Presenter Session
20

Glenn Fuller
Kern Oil
Presenter Session
02

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*Clean Water
Services*
Presenter Workshop
A, Session 13

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*Varec Biogas
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Moderator Session
18

Charles Goss
AECOM
Presenter Session
18

Emma Guertin
Brown and Caldwell
Presenter Session
11

Rashi Gupta
Carollo Engineers
Presenter Session
04

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Inc*
Presenter Workshop
C

Sarah Guzman
Black & Veatch
Moderator Session
05

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*GEA Westfalia
Separator Division*
Presenter Session
08

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*Varec Biogas, a
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USA LLC*
Presenter Workshop
D

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06

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America
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 13, 21

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 05, Moderator
 Session 15

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Bundeswehr
University Munich
 Presenter Session
 19

Daniel Hull
Brown and Caldwell
 Presenter Session
 09

Shaun Hurst
Andritz
 Presenter Workshop
 A

Ryan Iwata
Brown and Caldwell
 Presenter Session
 08

Thomas Johnson
Jacobs
 Presenter Session
 13

Theresa Johnston
Metropolitan Water
Reclamation District
of Greater Chicago
 Presenter Session
 11

Trudy Johnston
Material Matters
 Moderator Session
 06

Farokh Laqa Kakar
Brown and Caldwell
 Presenter Session
 21

Olya Keen
UNC Charlotte
 Moderator Session
 06

Michael Keleman
InSinkEerator
 Presenter Session
 14, Moderator
 Session 19

Greg Kester
California
Association of
Sanitation Agencies
 Presenter Session
 05

Muhammad Farooq
Saleem Khan
Yibin University
 Moderator Session
 12

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Black & Veatch
 Presenter Session
 18, Workshop D

Alexander Kraemer
Harvest Technology,
LLC
 Presenter Session
 16, Technology
 Spotlight I

Margaret Laub
Anaergia
 Presenter Session
 07, 11, 16

John Lavery
SYLVIS
Environmental
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 Presenter Session
 05

Stephanie Lavey
Alexandria Renew
Enterprises
 Moderator Session
 09

Paul Le Bel
Hazen
 Presenter Session
 07

Andrew Lehane
City of San Jose
 Presenter Session
 09

Dan Levy
AECOM
 Presenter Session
 21

Zhongtian Li
Carollo Engineers
 Presenter Session
 12

Yitao Li
Virginia Tech
 Presenter Session
 07

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 09

Hao Luo
Virginia Tech
 Presenter Session
 07, 21

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Charlotte Water
 Presenter Session
 08

Chris Maher
Clean Water Services
 Presenter Session
 13

Joseph Marino
Brown and Caldwell
 Moderator Session
 04

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SMK Consulting
 Presenter
 Technology
 Spotlight I

Patrick McNamara
Black & Veatch
 Presenter

Jean-Francois Mischler
Bucher Unipektin AG
 Presenter
 Technology
 Spotlight II

Manuel Moncholi
Stantec
 Moderator Session
 12

Lynne Moss
Black & Veatch
 Presenter

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 Presenter Workshop
 D, Session 12

Anna Munson
Hazen and Sawyer
 Presenter Session
 10

Sean Murnan
NEFCO (New England Fertilizer Company)
 Presenter Session
 13

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Brown and Caldwell
 Presenter Session
 18

Michael Nelson
USP Technologies
 Moderator Session
 08

Colin Newbery
Jacobs
 Presenter Session
 19

Lam Nguyen
USP Technologies
 Presenter Session
 08

Zwelani Ngwenya
Jacobs
 Presenter Workshop
 A

Jeff Nicholson
HRSD
 Presenter Workshop
 A

Alison Nojima
Brown and Caldwell, San Francisco, California
 Presenter Session
 09

David Oerke
Jacobs Engineering
 Coordinator
 Workshop A

Juliet Ohemeng-Ntiamoah
Jacobs
 Presenter Session
 14, Moderator
 Session 18

Banu Ormeci
Carleton University
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 Workshop E,
 Presenter Session
 03

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Veolia
 Presenter Session
 10

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Kyoto University
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06, Moderator
Session 09

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*East Bay Municipal
Utility District*
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05

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Brown & Caldwell
Presenter Session
06

Bipin Pathak
DC Water
Moderator Session
10

Adam Parmenter
HDR
Presenter Workshop
A

David Parry
Jacobs
Presenter Session
03, 12

Ankit Pathak
Hazen and Sawyer
Presenter Session
21

Philip Pedros
Mott MacDonald
Presenter Workshop
C

Natalia Perez
NYCDEP
Presenter Session
13

Nick Piccolo
Hatch
Presenter Workshop
C

Christine Polo
Carollo Engineers
Presenter Workshop
B, Session 11

David Ponder
Metropolitan Council
Presenter Workshop
B

Coenraad Pretorius
GHD
Presenter Session
15

Jeff Prevatt
*Pima County
Regional*
Presenter

Angie Price
*Renewable Water
Resources*
Moderator Session
05

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*HUBER Technology,
Inc.*
Presenter Session
08

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*University of
Maryland*
Presenter Session
15

**Ganesh
Rajagopalan**
AECOM
Presenter Session
14

Adrian Romero
Jacobs
Moderator Session
11

John Ross
Brown and Caldwell
Presenter

Liu Sai
Kyoto University
Presenter Session
06

Karla Sangrey
*Upper Blackstone
Water Poll
Abatement Dist*
Presenter Session
17

Faika Dilek Sanin
*Middle East
Technical University*
Presenter Session
06, 15, Moderator
Session 03

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Tom Schwartz
*Northeast Biosolids
 and Residuals
 Association*
 Presenter Session
 10

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Jacobs
 Presenter Workshop
 B, Session 11

Natalie Sierra
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 Presenter Session
 10, Moderator
 Session 14

James Slaughter
*Beveridge &
 Diamond PC*
 Presenter Session
 05

Thomas Solon
*Renewable Water
 Resources*
 Presenter Session
 19

Stephanie Spalding
HDR
 Presenter Workshop
 D

Eric Spargimino
CDM Smith
 Presenter Session
 17

Ruth Spierling
LACSD
 Moderator Session
 14

Muriel Steele
Charlotte Water
 Presenter Session
 12

Nicole Stephens
Stantec
 Presenter Session
 11

Tracy Stigers
Brown and Caldwell
 Moderator Session
 21

Ryan Stoughton
City of Kalamazoo
 Presenter Session
 04

Jay Surti
GHD
 Presenter Session
 19

**Anthony
 Tartaglione**
Hazen and Sawyer
 Presenter Session
 16

Michael Thorson
*Pacific Northwest
 National Laboratory*
 Presenter Session
 02

Sean Tierney
Frazenburg
 Presenter
 Technology
 Spotlight I

**Kwok-Wai
 (Richard) Tsang**
CDM Smith Inc
 Presenter Session
 17, Moderator
 Session 10

Ramola Vaidya
HDR
 Presenter Session
 10

**Sudhakar
 Viswanathan**
374Water Inc.
 Presenter Session
 10, Technology
 Spotlight III

Zixuan Wang
*Washington
 University in St.
 Louis*
 Presenter Session
 12

Rebecca West
*RFW Consulting
 Services*
 Moderator Session
 07

**Sarah-Jane
 Westlake**
Atkins
 Presenter Session
 19

Drury Whitlock
Jacobs
 Presenter Session
 17

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Jacobs

Presenter Session

10, Workshop E,
Moderator Session
16

John Willis

Brown and Caldwell

Presenter Session

02

Alicia Wilson

Summerville CPW

Moderator Session

04

Chris Wilson

HRSD

Moderator Session

03

Ross Wilson

Atkins

Presenter Session

16

Lloyd Winchell

Brown and Caldwell

Presenter Session

16

Charles Winslow

GHD

Presenter Session

11

Justin Wippo

Thermal Process

Systems

Presenter Session

07

Guoren Xu

University of

Chinese Academy of

Sciences / Harbin

Institute of

Technology

Moderator Session

16

Xueyao Zhang

Virginia Tech

Presenter Session

19

Jeffrey Ziegenbein

Inland Empire

Utilities Agency

Presenter Workshop

CONFERENCE SCHEDULE AT-A-GLANCE

Tuesday, May 16

7:00 a.m. – 5:00 p.m.	Registration
8:00 a.m. – 4:30 p.m.	Workshop A
8:30 a.m. – 12:00 p.m.	Workshop B
8:30 a.m. – 5:00 p.m.	Workshop C
1:30 p.m. – 5:00 p.m.	Workshop D, E

Wednesday, May 17

7:30 a.m. – 5:00 p.m.	Registration
8:30 a.m. – 10:00 a.m.	Opening General Session
10:00 a.m. – 6:15 p.m.	Exhibit Hall Hours
10:45 a.m. – 11:45 a.m.	Technical Sessions 1, 2, 3, 4
11:45 a.m. – 1:30 p.m.	Networking Luncheon
12:30 a.m. – 1:20 p.m.	Technology Spotlight I
1:30 p.m. – 4:45 p.m.	Technical Sessions 5, 6, 7, 8
4:45 p.m. – 6:15 p.m.	Networking Reception

Thursday, May 18

8:00 a.m. – 5:00 p.m.	Registration
8:30 a.m. – 11:45 a.m.	Technical Sessions 9, 10, 11, 12
10:00 a.m. – 3:45 p.m.	Exhibit Hall Hours
10:15 a.m. – 10:45 a.m.	Technology Spotlight II
11:45 a.m. – 1:30 p.m.	Networking Luncheon
12:55 p.m. – 1:20 p.m.	Technology Spotlight III
1:30 p.m. – 4:45 p.m.	Technical Sessions 13, 14, 16
1:30 p.m. – 3:00 p.m.	Technical Session 15
3:45 p.m. – 4:45 p.m.	Technical Session 17

Friday, May 19

8:00 a.m. – 11:00 a.m.	Registration
8:00 a.m. – 11:30 a.m.	Facility Tour
8:30 a.m. – 11:15 a.m.	Technical Sessions 18, 19, 21
8:30 a.m. – 10:00 a.m.	Technical Session 20
10:15 a.m. – 11:15 a.m.	Technical Session 22
11:15 a.m.	Conference Adjourns

NOTES

NOTES



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SEBA recently incorporated in 2023 as a non-profit 501 (c)(6) that was established to promote biosolids environmental stewardship, education and beneficial use.

**Advocating for Biosolids in
Florida, Georgia, North Carolina,
South Carolina, and Alabama on
behalf of its members**

Anticipated offerings:

- Advocating and education
- Timely, accurate information
- Tracking laws and regulations
- Public outreach
- Support of biosolids recycling
- Tours and field demonstrations
- Technical research and reviews
- And more!

Find us at Booth 222

to sign up to be on the SEBA mailing list
and to learn more!

Learn more about SEBA

Thank you to an industry partner for donating this spot!

