

WATER ENVIRONMENT FEDERATION/  
INTERNATIONAL WATER ASSOCIATION 2019

# RESIDUALS AND BIOSOLIDS CONFERENCE

Driving Change Through  
Innovation: Pathways to  
Biosolids Resource Recovery

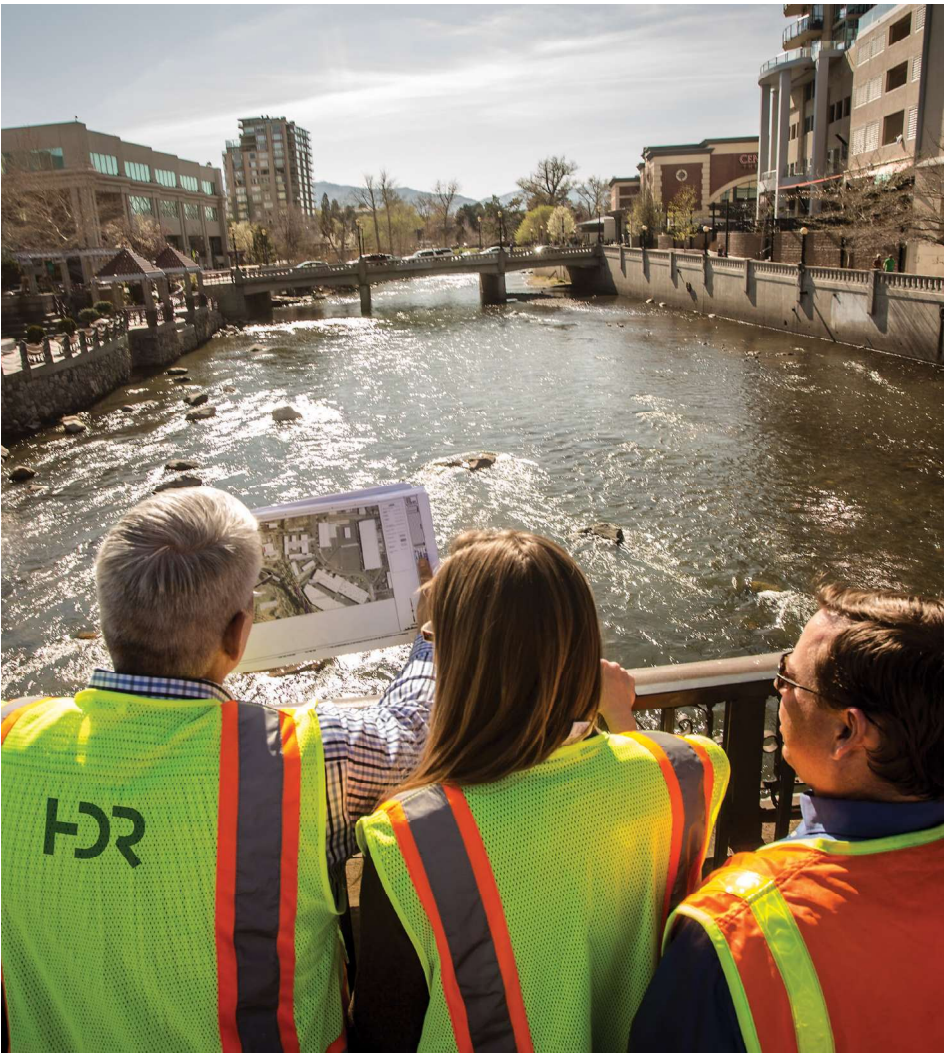
May 7–10, 2019 | Fort Lauderdale, Florida



## CONFERENCE PROGRAM



This conference is jointly held by the Water Environment Federation and International Water Association, in cooperation with the Florida Water Environment Association and The Water Research Foundation.



## Local Connections, **Global Ideas**

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**WEF/IWA**  
**Residuals and Biosolids Conference 2019**  
**Driving Change Through Innovation:**  
**Pathways to Biosolids Resource Recovery**

May 7-10, 2019

Greater Fort Lauderdale-Broward County  
Convention Center

Fort Lauderdale, Florida, USA



This conference is jointly held by the Water Environment Federation and the International Water Association, in cooperation with the Florida Water Environment Association and The Water Research Foundation.

May 7, 2019

Dear Colleagues and Biosolids Enthusiasts:

On behalf of the Water Environment Federation, the International Water Association, the Florida Water Environment Association, and The Water Research Foundation, we welcome you to Fort Lauderdale, Florida and to the 33rd Annual Residuals and Biosolids Conference!

We have enthusiastically been developing what we hope will be a truly fulfilling conference to remember. We would like give a special thanks to WEF's super staffers, the WEF Biosolids Steering Committee, the IWA Sludge Management Special Group, the FWEA Biosolids Committee and local South East and South Chapters and the large number of dedicated volunteers, working long hours and many early morning conference calls 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 Residuals and Biosolids Conference 2019 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 Florida 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 FWEA. We could not have offered this event without their support and the committed efforts of our local Social Events Steering Committee comprised of the South East and South Chapters of FWEA.

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.

*Continued on following page*

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 FWEA local YPs Committees. The conference is rounded out Friday Afternoon with Broward County's North Regional Plant for an informative walk through F.O.G. receiving, sludge thickening and dewatering, digestion and cogeneration at an exemplary water resource recovery facility.

Thank you for joining us in Ft. Lauderdale 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, beaches, food and nightlife of this year's Residuals and Biosolids Conference.

Thank you and welcome.

*Manuel Moncholí*  
Miami-Dade County (WEF Co-Chair)

Banu Örmeci  
Carleton University (IWA Co-Chair)

Megan Ross  
Pinellas County (WEF Co-Chair)

Fabiana Tessele  
Tessele Consultants (IWA Co-Chair)

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# RESIDUALS AND BIOSOLIDS CONFERENCE COMMITTEE

## WEF/IWA Conference Co-Chairs



Manny Moncholi  
*Miami Dade County, FL*



Banu Ormeci  
*Carlton University, Canada*



Megan Ross  
*Pinellas County Utilities, FL*



Fabiana Tessele  
*Tessele Consultants, Australia*

## RESIDUALS AND BIOSOLIDS CONFERENCE STEERING COMMITTEE

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Autonoma de Mexico

Winson Lay  
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Middle East Technical  
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Michele Duggan  
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Jeff Leblanc  
Denali Water Solutions

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Carollo Engineers

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CDM Smith

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Manhattan College

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Wendy Barrott  
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Michael Bullard  
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Jean Creech  
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## RESIDUALS AND BIOSOLIDS CONFERENCE COMMITTEE

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Pima County Regional Water  
Reclamation District

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Huber Technology

Rashi Gupta  
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Anna Munson  
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Bipin Pathak  
DC Water

Mark Philbrick  
U.S. Department of Energy

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City of Surprise, AZ

Thierry Ribeiro  
Institut Polytechnique  
UniLaSalle

Albert Rubin  
NCSU

Natalie Sierra  
Brown and Caldwell

Jim Smith  
U.S. EPA

Matthew Tabisz  
Synagro

Kristen Waksman  
Arcadis

Todd Williams  
Jacobs

Greg Woodward  
Stantec

Guoren Xu  
Harbin Institute of  
Technology, China



## REGISTRATION

**All events are held in the Greater Fort Lauderdale-Broward County Convention Center.**

The Registration Desk is located in Hall A Lobby and will be open at the following times:

**Hours:**

Tuesday, May 7	7:30 AM – 5:00 PM
Wednesday, May 8	7:30 AM – 5:00 PM
Thursday, May 9	8:00 AM – 5:00 PM
Friday, May 10	8:00 AM – 1:00 PM

## PRESENTER AND MODERATOR INFORMATION

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

Presenters, alternates, poster presenters, and session moderators, participating Wednesday through 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 8 — Room: Floridian D      7:30 AM – 8:15 AM  
\*Sessions 1 through 5

Thursday, May 9 — Room: Floridian D      7:30 AM – 8:15 AM  
\*Sessions 6 through 20

## **COMMITTEE MEETINGS**

### **Wednesday, May 8**

#### **Sustainable Residuals Use**

12:30 PM – 1:30 PM  
Room 301

#### **IWA Sludge Management Specialist Group Meeting**

12:30 PM – 2:00 PM  
Room 317

### **Thursday, May 9**

#### **Solids Separation Subcommittee**

7:00 AM – 8:15 AM  
Room 317

#### **Green House Gas Subcommittee**

11:45 AM – 12:45 PM  
Room 301

#### **Bioenergy Technology Subcommittee**

12:30 PM – 1:30 PM  
Room 317

#### **Specialty Conference Subcommittee**

1:00 PM – 2:00 PM  
Room 301

#### **Outreach and Education Subcommittee**

5:00 PM – 6:00 PM  
Room 317

### **Friday, May 10**

#### **WEF Residuals and Biosolids Committee Meeting**

7:00 AM – 8:15 AM  
Room Floridian D

## **RECEPTION AND MEAL FUNCTIONS**

### **Networking Reception**

### **Exhibit Hall**

The Networking Reception is your opportunity to view the exhibits, renew acquaintances, and make new contacts. Light hors d'oeuvres and refreshments will be served.

Wednesday, May 8  
4:45 PM – 6:15 PM

*First time at this conference? Looking to learn more about and get involved in the WEF Residuals and Biosolids Committee?*

Whether you have a dinner meeting later or an open evening planned, come share a drink with the committee for an informal meet-and-greet during the Networking Reception and get the most out of our conference networking. New and veteran committee members will informally gather towards the back of the exhibit hall near the luncheon tables to meet and chat about what's going on in the industry today. We welcome any interested conference attendees to join! Look for the sign and some of our committee's friendliest faces – we'll help with introductions.

### **Luncheons**

### **Exhibit Hall**

Lunch will be provided for all full conference, daily registrants, exhibitors, students, and expo-only. Please advise staff as soon as possible if you have any special dietary requirements. The luncheons will be held in the Exhibit Hall.

Wednesday, May 8  
11:45 AM – 1:30 PM

Thursday, May 9  
11:45 AM – 1:30 PM

### **Networking Breaks**

The Networking Breaks will be held:

Tuesday, May 7  
3<sup>rd</sup> Floor Meeting Room Foyer  
10:00 AM – 10:30 AM and 3:00 PM – 3:30 PM

Wednesday, May 8  
Exhibit Hall, Hall A  
10:00 AM – 10:45 AM and 3:00 PM – 3:45 PM

Thursday, May 9  
Exhibit Hall, Hall A  
10:00 AM – 10:45 AM and 3:00 PM – 3:45 PM

Friday, May 10  
3<sup>rd</sup> Floor Meeting Room Foyer  
10:00 AM – 10:15 AM

*Wednesday and Thursday Breaks Sponsored by Denali Water Solutions*

## CONTINUING EDUCATION

**WEF/IWA Residuals and Biosolids Conference 2019 - Continuing Education files available online immediately after event!**

You will be able to view your participation details and access your Continuing Education Credits for Workshops and Technical Sessions online. Attendees will have immediate access to their certificates and transcripts through an online portal for 1 year after this event. After that time CE files will have to be requested by email through WEF's customer service group. **These details will be posted on the Continuing Education page of WEF.org and emailed to event participants after the conference.**

### **How Do I Receive Credit For this Conference?**

To receive credit for all technical sessions and pre-conference workshops, please scan your badge when entering and exiting that activity.

If an attendee fails to scan in/out of a session(s) they must email detailed information regarding the unscanned session(s)/times to [CE@wef.org](mailto:CE@wef.org).

### **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 will be available immediately upon receiving the website link after the conference.

Please keep in mind that although WEF does provide these files, most states will require the individual licensee 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.*

## CONTINUING EDUCATION

### Are WEF Continuing Education Credits Approved in My State?

WEF applies for approval in many states 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. Several states typically accept WEF PDH and CEU credits without issue. For example: California (CWEA), Florida and New Jersey.

### What Else Do I Need to Know?

WEF follows the International Association of Continuing Education and Training (IACET) guidelines along with state-specific regulations to achieve strict policies and procedures regarding its Continuing Education Program. WEF calculates education credits following a standardized method that is the most 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...

In keeping with IACET guidelines, 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 8:30am and 5:00pm EST, Monday through Friday to request these files. Please call 1-800-666-0206 or submit an email request to [csc@wef.org](mailto:csc@wef.org).

### State Credit Calculations:

\*Some state licensing boards will accept CEUs for session under 3 hours in length. Some use different acronyms for 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 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).*

**For more information regarding WEF's Continuing Education Program,  
please visit [www.ResidualsBiosolids-WEFIWA.org](http://www.ResidualsBiosolids-WEFIWA.org)**

## ONLINE PROCEEDINGS

Conference proceedings, consisting of manuscripts for each presentation, have been made available through an online portal. Advance registrants within Full Conference, Daily, Student, and Exhibiting categories will receive access to the RBC 2019 online proceedings on the day prior to the conference. Onsite registrants will receive an access link following the event's conclusion.

## IWA PUBLICATION DISCOUNT



CONFERENCE SPECIAL: IWA Publishing are pleased to offer delegates of Residuals and Biosolids Conference 2019 a **20% discount** on any of their books until **June 10, 2019**. Simply enter the code **IWARBC19** at the checkout - <https://www.iwapublishing.com/books>.

IWA Publishing has been sharing industry-leading books in water, wastewater and environmental research for over 20 years. The publishing arm of the International Water Association, IWA Publishing is proud to support the IWA's mission of progressing water knowledge and management worldwide.

## WEF PUBLICATIONS

### **WEF Members SAVE 20% on Technical Publications**

WEF publishes books and resources that are essential to helping water quality professionals enhance their skills, further their technical knowledge, and advance their careers.

One of the many benefits of joining WEF includes a discount on all our technical and peer-reviewed books, study guides, and training materials. To become a member and save on publications, please visit [wef.org/membership/join-wef/](http://wef.org/membership/join-wef/). Already a member? Visit, [wef.org/ShopWEF](http://wef.org/ShopWEF) and start saving today.

## MOBILE APP

### New Mobile App Launching for WEF/IWA #ResBio19



WEF is pleased to offer the ***WEF Events Connect Mobile App*** which gives you access to all current and future WEF events, including Residuals and Biosolids.

View full program details and the exhibitor list, then start building your #ResBio19 agenda.

Download “***WEF Events Connect***” now from the Google Play OR Apple App Store. All other web-enabled devices can access the app via the web at <https://bit.ly/2V70RDL>.

***We want your feedback!***  
***Please complete in-app surveys on individual presentations, sessions, workshops, and more.***

**SPONSORSHIP INFORMATION**

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

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Lanyard  
*Booth: 505*



[www.industrialfurnace.com](http://www.industrialfurnace.com)  
Conference Program Ad



[www.insinkerator.com](http://www.insinkerator.com)  
Opening General Session



[www.komline.com](http://www.komline.com)  
Nook Meeting Pod  
*Booth: 408*



[www.nefcobiosolids.com](http://www.nefcobiosolids.com)  
Conference Program Ad  
*Booth: 403*



[www.varec-biogas.com](http://www.varec-biogas.com)  
Tote Bag  
*Booth: 117*



[www.chopperpumps.com](http://www.chopperpumps.com)  
Flip Flop Directional Signage  
*Booth: 606*

## WEF POLICIES & POSITIONS

### **WEF's Vision**

A community of empowered professionals creating a healthy global water environment.

### **Core Values**

Leadership, Passion, Scholarship, and Collaboration, and Service

### **WEF Policies**

WEF respects and takes the broadest view of human diversity and inclusion and is committed to providing a professional, safe, and welcoming environment at its events for all water professionals and their guests. WEF expects all sponsors, speakers, attendees, media, exhibitors and other participants to uphold our commitment to diversity and inclusion by helping us provide a positive conference environment for everyone.

For more information, please see WEF's Diversity and Inclusivity Policy, as well as WEF's Non-Discrimination and Harassment Policy at [www.wef.org/about/about-wef](http://www.wef.org/about/about-wef).

### **Reporting Concerns**

If you have any concerns during this conference, please stop by the conference registration desk in the Lobby of the Greater Fort Lauderdale-Broward County Convention Center or you may email the WEF Executive Director Dr. Eileen O'Neill at [eoconnell@wef.org](mailto:eoconnell@wef.org).

## 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. However, to protect intellectual property, videotaping, filming, or live-streaming of any workshop or technical session presentation, or exhibit booth 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 or exhibitor, who may provide the information or grant permission.

## CONFERENCE SAFETY AND SECURITY

WEF works hard to provide a comfortable and safe environment during our meetings and events, including contracting with private security firms and off-duty police officers when required. Your help also is needed to provide a safe and secure environment. WEF recommends that you follow these safety guidelines:

- 1. Share your plans.** Advise a family member or friend of your travel plans, including the dates you will be gone, how you will travel to the meeting or event, and where you are staying;
- 2. Protect your identity.** Wear your name badge only inside the meeting or event venue; remove and secure your name badge when going to and from the venue; when disposing of your name badge, scratch out or destroy your name and/or the QR code to protect your personal information;
- 3. Plan for an emergency.** Be aware of your surroundings. Know where the nearest exits are located. Use the buddy system. Exchange contact information with another event attendee. In case of a venue evacuation, agree where you will meet up. Call for help if your buddy doesn't meet up at the agreed location within a reasonable amount of time.
- 4. See something, say something.** If you see something that raises a safety or security concern, please follow the instructions printed on the back of your name badge to alert security personnel.

### **Greater Fort Lauderdale - Broward County Convention Center Emergency Plan:**

#### **Emergencies:**

When an emergency occurs, we ask that (when possible) notify The Convention Center Security Office at (954) 765-5931 which is manned 24/7 by security. We do not encourage anyone to call 911 in every emergency case, unless it is priority 1. This will delay in dispatching the officers. In a need of Evacuation, Security has been trained to safely escort everyone out of the building using our Emergency Evacuation Routes to our designated areas. Our rally points are the "D" Lot (located behind Hall D) and on the East side of the fountain.

#### **Medical Emergencies:**

When an emergency occurs, we ask that (when possible) notify any nearby BCCC (Broward County Convention Center) staff who can notify the EMT on site (during staffed hours) or our Central Security Staff who will call Fire/Rescue immediately. We do not encourage to call 911 directly to avoid delay in dispatch, unless it is priority 1.

## PRE- CONFERENCE WORKSHOPS

### Workshop A: Anaerobic Digestion of Organics: Synergies between Public and Private Sector

Tuesday, May 7

8:30 AM – 5:00 PM

*(Separate registration fees apply)*

- 8:30 AM**            **Welcome & Workshop Introduction**  
Christine Polo, Carollo
- 8:35 AM**            **Policy Drivers: Organics Diversion and Bioenergy Incentives**  
Nora Goldstein, BioCycle
- 8:55 AM**            **Market Trends - The Past, Present, and Future of Organics Anaerobic Digestion in North America**  
Bernie Sheff, American Biogas Council
- 9:15 AM**            **Measuring Plastics in Source Separated Organics**  
Wayne Parker, University of Waterloo
- 9:35 AM**            **Q&A**
- 10:00 AM**           **Networking Break**
- 10:30 AM**           **Contractual Arrangements (public vs private, P2/P3, etc.)**  
Larry Doyle, Energy Systems Group
- 10:50 AM**           **Quasar – Several Facilities**  
Dave Baran, Quasar
- 11:10 AM**           **Hitachi Zosen Inova (HZI) – San Luis Obispo**  
Joe Szczepkowski, HZI
- 11:30 AM**           **Q&A**
- 12:00 PM**           **Break for Lunch**

*Continued on following page*

## PRE- CONFERENCE WORKSHOPS

*Continued from previous page*

- 1:30 PM**      **Rahway Valley Sewerage Authority (RVSA) -WRRF  
Codigestion**  
Jim Meehan, RVSA
- 1:50 PM**      **East Bay Municipal Utilities District (EBMUD) - WRRF  
Codigestion**  
Mike Hyatt, EBMUD
- 2:10 PM**      **City of Toronto - Dedicated Organics Digestion at Disco  
Road**  
Tim Muirhead, Veolia
- 2:30 PM**      **Q&A**
- 3:00 PM**      **Networking Break**
- 3:30 PM**      **Brainstorming Session: “How Would You Handle Organics  
in Your Jurisdiction?”**
- 4:00 PM**      **Panel Discussion with All Speakers**
- 5:00 PM**      **Workshop Adjourns**

## PRE- CONFERENCE WORKSHOPS

### Workshop B: Developing a Comprehensive Biosolids/Residuals Program: “Think Beyond Class B Sludge”

Tuesday, May 7

8:30 AM – 5:00 PM

*(Separate registration fees apply)*

- 8:30 AM**            **Introduction and Objective of the Workshop**  
K. Richard Tsang, CDM Smith
- 8:45 AM**            **Regulations and OIG\* and Impact on Biosolids Master Planning**  
Laura Boczek, EPA
- 9:30 AM**            **Elements of a Successful Biosolids Master Plan**  
Mohammad Abu-Orf, Hazen and Sawyer
- 10:00 AM**           **Networking Break**
- 10:30 AM**           **End Use Market Studies (The Tail Wags the Dog)**  
Lisa Challenger, Materials Matters
- 11:00 AM**           **Biosolids Product Entry to the End Use Market**  
Chris Peot, DC Water
- 11:30 AM**           **Decision Making Tools (e.g., Envision)**  
Andrea Bohmholdt, AECOM
- 12:00 PM**           **Break for Lunch**
- 1:30 PM**            **Master Planning Exercise**  
K. Richard Tsang, CDM Smith  
A case study will be presented of an actual master plan that has been recently conducted. The workshop attendees will be broken up into groups and provided with specific utility conditions. The group will work through a decision-making process by assigning weights for criteria and sub criteria matrixes.
- 2:30 PM**            **Group Breakout**
- 3:00 PM**            **Networking Break**
- 3:30 PM**            **Groups Present Results and Recommendations**
- 4:30 PM**            **Recap and Discussion**
- 5:00 PM**            **Workshop Adjourns**

## PRE- CONFERENCE WORKSHOPS

### Workshop C: Sharing Your Biosolids Story with the Public

Tuesday, May 7

8:30 AM – 12:00 PM

*(Separate registration fees apply)*

- 8:30 AM**                    **Introductions and Overview**
- 8:40 AM**                    **How to Build a Messaging “Stool” that Features Soundbites, Statistics, and Stories**  
Travis Loop, Water Environment Federation
- 9:00 AM**                    **A Look at Public Opinion Research on Biosolids**  
Sarah Mason-Renton, Lystek
- 9:20 AM**                    **Biosolids Messages in Practice**  
Jeff Spence, Milwaukee Metropolitan Sewer District
- 9:40 AM**                    **Panel Discussion and Q&A on Messaging and Public Opinion**
- 10:00 AM**                   **Networking Break**
- 10:30 AM**                   **Cultivating Third-Party Validators**  
Saul Kinter, DC Water
- 10:50 AM**                   **Methods and Tools of Engagement with the Public**  
Trevor Brown, Region of Waterloo
- 11:10 AM**                   **Responding to Critics and Building Support**  
Manon Fisher, San Francisco PUC
- 11:30 AM**                   **Panel Discussion and Q&A on Public Education and Engagement**
- 11:40 AM**                   **Working with the Media**  
Dan Sweeney, South Florida Sun-Sentinel
- 12:00 PM**                   **Workshop Adjourns**

## PRE- CONFERENCE WORKSHOPS

### Workshop D: Current and Emerging Regulatory Trends in Biosolids Processing, Recovery, and Land Application

Tuesday, May 7

1:30 PM – 5:00 PM

*(Separate registration fees apply)*

- 1:30 PM**            **Welcome and Introduction**  
Fred Mussari
- 1:40 PM**            **Current and Emerging Regulatory Considerations**  
Elizabeth Resek, EPA Office of Science and Technology
- 2:10 PM**            **Requirement for Class AA, A, and B Sludge and the Variations of Treatment Processes Needed to Attain These Classifications Along with Associated Reporting Requirements**  
Laura Boczek, EPA National Risk Management Research Laboratory
- 2:40 PM**            **Open Discussion with Additional Q&A Focusing Around Regulatory Topics and Trends**
- 3:00 PM**            **Networking Break**
- 3:30 PM**            **Emerging Pollutants (CECs) Currently Being Researched for Potential Future Regulations**  
Dilek Sanin, Middle East Technical University
- 4:00 PM**            **Preparing for the Future**  
Jacob Porter, Senior Associate, Hazen and Sawyer
- 4:20 PM**            **Strategies and Methods for Negotiating with Regulators**  
Lynnette M. Ramirez, Miami-Dade Water and Sewer District
- 4:35 PM**            **Round Table Discussion with all Participants**
- 5:00 PM**            **Workshop Adjourns**



## FACILITY TOUR

### **Facility Tour**

**Friday, May 10**

**1:00 PM – 5:00 PM**

*(Separate registration fees apply)*

*Registrants are asked to please meet at the Registration desk at 12:45 PM.*

### **Broward County's North Regional Water and Wastewater Treatment Plant**

Join us on Friday, May 10th for a walking tour of Broward County's North Regional Water and Wastewater Treatment Plant in Pompano led by plant experts who explain the processes and capabilities of this award-winning facility. On this tour, attendees will visit the new F.O.G. receiving station, co-gen facility, gravity thickeners, dewatering facility, current biosolids disposal methodology; and will discuss further upcoming upgrades to the facility.

About the Facility: The Plant was established in 1974, and is now a 95 million gallon per day facility that provides a regional wastewater treatment and disposal solution for Broward County's retail water customers and large users, including the Cities of Coconut Creek, Coral Springs, Deerfield Beach, Lauderhill, North Lauderdale, Oakland Park, Pompano Beach and Tamarac; North Springs Improvement District, Parkland Utilities, and North Springs Improvement District and Royal Utilities.

Attendees should plan to wear comfortable shoes and cool clothing. Hardhats are not required.

## OPENING GENERAL SESSION

### Opening General Session

Wednesday, May 8

8:30 AM – 11:45 AM

Room 315/316

### Session Co-Moderators and Conference Co-Chairs:

Manny Moncholi, *Miami-Dade County*

Banu Ormeçi, *Carleton University, Canada*

Megan Ross, *Pinellas County*

Fabiana Tessele, *Tessele Consultants, Australia*

- 8:30 AM**            **Welcome and Introductions**  
Conference Co-Chairs
- 8:45 AM**            **WEF Welcome**  
Jackie Jarrell, *Charlotte Water, WEF President-Elect*
- 8:55 AM**            **IWA Welcome**  
Banu Ormeçi, *Carleton University, Canada*
- 9:00 AM**            **FWEA Welcome**  
Kristiana Dragash, *Carollo Engineers, FWEA Past-President*
- 9:05 AM**            **The Resilience Movement: Changing How Utilities Approach Challenges in the 21<sup>st</sup> Century**  
Hardeep Anand, *Deputy Director of the Capital Improvements, Miami-Dade Water and Sewer*
- 10:00 AM**           **Networking Break in Exhibit Hall**
- 10:45 AM**           **Resource Recovery and the Water Security Grand Challenge**  
Andre Defontaine, *DOE Office of Energy Efficiency & Renewable Energy*
- 11:00 AM**           **Anaerobic Digestion for Resource Recovery**  
Wayne Parker, *Professor, Civil and Environmental Engineering, University of Waterloo, Canada*
- 11:45am**            **Session Adjourns for Luncheon in Exhibit Hall**

## TECHNICAL PROGRAM

### Session 01: Incineration

Wednesday, May 8

1:30 PM - 4:45 PM

Room 305

**Moderators:** Juan Oquendo, Carollo; Jeanette Brown, Manhattan College

- 1:30 PM**            **Autocatalytic Pyrolysis for a NEWAGE (Nutrient, Energy, Water for Agriculture and Green Environment): Overview of Bench, Sub-Pilot, and Pilot Scale Studies**  
Zhongzhe Liu, Daniel Zitomer, Patrick McNamara, Marquette University
- 2:00 PM**            **The R2E2 Experience: Commissioning and Initial Energy Performance at the Green Bay Facility**  
Peter Burrowes, Jacobs; William Angoli, Bruce Bartel, Nathan Qualls, New Water, Green Bay Metro Sewerage Dist; Steve Graziano, David Parry, Jacobs
- 2:30 PM**            **Can an Old Dog Learn New Tricks: The Use of Modern Incineration with Phosphorous Recovery in Germany**  
Harald Plank, Edward Fritz, Chip Pless, Huber Technology, Inc.
- 3:00 PM**            **Networking Break in Exhibit Hall**
- 3:45 PM**            **The Road to Adding a Fourth Incinerator at the Metropolitan Wastewater Treatment Plant**  
Stephen Norton, Joe Ward, Scott Smrekar, Katherine Heflin, Metropolitan Council Environmental Services
- 4:15 PM**            **Mattabassett Experience: The First New Fluid Bed Municipal Sludge Incinerator in the U.S. Meeting the New MACT LLLL Emission Limits**  
Levent Takmaz, SUEZ; David Stille, Arthur Simonian, Michael Manfre, Mattabassett District; Gary Claytor, Ken Glass, SUEZ
- 4:45 PM**            **Session Adjourns for Networking Reception in Exhibit Hall**
- Alternate**            **Restoration of the Bayshore Regional Sewerage Authority's Biosolids Incinerator and Air Emissions Controls**  
Edward Barboe, Hazen & Sawyer; Robert Fischer, Peter Canal, Bayshore Regional Sewerage Authority; Bryan Atieh, Hazen & Sawyer
- Alternate**            **ORC Energy Recovery System At The Greenway WWTP In London, Ontario**  
Stanley Chilson, GHD; Mark Elliott, Kirby Oudekerk, Geordie Gauld, City of London; Throstur Gretarsson, Ian Scott, GHD

## TECHNICAL PROGRAM

### Session 02: Economic Drivers and Cost Recovery

Wednesday, May 8

1:30 PM - 4:45 PM

Room 315

**Moderators:** Jean Creech, Charlotte Water; Rashi Gupta, Carollo

- 1:30 PM**            **Key Economic Criteria for Evaluating Co-Digestion at Small Water Resource Recovery Facilities: Rockland Case Study**  
John Ross, Christopher Muller, Natalie Sierra, Tracy Chouinard, Wenye Kuo-Dahab, Brown and Caldwell; John Loughlin Sr., Town of Rockland
- 2:00 PM**            **Determining the Best Approach for Financing and Delivery of Your Biogas to Renewable Natural Gas Project**  
Becky Luna, Tyler Dougherty, Thomas Mossinger, David Pier, Carollo Engineers
- 2:30 PM**            **Getting out of the Incinerator Business: Constructing the First Egg Shaped Digesters in Upstate New York**  
John Story, Nicholas Hatala, GHD; Steven Devan, Oneida County WPC
- 3:00 PM**            **Networking Break in Exhibit Hall**
- 3:45 PM**            **RIN and California LCFS Credit Revenue from Electric Vehicle Fueling with Biogas Fueled Combined Heat and Power**  
Drury Whitlock, Rod Schebesch, Stantec; Bob Cleaves, Biomass Power Association; Mike Voll, Stantec
- 4:15 PM**            **Resource Recovery Could Unlock Economic Opportunity and Leverage Dormant Industrial Infrastructure**  
Chloe Greenberg, Donald Song, Edward Sharood, Woodard & Curran; Ned Beecher, NEBRA
- 4:45 PM**            **Session Adjourns for Networking Reception in Exhibit Hall**
- Alternate**            **Reviving a Biosolids Workhorse: The Rehabilitation of Passaic Valley Sewerage Commission's Wet Air Oxidization's Decant Facility**  
Julian Chianelli, Hazen & Sawyer; Elizabeth Engelbert, Bridget McKenna, Patricia Lopes, Passaic Valley Sewerage Commissioners; William Gettings, Hazen & Sawyer
- Alternate**            **Leveraging Existing Assets First (LEAF): Developing a Progressive Biosolids Management Approach Through Intentional Infrastructure Repurposing**  
Ruth Borgmann, C. Michael Bullard, James Struve, Hazen & Sawyer; David Wiman, City of Columbia

## TECHNICAL PROGRAM

### Session 03: Codigestion

Wednesday, May 8

1:30 PM - 4:45 PM

Room 316

**Moderators:** Christine Polo, Carollo; J. Scott Carr, Black & Veatch

- 1:30 PM**            **Learning from Co-Digestion Practices and Experiences in Europe and the US**  
Tanja Rauch-Williams, Carollo Engineers; Christian Schaum, Bundeswehr University Munich
- 2:00 PM**            **Sustainable Bioenergy Production by High Solids Anaerobic Digestion of Food Waste, Yard Waste, and Biosolids: A Case Study**  
Eunyoung Lee, Paula Bittencourt, Lensey Casimir, Eduardo Jimenez, Deborah Oliveira, Luiza Oliveira, Gregory Hinds, Meng Wang, Qiong Zhang, Sarina Ergas, University of South Florida
- 2:30 PM**            **Residues from the Dairy Industry as Co-Substrate for the Flexibilization of Digester Operation**  
Christian Hubert, Bettina Steiniger, Christian Schaum, Universität der Bundeswehr München
- 3:00 PM**            **Networking Break in Exhibit Hall**
- 3:45 PM**            **Co-digestion of Source Separated Organic Waste (SSO) with Thickened Waste Activated Sludge (TWAS) for Improving Biomethane Production- Effect of Mixture Ratio**  
Anahita Rabii, Frances Okoye, Saad Aldin, Yaser Dahman, Elsayed Elbeshbishy, Ryerson University
- 4:15 PM**            **Small Facilities Can Co Digest Too! Easton, PA Looks to the Future**  
Micah Blate, Hazen & Sawyer; Mohammad Abu-Orf, AECOM; Charles Wilson, City of Easton STP; Djigui David; Stephane Yameogo; Timothy Conway; Dylan Curran; Robert Sharp, Manhattan College
- 4:45 PM**            **Session Adjourns for Networking Reception in Exhibit Hall**
- Alternate**            **Impact of Co-digestion of Food Waste on Microbial Communities**  
Mingu Kim; Michael Keleman, InSinkErator; Basem Haroun; George Nakhla, Western University

## TECHNICAL PROGRAM

### Session 04: Advances in Stabilization

Wednesday, May 8

1:30 PM - 3:00 PM

Room 304

**Moderators:** Dilek Sanin, Middle East Technical University; Chris Muller, Brown & Caldwell

- 1:30 PM**            **Determination of the Optimal Thermal Dose Input for Maximum AD Kinetics Based on the Gelation Potential of Sludge**  
Munshi Md Rasel, George Washington University; Mandy Mitchell, DC Water; Rumana Riffat, George Washington University; Matthew Higgins, Bucknell University; Charles Bott, Hampton Roads Sanitation District; Sudhir Murthy, NEWhub Corp.; Ahmed Al-Omari, Christine deBarbadillo, Haydee De Clippeleir, DC Water
- 2:00 PM**            **Critical Assessment and Optimisation of Sewage Sludge Mesophilic Anaerobic Digestion Processes at Operational Wastewater Treatment Plant**  
Jin Liu, Stephen Smith, Imperial College London
- 2:30 PM**            **How Class 'A' Can Have a Lower Overall Cost than Class 'B' - Evaluation and Implementation of the ATAD Process**  
Heidi Bauer, Jacobs; Chris Matkins, Eric Bailey, South Fort Collins Sanitation District; David Oerke, Kile Snider, Jacobs
- 3:00 PM**            **Session Adjourns for Networking Break in Exhibit Hall**
- Alternate**            **Which Thermal Hydrolysis Process Configuration Do I Choose?**  
David Solley, Rahul Chhillar, GHD
- Alternate**            **Simple Improvement of Digested Sludge Quality: Is Post-Aeration the Key?**  
Pavel Jenicek, Marie Vojtiskova, Barbora Satkova, Jan Bindzar, UCT Prague
- Poster**              **Enhanced Biogas Production from Organized Industrial District Sludge**  
Hazal Aksu Bahçeci, Middle East Technical University; Selim Sanin, Hacettepe University; Dilek Sanin, Middle East Technical University
- Poster**              **Incidental ATAD at the Largest Wastewater Reclamation Plant in the World - A Case Study**  
Ersin Kasirga, GHD; Ahmed Ifthikar, Parsons International

## TECHNICAL PROGRAM

### Session 05: Emerging Issues

Wednesday, May 8

3:45 PM - 4:45 PM

Room 304

**Moderators:** Banu Ormeci, Carleton University; Jody Barksdale, Gresham Smith

**3:45 PM**            **Per- and Polyfluorinated Alkyl Substances in Commercially Available Biosolid-based Fertilizers: Effect of Post Treatment Processing Technologies**

Rooney Kim Lazcano, Michael Mashtare, Chloe De Perre, Linda Lee, Purdue University

**4:15 PM**            **Strategies for Treating Biodegradable and Recalcitrant Nutrient Fractions Generated from THP Processes**

Matthew Vanhorne, Wendell Khunjar, Gregory Pace, Katya Bilik, Hazen & Sawyer; Kendra Sveum, Donohue & Associates

**4:45 PM**            **Session Adjourns for Networking Reception in Exhibit Hall**

## TECHNICAL PROGRAM

### Session 06: Thickening, Dewatering, Drying I

Thursday, May 9

8:30 AM - 11:45 AM

Room 315

**Moderators:** Richard Tsang, CDM Smith; Alexander Kraemer, Centrisys/CNP

- 8:30 AM**            **Full Scale Testing of HydroFLOW for Scale Prevention in Dewatering Systems**  
Jose Bicudo, Region of Waterloo; Amber Klassen, Associated Engineering; Patryk Dorozynski, Wilfrid Laurier University; Wayne Parker, University of Waterloo; Scott Smith, Wilfrid Laurier University, Department of Chemistry; Jason Mank, Ontario Clean Water Agency; Micah Blate, Hazen & Sawyer
- 9:00 AM**            **A New Spectrophotometry Based Method to Determine the Optimum Maturation and Activation Time for Polymers**  
Banu Ormeçi, Narek Martirosyan, Carleton University
- 9:30 AM**            **State-of-the-Practice in Biosolids/Polymer Blending for Biosolids Dewatering**  
David Oerke, Jacobs; Robert Harris, Kent Kilby, Gwinnett County Department of Water Resources; John Horton, Nicholas Freeman, Jacobs; Katie Snyder, Gresham, Smith and Partners
- 10:00 AM**           **Networking Break in Exhibit Hall**
- 10:45 AM**           **Process Optimization through Mechanical Inline Polymer Mixer**  
Edward Fritz, Chip Pless, Harald Neumann, Huber Technology
- 11:15 AM**           **Pinellas County Utilities Polymer Contract Up for Expiration: Challenges & Resolutions with Finding the Right Thickening and Dewatering Polymer**  
Maria Vega-Rodriguez, Nory Hancock, Ivy Drexler, Pinellas County Utilities; Stephanie Kapfenstein, Pinellas County Government; Faustino Prado, Prado & Associates
- 11:45 AM**           **Session Adjourns for Lunch in Exhibit Hall**



## TECHNICAL PROGRAM

### Session 07: Preconditioning I

Thursday, May 9

8:30 AM - 11:45 AM

Room 316

**Moderators:** Manny Moncholi, Miami-Dade County; Dru Whitlock, Stantec

- 8:30 AM**            **Determination of Inhibition Constants for Free Ammonia in Anaerobic Digesters Pretreated by Thermal Hydrolysis**  
Mojolaoluwa Ladipo-Obasa; [Baoqiang Li](#), DC Water; Adrian Romero, Jacobs; Matthew Higgins, Bucknell University; Ahmed Al-Omari, DC Water; Sudhir Murthy, NEWhub Corp.; Rumana Riffat, George Washington University; Haydee De Clippeleir, DC Water
- 9:00 AM**            **Becoming a Utility of the Future - Achieving Energy Neutrality Through Co-digestion**  
[Dave Baran](#), Quasar Energy Group
- 9:30 AM**            **Disintegration and Siloxane Removal of Sewage Sludge by Ultrasonic Treatment Prior to Anaerobic Digestion**  
[Kazuyuki Oshita](#), Atsuki Yana, Masaki Takaoka; Takashi Fujimori, Taketoshi Kusakabe, Kyoto University
- 10:00 AM**           **Networking Break in Exhibit Hall**
- 10:45 AM**           **Evaluation of Biological Hydrolysis Pretreatment for the Sludge Anaerobic Digestion and Class A Biosolids**  
Youngseck Hong, [Michael Theodoulou](#), Adam Bentham, SUEZ WTS
- 11:15 AM**           **Turbocharging Egg-Shaped Digesters with WAS-Only Thermal Hydrolysis at the Hengelo WWTP**  
[Hans Ellenbroek](#), Water Authority Vechtstromen; Davy Ringoot, Cambi AS; Anouk Koelen, Water Authority Vechtstromen
- 11:45 AM**           **Session Adjourns for Lunch in Exhibit Hall**

## TECHNICAL PROGRAM

### Session 08: Biosolids Products and Marketability

Thursday, May 9

8:30 AM - 10:00 AM

Room 304

**Moderators:** Patrick Dube, Water Environment Federation; Jeffery LeBlanc, Denali Water Solutions

- 8:30 AM**            **Building Relationships Through Research: Coupling Outreach with an On-Farm Trial of Bloom**  
Saul Kinter, DC Water; Ben Beale, University of Maryland; William Brower, DC Water; Steven Walter, H & S Farms; Francesca Valente, Blue Drop; James Fotouhi, Chris Peot, DC Water
- 9:00 AM**            **Getting to “Class A” - Beyond a Technology, a Strong Biosolids Program Requires a Class A Business Strategy**  
Manon Fisher, San Francisco Public Utilities Commission; Natalie Sierra, Brown and Caldwell; Karri Ving, San Francisco Public Utilities Commission
- 9:30 AM**            **Starting with the End in Mind: How a Biosolids Market Assessment Revealed an Unexpected Alternative for the Goleta Sanitary District**  
Lisa Challenger, Material Matters; Derya Dursun, Mohammad Abu-Orf, AECOM; Steve Wagner, Goleta Sanitary District
- 10:00 AM**           **Session Adjourns for Networking Break in Exhibit Hall**
- Alternate**           **Successful Marketing Strategies for a Biosolids Fertilizer**  
Mike Dougherty, Simon Meulendyk, Samantha Halloran, Lystek International Inc

## TECHNICAL PROGRAM

### Session 09: Biogas

Thursday, May 9

8:30 AM - 10:00 AM

Room 305

**Moderators:** Anna Munson, Black & Veatch; Masaki Takaoka, Kyoto University

- 8:30 AM**            **Operational Characteristics of Simultaneous Removal of Siloxane and H<sub>2</sub>S from Biogas Using a Biotrickling Filter**  
Yuyao Zhang, Kyoto University; Daisuke Minami, Ebarajitsugyo.Co.,Ltd.; Toshihiro Tanaka, Ebara Corporation Environmental; Kazuyuki Oshita, Masaki Takaoka, Kyoto University
- 9:00 AM**            **Finding the Best Use for Biogas - How Site Specific Factors Impact the Decision Making Process**  
Tyler Dougherty, Becky Luna, Thomas Mossinger, Carollo; John Gage, City of Longmont; Gunter Ritter, South Platte Water Renewal Partners
- 9:30 AM**            **Uniform Basis for Estimating Methane Production with Co-Digestion**  
Ron Appleton, Carollo
- 10:00 AM**          **Session Adjourns for Networking Break in Exhibit Hall**
- Poster**              **Cost-Effective Biogas Treatment: Understanding Factors That Affect Media Life**  
Alison Nojima, Nancy Andrews, Brown and Caldwell; Shawn Redmond, Delta Diablo SD; Jon Diller, City of Eugene

## TECHNICAL PROGRAM

### **Session 10: Land Applications and Management**

**Thursday, May 9**

**10:45 AM - 11:45 AM**

**Room 304**

**Moderators:** Natalie Sierra, Brown and Caldwell; Sherri van der Wege, Atkins

- 10:45 AM**            **Composting, an Option to Reduce Nitrogen Release Rate and Optimize Environmental Benefits of Biosolids**  
Olawale Oladeji, Guanglong Tian, Pauline Lindo, Kuldip Kumar, Metropolitan Water Reclamation District of Greater Chicago; Albert Cox; Lakhwinder Hundal; Heng Zhang, MWRD of Greater Chicago At Cicero Stickney WTP
- 11:15 AM**            **Puketutu Island Quarry Rehabilitation with Biosolids - the First 10 Years**  
Rob Tinholt, Shane Morgan, Watercare Services Ltd
- 11:45 AM**            **Session Adjourns for Lunch in Exhibit Hall**

## TECHNICAL PROGRAM

**Session 11: Energy**  
**Thursday, May 9**  
**10:45 AM - 11:45 AM**  
**Room 305**

**Moderators:** Winson Lay, Singapore Public Utilities Board; Rusty Schroedel, AECOM

- 10:45 AM**      **RNG vs CHP: Comparing Value, Energy Output, and Carbon Emissions Reductions for Digester Gas**  
Chris Peot, James Fotouhi, DC Water
- 11:15 AM**      **Focus on Energy Recovery in Developing Capital Upgrades Recommendations Offers Many Benefits at For Solids Management at Peel Region Wastewater Treatment Plants**  
Deborah Ross, Emma Shen, Jacobs; Cindy Kambeitz, John Glass, Region of Peel
- 11:45 AM**      **Session Adjourns for Lunch in Exhibit Hall**

## TECHNICAL PROGRAM

### Session 12: Thickening, Dewatering, Drying II

Thursday, May 9

1:30 PM - 4:45 PM

Room 305

**Moderators:** Alexander Kraemer, Centrisys/CNP; Terry Goss, AECOM

- 1:30 PM**            **Improvements in Process Performance of Dewatering Centrifuges With Super-Deep Pond Operation**  
Frank Scriver, Flottweg Separation Technology, Inc.
- 2:00 PM**            **Drying Can Be Odor-Free (and Headache Free), if Managed Holistically from Design Through Operation**  
Lynne Bouchy, Gerardo Aguilera Soriano, Naike Noyon, Françoise Rousseille, Magalie Denisan, Valarie Nastasi, SUEZ; Zdenek Frcek, Vodakva
- 2:30 PM**            **The Impact of Base Pretreatment on Dewaterability of Conventional vs. Bio-P Anaerobically Digested Biosolids**  
Eileen Kennedy, Marquette University; Patrick McNamara; Brooke Mayer, Marquette University
- 3:00 PM**            **Networking Break in Exhibit Hall**
- 3:45 PM**            **Case Study: Using Cerium Chloride to Control Soluble Orthophosphate Concentration and Improve the Dewaterability of Sludge**  
Dian Zhang, Virginia Tech; Robert Angelotti; Erick Schlosser, Upper Occoquan Service Authority; Zhi-Wu Wang, Virginia Tech
- 4:15 PM**            **Progressing to Class A Biosolids: A Guide to Thermal Hydrolysis Process Pre-Treatment Options**  
Frances Burlingham, Jann Yamauchi, Perry Schafer, Tracy Stigers, Brown and Caldwell
- 4:45 PM**            **Session Adjourns**
- Alternate**            **Pilot-study: An Approach to Improve the Performance of Existing Sludge Dewatering Process**  
Pranoti Kikale, Globaltech Inc.; Brent Weidenhamer, Seacoast Utilities Authority; David Schuman, Globaltech Inc.

## TECHNICAL PROGRAM

### Session 13: Preconditioning II

Thursday, May 9

1:30 PM - 4:45 PM

Room 315

**Moderators:** Greg Woodward, Stantec; Angela Hintz, Arcadis

- 1:30 PM**            **Impact of Ozone Pretreatment on Anaerobic Degradability of Aqueous Pyrolysis Liquid (APL) from Biosolids**  
Saba Sevedi, Kaushik Venkiteshwaran, Daniel Zitomer, Marquette University
- 2:00 PM**            **Continuous Thermal Hydrolysis without Steam or Chemicals**  
Ulrich Knorle, Eliquo; James Goldhardt, Ovivo; Gloria Cadavid, Eliquo
- 2:30 PM**            **Cost and Benefit Analysis of Implementing Centrifugal Thickening and Thermal Alkali Hydrolysis Technologies in a Medium Sized Water Resource Recovery Facility**  
Gerhard Forstner, Zhongtian Li, Centrisys/CNP; Hiroko Yoshida; Menachem Tabanpour, Centrisys/CNP; Michael Stenstrom, University of California Los Angeles
- 3:00 PM**            **Networking Break in Exhibit Hall**
- 3:45 PM**            **The Effects of Thermal Hydrolysis, Hydraulic Retention Time and Ammonia Concentration on Digestion Rates and Dewatering Across Digestion Sites in Thames Water UK**  
Paul Fountain, Thames Water; Keith Panter, Cambi UK; Achame Shana, Thames Water
- 4:15 PM**            **A Fresh Start for Palo Alto: Building the Biosolids Program of the Future**  
Donald Song, Shalini Travedi, Woodard and Curran
- 4:45 PM**            **Session Adjourns**
- Alternate**            **Thermal Hydrolysis of Waste Activated Sludge for Digestion Enhancement**  
Yu Lei, Winson Lay, Public Utilities Board of Singapore

## TECHNICAL PROGRAM

### **Session 14: El Panorama de Biosólidos en Latinoamérica: Reglamentación y Tecnología (Running the Gamut of Biosolids in Latin America: Regulations and Technolgy)**

**Thursday, May 9  
1:30 PM - 4:45 PM  
Room 316**

**Moderadores:** Alonso Griborio, Hazen and Sawyer; Juan Oquendo, Carollo

Esta sesión, completamente en español, presentará las practicas actuales y la investigación relacionadas con el tratamiento de biosólidos en Latinoamérica. Igualmente se discutirá el estado del arte para el tratamiento y la reutilización de biosólidos y la adaptación de estas tecnologías para su aplicación en Latinoamérica.

This session will be conducted completely in Spanish and will not be translated. It will present the current status, typical practices, and research for the treatment of biosolids in Latin America. The session will also discuss the state-of-the-art for biosolids treatment and resource recovery and its potential application to Latin America.

**1:30 PM**                    **El Estado del Arte para el Tratamiento y la Reutilización de Biosólidos en Latinoamérica y el Mundo**  
**Panelistas**                Toshio Shimada, Carollo; Manny Moncholi, Miami Dade Water and Sewer; Fernando Chiriboga, Hazen and Sawyer

**2:20 PM**                    **Factores que Impulsan la Selección De Procesos de Biosólidos en Latinoamérica: Siete Casos de Estudio**  
Kathryn Snyder, Kurt Pfeffer, Hazen & Sawyer

**2:40 PM**                    **Impacto de Tecnologías de Espesamiento y Deshidratación de Lodos en el Manejo Estratégico de Biosólidos**  
Adrian Romero, Jacobs

**3:00 PM**                    **Receso**

**3:45 PM**                    **Recuperación de Estruvita e Hidroxiapatita Como Estrategia de Gestión Integral de Agua Residual Municipal: Caso de Estudio Universidad Autónoma de Occidente**  
Nancy Vasquez Sarria, Daniela Maria Rivera Velasco, Diego Alejandro Larrahondo, Hernan David Mazuera Rios, Mario Andres Gandini, Clara Eugenia Goyes, Universidad Autónoma De Occidente

*Session 14 continued on following page*



## TECHNICAL PROGRAM

*Session 14 continued from previous page*

- 4:05 PM**      **Sludge Electrocoagulation: Effect on Physicochemical Properties and Extracellular Polymeric Substances**  
Anaid Cano Quiroz, Instituto de Ingeniería UNAM
- 4:25 PM**      **Sácale el Jugo al Biogás: Maximizando el Valor del Gas Producido por Digestión Anaeróbica**  
Christine Polo, Black and Veatch
- 4:45 PM**      **Termina Sesión**
- Poster**        **Reactor Biológico de Electrohidrogenesis Como Alternativa Para la Recuperación de Energía a Partir del Tratamiento de Lixiviados Generados en Sitios de Disposición Final de Residuos Sólidos Municipales**  
Nancy Vasquez Sarria, Laura Vanessa Giraldo, Universidad Autónoma de Occidente

## TECHNICAL PROGRAM

### Session 15: Process Optimization and Lessons Learned

Thursday, May 9

1:30 PM - 3:00 PM

Room 304

**Moderators:** Kristen Waksman, Arcadis; Bipin Pathak, DC Water

- 1:30 PM**            **Hydraulic Mixing System Optimization for Anaerobic Digestion**  
Matthew Bronk, Tom Mangione, Evoqua Water Technologies
- 2:00 PM**            **Dewatering Optimization at Capital Region Water: Effects of Biological Nutrient Removal, Polymer Selection and Mixing, and Chemical Addition on Dewatering Efficiency**  
Wade Yankey, Trudy Johnston, Material Matters Inc; Jess Rosentel, City of Harrisburg; Raymond Hoke, Capital Region Water
- 2:30 PM**            **Its Alive: Bringing the Rehabilitated Columbia Metropolitan WWTP Anaerobic Digesters Back to Life**  
C Michael Bullard, Barry Bickerstaff, Meredith Bridwell, Hazen & Sawyer; Michael Foisy, David Wiman, City of Columbia; David Wagoner, CDM Smith CW2020 Program
- 3:00 PM**            **Session Adjourns for Networking Break in Exhibit Hall**
- Poster**                **Electromagnetic Wave-Induced Heavy Metal Removal for Dewatered Biosolids Composting**  
Simeng Li, Gang Chen, FAMU-FSU College of Engineering
- Poster**                **Deep Earth Digestion - An Innovative Technique for Sewage Wastewater and Biosolids Management in the Miami-Dade County of Florida**  
Yashesh Panchal, Ibrahim Mohamed, Nihal Mounir, Omar Abou-Sayed, Advantek Waste Management Svcs LLC; Homayoun (Omar) Moghaddam, Geoenvironment Technologies

## TECHNICAL PROGRAM

### **Session 16: Regionalization and Master Planning I**

**Thursday, May 9**

**3:45 PM - 4:45 PM**

**Room 304**

**Moderators:** Natalie Sierra, Brown and Caldwell; Shannon Dunne, Houston Public Works

- 3:45 PM**            **Regionalization of Biosolids Treatment with New Digestion, Advanced Energy Recovery, and Beneficial Reuse at Albany and Saratoga Counties**  
Eric Auerbach, Robert Ostapczuk, Arcadis; Timothy Murphy, Albany County Water Purification District; Dan Rourke, Saratoga County Sewer District No 1
- 4:15 PM**            **Sludge Management Master Plan For Istanbul Metropolitan Municipality**  
Osman Arikan, Kaan Dereli, Evren Ersahin, Istanbul Technical University; Fatih Turan, Istanbul Water and Sewerage Administration
- 4:45 PM**            **Session Adjourns**
- Poster**             **Co-incineration Possibility and Regional Analysis of Municipal Solid Waste and Sewage Sludge**  
Masaki Takaoka, Zheng Zhang, Kazuyuki Oshita, Ryo Matsuo, Kyoto Univeristy; Kazue Shibata, Masaru Sakamoto, SANKI Engineering Co., LTD.

## TECHNICAL PROGRAM

### Session 17: Regionalization and Master Planning II

Friday, May 10

8:30 AM - 11:15 AM

Room 305

**Moderators:** John Hermann, Arminius; Mark Lang, AECOM

- 8:30 AM**            **A Test Case for Centralized Thermal Hydrolysis and Anaerobic Digestion for Medium Sized Communities**  
Rahul Chhillar, David Solley, GHD; Lauren Randall, David Derkenne, Hunter Water Corporation; Mayur Sathe, GHD
- 9:00 AM**            **DC Water's Greenhouse Gas Modelling Results and Implications for Master Planning**  
James Fotouhi, Chris Peot, DC Water & Sewer Authority; John Willis, Brown and Caldwell; William Brower, DC Water & Sewer Authority
- 9:30 AM**            **Developing a Sustainable Biosolids Program Through a Comprehensive, Collaborative Approach for Arlington County**  
Kwok-Wai Tsang, CDM Smith; Mary Strawn, Thomas Broderick, Arlington County; Jonathan Treadway, CDM Smith; Lisa Racey, Arlington County Water Pollution Control Bureau
- 10:00 AM**           **Networking Break**
- 10:15 AM**           **Integrated Biosolids and Energy Management Planning: Achieving Energy Self-Sufficiency for Small Utilities**  
Derya Dursun, Bryan Lisk, Hersy Enriquez, Hazen & Sawyer; Mohammad Abu-Orf, AECOM; Dawn Guendert, Allan Briggs, Hazen & Sawyer; Steve Wagner, Goleta Sanitary District
- 10:45 AM**           **Comprehensive Solids and Energy Analysis Leads to Long Term Facilities Plan at the Encina Water Pollution Control Plant**  
Alison Nojima, Natalie Sierra, Thomas Chapman, Adam Ross, Scott Lacy, Brown and Caldwell; Scott McClelland, Encina Wastewater Authority; Perry Schafer, Brown and Caldwell
- 11:15 AM**           **Conference Adjourns**
- Alternate**           **Metropolitan Sewer District of Greater Cincinnati System-wide Biosolids Master Plan**  
Tracy Chouinard, Brown and Caldwell; Matthew Spidare, Metropolitan Sewer District of Greater Cincinnati; Timothy Koch, John Ross, Natalie Sierra, John Willis, Brown and Caldwell

## TECHNICAL PROGRAM

### Session 18: Nutrient and Resource Recovery

Friday, May 10

8:30 AM - 11:15 AM

Room 315

**Moderators:** Bipin Pathak, DC Water; Xiongfei Xie, Hillsborough County Public Utilities Department

- 8:30 AM**            **Nutrient Recovery: Mature and Ready for the Big Stage**  
Bryan Atieh, Wendell Khunjar, Ron Latimer, Hazen & Sawyer;  
Kristen Wisdom, MWRD; Gayathri Ram Mohan, Gwinnett  
County Department of Water Resources
- 9:00 AM**            **Enzyme Recovery From Waste Activated Sludge**  
Ziyi Liu, Stephen Smith, Imperial College London
- 9:30 AM**            **Doubling Down on Phosphorus**  
Rachel Lee, Ostara Nutrient Recovery Technologies Inc.; Matt  
Seib, Madison Metropolitan Sewerage; Derek Lycke, Mikaela  
Verigin, Katherine Lai, Ostara Nutrient Recovery Technologies  
Inc.
- 10:00 AM**           **Networking Break**
- 10:15 AM**           **The DEMON® Anammox Process: Case Study at Pierce  
County Chambers Creek WWTP**  
Chandler Johnson, World Water Works, Inc; Amanda  
Summers, Pierce County Public Works and Utilities; Henryk  
Melcer, Adam Klein, Brown and Caldwell
- 10:45 AM**           **Controlling Phosphorus Recycles and Scaling with  
Struvite Precipitation**  
Chris Moline, Brian Balchunas, Lawrence Hentz, HDR; Robert  
Hindt, Howard County – LPWRP
- 11:15 AM**           **Conference Adjourns**
- Alternate**           **Quantification of Struvite Content of Biosolids is  
Necessary to Avoid Bias in the Assessment of Digester  
and Dewaterability Performance**  
Wendell Khunjar, Hazen & Sawyer
- Alternate**           **High Efficiency Calcium Phosphate Recovery Technology  
at The Madison Metropolitan Sewerage District: Stability  
Metrics, Design Optimization, and Performance**  
Menachem Tabanpour, Centrisys/CNP; Phillip Barak, Nutrient  
Recovery & Upcycling; Hiroko Yoshida; Zhongtian Li,  
Centrisys/CNP; Mauricio Avila, Nutrient Recovery & Upcycling;  
Gerhard Forstner, Centrisys/CNP; Leon Downing, Donohue  
and Associates

## TECHNICAL PROGRAM

### Session 19: Recent Advances in Biosolids Technology

Friday, May 10

8:30 AM - 11:15 AM

Room 316

**Moderators:** Jay Kemp, Black & Veatch; Charlie Alix, Stantec

- 8:30 AM**            **The Smell of Successful Biosolids Resource Recovery by the University Area Joint Authority**  
Aaron Stephens, Material Matters, Inc.; Robin Brandt; Jason Brown, Corey Miller, University Area Joint Authority; Ben Burns, Herbert Rowland & Grubic Inc
- 9:00 AM**            **New GHG Methodology for Estimation of Methane Emissions from Digested-Biosolids Storage and Dewatering**  
John Willis, Brown and Caldwell; William Brower, James Fotouhi, Chris Peot, DC Water & Sewer Authority; Pusker Regmi, Brown and Caldwell
- 9:30 AM**            **Effluent Phosphorous Control through Facultative Biosolids Stabilization**  
Albert Bock, Aquaconeer
- 10:00 AM**           **Networking Break**
- 10:15 AM**           **Supercritical Water Oxidation for Treatment of Wastewater Sludge and Recalcitrant Organic Contaminants**  
Banu Ormeci, Carleton University
- 10:45 AM**           **Techno-Economical Analysis of Anaerobic Digestion Pre-Treatment Technologies for a UK Site**  
Ester Rus, Jacobs
- 11:15 AM**           **Conference Adjourns**
- Alternate**           **Torque Rheology and UV-Vis Spectrophotometry for Monitoring Sludge Characteristics and Optimization of Treatment Processes**  
Banu Ormeci, Carleton University; Jordan Smyth, Jacobs

## TECHNICAL PROGRAM

### Session 20: Regulatory and Environmental Drivers

Friday, May 10

8:30 AM - 11:15 AM

Room 304

**Moderators:** Michele Duggan, Pinellas County Utilities; Tom Schwartz, Woodard & Curran

**8:30 AM**                    **Protecting Beneficial Use - Current Legal Issues Impacting Land Application**

Andrew Silton, Beveridge & Diamond PC

**9:00 AM**                    **Biosolids Management in Circular Economy: Lessons from Around the World**

Banu Ormeci, Carleton University

**9:30 AM**                    **How the Regulatory Environment in Germany is Driving Sludge Disposal**

Harald Plank, Chip Pless, Edward Fritz, Huber Technology, Inc.

**10:00 AM**                    **Networking Break**

**10:15 AM**                    **Full System Understanding, Integration, and Optimization Lead to Low Emissions**

Joseph Ward, George Sprouse, Laura Fletcher, Stephen Norton, Scott Smrekar, Metropolitan Council Environmental Services

**10:45 AM**                    **Travelling Calgary's "Yellow Brick Road" to Biosolids Diversification - A Case Made for Capitalizing on Benefits, Feeding Giraffes, and Discovering the Wizard Behind the Curtain**

Catalina Nadeau-Bonilla, City of Calgary; John Lavery, Sylvis; Sam Bailey, City of Calgary

**11:15 AM**                    **Conference Adjourns**

**Alternate**                    **Evaluation of Short Term Biosolids Management Options in Response to a Settlement Agreement**

Bill Fasth, Brown and Caldwell

## SESSIONS AT-A-GLANCE

Session Number	Session Title	Time	Credits	Room
<b>Tuesday, May 7<sup>th</sup></b>				
<b>Workshop A</b>	Anaerobic Digestion of Organics: Synergies between Public and Private Sector	8:30am-5:00pm	<b>0.6 CEUs</b>	<b>315</b>
<b>Workshop B</b>	Developing a Comprehensive Biosolids / Residuals Program: "Think Beyond Class B Sludge"	8:30am-5:00pm	<b>0.6 CEUs</b>	<b>316</b>
<b>Workshop C</b>	Sharing Your Biosolids Story with the Public	8:30am -12:00pm	<b>0.3 CEUs</b>	<b>305</b>
<b>Workshop D</b>	Current and Emerging Regulatory Trends in Biosolids Processing, Recovery, and Land Application	1:30am-5:00pm	<b>0.3 CEUs</b>	<b>305</b>
<b>Wednesday, May 8<sup>th</sup></b>				
<b>OGS</b>	Opening General Session	8:30am-11:45am	<b>2.5 GCHs</b>	<b>315/316</b>
<b>Session 1</b>	Incineration	1:30pm-4:45pm	<b>2.5 PDHs</b>	<b>305</b>
<b>Session 2</b>	Economic Drivers and Cost Recovery	1:30pm-4:45pm	<b>2.5 PDHs</b>	<b>315</b>
<b>Session 3</b>	Codigestion	1:30pm-4:45pm	<b>2.5 PDHs</b>	<b>316</b>
<b>Session 4</b>	Advances in Stabilization	1:30pm-3:00pm	<b>1.5 PDHs</b>	<b>304</b>
<b>Session 5</b>	Emerging Issues	3:45pm-4:45pm	<b>1.0 PDHs</b>	<b>304</b>
<b>Thursday, May 9<sup>th</sup></b>				
<b>Session 6</b>	Thickening, Dewatering, Drying I	8:30am-11:45am	<b>2.5 PDHs</b>	<b>315</b>
<b>Session 7</b>	Preconditioning I	8:30am-11:45am	<b>2.5 PDHs</b>	<b>316</b>
<b>Session 8</b>	Biosolids Products and Marketability	8:30am-10:00am	<b>1.5 PDHs</b>	<b>304</b>
<b>Session 9</b>	Biogas	8:30am-10:00am	<b>1.5 PDHs</b>	<b>305</b>
<b>Session 10</b>	Land Applications and Management	10:45am-11:45pm	<b>1.0 PDHs</b>	<b>304</b>
<b>Session 11</b>	Energy	10:45am-11:45pm	<b>1.0 PDHs</b>	<b>305</b>
<b>Session 12</b>	Thickening, Dewatering, Drying II	1:30pm-4:45pm	<b>2.5 PDHs</b>	<b>305</b>
<b>Session 13</b>	Preconditioning II	1:30pm-4:45pm	<b>2.5 PDHs</b>	<b>315</b>
<b>Session 14</b>	El Panorama de Biosólidos en Latinoamérica: Reglamentación y Tecnología (Running the Gamut of Biosolids in Latin America: Regulations and Technology)	1:30pm-4:45pm	<b>2.5 PDHs</b>	<b>316</b>
<b>Session 15</b>	Process Optimization and Lessons Learned	1:30pm-3:00pm	<b>1.5 PDHs</b>	<b>304</b>
<b>Session 16</b>	Regionalization and Master Planning I	3:45pm-4:45pm	<b>1.0 PDHs</b>	<b>304</b>
<b>Friday, May 10<sup>th</sup></b>				
<b>Session 17</b>	Regionalization and Master Planning II	8:30am-11:15am	<b>2.5 PDHs</b>	<b>305</b>
<b>Session 18</b>	Nutrient and Resource Recovery	8:30am-11:15am	<b>2.5 PDHs</b>	<b>315</b>
<b>Session 19</b>	Recent Advances in Biosolids Technology	8:30am-11:15am	<b>2.5 PDHs</b>	<b>316</b>
<b>Session 20</b>	Regulatory and Environmental Drivers	8:30am-11:15am	<b>2.5 PDHs</b>	<b>304</b>
<b>Facility Tour</b>	Broward County's North Regional Water and Wastewater Treatment Plant	1:00pm-5:00pm	<b>3.5 GCHs</b>	<b>Meet at RBC Reg Desk</b>



## EXHIBITION INFORMATION

### Exhibition Schedule

**Wednesday, May 8**      **10:00 am – 6:15 pm** ..... **Exhibit Hall Open**  
10:00 am – 10:45 am ..... Networking Break  
11:45 am – 1:30 pm ..... Networking Luncheon  
3:00 pm – 3:45 pm ..... Networking Break  
4:45 pm – 6:15 pm ..... Networking Reception

**Thursday, May 9**      **10:00 am – 3:45 pm** ..... **Exhibit Hall Open**  
10:00 am – 10:45 am ..... Networking Break  
11:45 am – 1:30 pm ..... Networking Luncheon  
3:00 pm – 3:45 pm ..... 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.*

## EXHIBITOR DIRECTORY

As of 4/25/2019



**ABS, Inc (Advanced Biofermentation Services)** ..... **Booth 202**

<http://onsiteferm.com>

Phone: 904-213-7994

PO Box 9240

Fleming Island, FL 32006-0025

## EXHIBITOR DIRECTORY

**Alfa Laval, Inc** ..... **Booth 317**

[www.alfalaval.us](http://www.alfalaval.us)

Phone: 312-878-2597

*5400 International Trade Dr*

*Richmond, VA 23231*

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**American Process Group** ..... **Booth 805**

[www.amprocessgroup.com](http://www.amprocessgroup.com)

Phone: 503-623-9373

*1201 Pacific Ave, #600*

*Tacoma, WA 98402*

APG specializes in biosolids lagoon dredging, digester cleaning and dewatering management services. APG also works with water treatment backwash residuals, pulp and paper sludges and other industrial residuals across the USA and Canada.

**Anaergia, Inc** ..... **Booth 322**

[www.anaergia.com](http://www.anaergia.com)

Phone: 647-524-4551

*4210 S Service Rd*

*Burlington, ON L7L 4X5*

*Canada*

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www.andritz.com

Phone: 817-419-1756

1010 Commercial Blvd S

Arlington, TX 76001

ANDRITZ offers products in filtration, dewatering, and thickening with different types of machinery such as thickeners, centrifuges, screw presses, belt presses, screens, filter presses, and dryers. All equipment is serviced by our trained USA Sales Engineers and Technicians.

**Bartlett & West..... Booth 802**

www.bartlettwest.com

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1200 SW Executive Dr

Topeka, KS 66615

**BCR Environmental ..... Booth 707**

www.bcrinc.com

Phone: 904-819-9170

6621 Southpoint Dr N, Ste 200

Jacksonville, FL 32216

**BDP Industries, Inc ..... Booth 216**

www.bdpindustries.com

Phone: 518-695-6851

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Phone: 450-444-0566

1245 Industrielle St

LA Prairie, QC J5R 2E4

Canada

Berlie Technologies: expertise in water and sludge treatment (biosolids/organic residuals; specialized in turnkey projects; provides services in process and mechanical engineering in agitation, transport, thermal exchange for fluids and solids).

**Bioprocess Control Sweden AB ..... Booth 818**

www.bioprocesscontrol.com

Phone: +46 (0)46 163950

Scheelevagen 22

SE-223 63 Lund

Sweden

**Boerger, LLC..... Booth 402**

www.boerger.com

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2860 Water Tower Pl

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**BOS Solutions, Inc. .... Booth 622**

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10343 Sam Houston Park Dr

Houston, TX 77064

## EXHIBITOR DIRECTORY

### **Brown Bear Corporation ..... Booth 502**

[www.brownbearcorp.com](http://www.brownbearcorp.com)

Phone: 641-322-4220

*PO Box 29*

*2248 Ave of Industries*

*Corning, IA 50841*

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### **CAMBI, Inc ..... Booth 603**

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*Malvern, PA 19355*

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[www.cementech.com](http://www.cementech.com)

Phone: 800-247-2464

*1700 N 14th St*

*Indianola, IA 50125*

### **Centrisys/CNP ..... Booth 609**

[www.centrisys.com](http://www.centrisys.com)

Phone: 262-654-6006

*9586 58th Pl*

*Kenosha, WI 53144*

Centrisys manufactures dewatering centrifuges and sludge thickeners in the U.S.; provides global service/parts for all centrifuge brands. CNP, a division of Centrisys, designs/supplies nutrient recovery and biosolids treatment optimization systems.

## EXHIBITOR DIRECTORY

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www.chartermachine.com

Phone: 732-548-4400

720 W Prospect Ave

North Wales, PA 19454

Formerly Roediger Pittsburgh. Belt filter presses, gravity belt thickeners, sieve drum concentrators, conveyors, polymer systems.

**CMI Environment America ..... Booth 119**

www.amcec.com

Phone: 630-577-0400

2525 Cabot Dr, Ste 205

Lisle, IL 60532

**Custom Conveyor Corporation..... Booth 407**

www.customconveyorcorp.com

Phone: 763-367-6200

20550 Commerce Blvd

Rogers, MN 55374-9335

**D.R. Cordell & Associates, Inc..... Booth 816**

www.cordellmfg.com

Phone: 215-822-9345

95 W Butler Ave

Chalfont, PA 18914



**Denali Water Solutions, LLC ..... Booth 204**

www.denaliwater.com

Phone: 479-498-0500

3308 Bernice Ave

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Terra Renewal serves municipal and industrial wastewater/water systems across the US. We provide beneficial use and turn-key management solutions for biosolids and organic residuals.

## EXHIBITOR DIRECTORY

### **DMT Clear Gas Solutions ..... Booth 523**

[www.dmt-cgs.com](http://www.dmt-cgs.com)

Phone: 503-379-0147

19123 SW 125<sup>th</sup> Ct

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With over 30 years of experience in biogas upgrading, gas desulfurization and thermal hydrolysis, DMT Clear Gas Solutions is a global industry leader with some of the largest operational RNG plants in the US.

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Phone: +31 543 745401

Weverij 26

7122 MS Aalten

Netherlands

### **Drylet, LLC ..... Booth 109**

[www.drylet.com](http://www.drylet.com)

Phone: 979-777-6820

5000 Gulf Hwy, Bldg 4, Rm 103

Energy Research Park

Houston, TX 77023

Drylet's micro-biocatalyst boosts microbial activity and mass-to-gas conversion in varied applications. It is tailored to optimize outcomes, including 20%-70% biosolids reduction in WWT and 30+% biogas generation boost in digesters.

### **Ekoton USA Corporation ..... Booth 819**

[www.ekoton-corp.com](http://www.ekoton-corp.com)

Phone: 862-231-3989

146-B Ferry St, #234

Newark, NJ 07105

EKOTON Industrial Group is a leading manufacturer of equipment for wastewater treatment. We focus on development, production, and implementation of modern high quality technological equipment dedicated to municipal wastewater treatment as well as industrial applications.

## EXHIBITOR DIRECTORY

### **Engineered Compost Systems (ECS) ..... Booth 723**

www.compostsystems.com

Phone: 206-634-2625

4220 24th Ave W

Seattle, WA 98199

ECS provides Client Driven Solutions for in-vessel and ASP composting systems and supplies clients with automated process controls, aeration hardware, facility design, start-up and training.

### **Evoqua Water Technologies, LLC ..... Booth 404**

www.evoqua.com

Phone: 724-772-1327

210 Sixth Ave, Ste 3300

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### **Flottweg Separation Technology, Inc. .... Booth 506**

www.flottweg.com

Phone: 859-448-2300

10700 Toebben Dr

Independence, KY 14051

For over 60 years, Flottweg Separation Technology, Inc. has been developing and producing decanter centrifuges, separators, belt presses, and systems considered extremely powerful and reliable.

### **Fournier Industries, Inc ..... Booth 517**

www.fournierindustries.com

Phone: 418-423-4241

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Thetford Mines, QC G6H 2B5

Canada

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## EXHIBITOR DIRECTORY

**GEA Group..... Booth 417**

[www.gea.com](http://www.gea.com)

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Northvale, NJ 07647

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**Greasezilla, Downey Ridge Environmental ..... Booth 602**

[www.greasezilla.com](http://www.greasezilla.com)

Phone: 866-305-5749

PO Box 250

Lansing, WV 25862

**Gryphon Environmental ..... Booth 421**

[www.2gryphon.com](http://www.2gryphon.com)

Phone: 270-316-5729

2920 Fairview Dr

Owensboro, KY 42303

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[www.haarslev.com](http://www.haarslev.com)

Phone: 816-799-0808

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## EXHIBITOR DIRECTORY

### **Hach..... Booth 103**

www.hach.com

Phone: 704-280-3000

13751 Peel Ct

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www.haywardgordon.com

Phone: 937-234-3810

5 Brigden Gate

Halton Hills, ON L7G 0A3

Canada

Hydromix Nozzle Mixing System (used in anaerobic digesters) improves solids suspension and maximizes contact between anaerobic bacteria and active sludge, creating a uniform environment for microorganism growth and efficiency of biogas production.

### **Hidrostal Pumps..... Booth 807**

www.hidrostalpumps.com

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2225 White Oak Cir, Ste 101

Aurora, IL 60502

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Phone: 512-525-2515

1010 Mclean St

Lampasas, TX 76550

Manufacturer of dewatering equipment.

## EXHIBITOR DIRECTORY

**HML..... Booth 303**

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Phone: 765-288-1124

912 W McGalliard Rd

Muncie, IN 47303

Environmental testing laboratory. Soil and biosolids, chemical, microbiological, air, landfills.



**Huber Technology, Inc ..... Booth 505**

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## EXHIBITOR DIRECTORY

**JDV Equipment Corp. .... Booth 300**

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Carollo Engineers  
**Speaker Session 03**

**Elizabeth Resek**  
USEPA **Speaker  
WKSP D**

**Adrian Romero**  
Jacobs **Speaker  
Session 14**

**John Ross Brown and  
Caldwell Speaker  
Session 02**

**Deborah Ross Jacobs**  
**Speaker Session 11**

**Ester Rus Jacobs**  
**Speaker Session 19**

**Dilek Sanin Middle**  
East Technical  
University **Speaker  
WKSP D, Session 04,  
Moderator Session 04**

**Rusty Schroedel**  
Brown and Caldwell  
**Moderator Session 11**

**Tom Schwartz**  
Woodard & Curran Inc  
**Moderator Session 20**

**Frank Scriver Flottweg**  
Separation Technology  
Canada **Speaker  
Session 12**

## PRESENTER AND MODERATOR DIRECTORY

**Patrick Serfass**  
Technology Transition  
Corporation **Speaker**  
**WKSP A**

**Saba Seyedi**  
Marquette University  
**Speaker Session 13**

**Toshio Shimada**  
Carollo **Speaker**  
**Session 14**

**Natalie Sierra Brown**  
and Caldwell **Speaker**  
**Session 08, 17,**  
**Moderator Session**  
**10, 16**

**Andrew Silton**  
Beveridge & Diamond  
PC **Speaker Session**  
**20**

**Scott Smrekar**  
Metropolitan Council  
**Speaker Session 01**

**Kathryn Snyder**  
Hazen and Sawyer  
**Speaker Session 14**

**David Solley GHD**  
**Speaker Session 04,**  
**17**

**Donald Song**  
Woodard Curran  
**Speaker Session 13**

**Nestor Sotelo Hazen**  
and Sawyer  
**Coordinator WKSP B**

**Jeff Spence**  
Milwaukee  
Metropolitan Sewer  
District **Speaker**  
**WKSP C**

**Matthew Spidare**  
Metropolitan Sewer  
District of Greater

Cincinnati **Speaker**  
**Session 17**

**Aaron Stephens**  
Material Matters, Inc.  
**Speaker Session 19**

**John Story GHD**  
**Speaker Session 02**

**Dan Sweeney South**  
Florida Sun-Sentinel  
**Speaker WKSP C**

**Joe Szczepkowski**  
Hitachi Zosen Inova  
(HZI) **Speaker WKSP**  
**A**

**Menachem**  
Tabanpour Centrisys-  
CNP **Speaker Session**  
**18**

**Masaki Takaoka Kyoto**  
University **Moderator**  
**Session 09, Speaker**  
**Session 16**

**Levent Takmaz SUEZ**  
**Speaker Session 01**

**Michael Theodoulou**  
Suez Water  
Technologies &  
Solutions **Speaker**  
**Session 07**

**Rob Tinholt Watercare**  
Services Ltd **Speaker**  
**Session 10**

**Kwok-Wai Richard**  
Tsang CDM Smith  
**Speaker WKSP B,**  
**Session 17,**  
**Moderator Session 06**

**Sherri van der Wege**  
Atkins **Moderator**  
**Session 10**

**Nancy Vasquez Sarria**  
Universidad Autónoma

de Occidente **Speaker**  
**Session 14**

**Maria Vega-**  
**Rodriguez Pinellas**  
County Utilities, FL  
**Speaker Session 06**

**Kristen Waksman**  
Arcadis **Moderator**  
**Session 15**

**Joseph Ward**  
Metropolitan Council  
Environmental  
Services **Speaker**  
**Session 01**

**Drury Whitlock**  
Stantec **Coordinator**  
**WKSP A, Speaker**  
**Session 02,**  
**Moderator Session 07**

**John Willis Brown and**  
Caldwell **Speaker**  
**Session 19**

**Greg Woodward**  
Stantec **Moderator**  
**Session 13**

**Xiongfei Xie Public**  
Utilities **Moderator**  
**Session 18**

**Jann Yamauchi Brown**  
and Caldwell **Speaker**  
**Session 12**

**Wade Yankey Material**  
Matters **Speaker**  
**Session 15**

**Lei Yu Public Utilities**  
Board **Speaker**  
**Session 13**

**Yuyao Zhang Kyoto**  
University **Speaker**  
**Session 09**

**Dian Zhang Virginia**  
Tech **Speaker**  
**Session 12**

## CONFERENCE SCHEDULE AT-A-GLANCE

### **Tuesday, May 7**

7:30 AM – 5:00 PM	Registration
8:30 AM – 5:00 PM	Workshops A, B
8:30 AM – 12:00 PM	Workshop C
1:30 PM – 5:00 PM	Workshop D

### **Wednesday, May 8**

7:30 AM – 5:00 PM	Registration
10:00 AM – 6:15 PM	Exhibition Open
8:30 AM – 11:45 AM	Opening General Session
1:30 PM – 4:45 PM	Technical Sessions 1, 2, 3
1:30 PM - 3:00 PM	Technical Session 4
3:45 PM - 4:45 PM	Technical Session 5
4:45 PM – 6:15 PM	Networking Reception

### **Thursday, May 9**

8:00 AM – 5:00 PM	Registration
8:30 AM - 11:45 AM	Technical Sessions 6, 7
8:30 AM - 10:00 AM	Technical Sessions 8, 9
10:00 AM – 3:45 PM	Exhibition Open
10:45 AM - 11:45 AM	Technical Session 10, 11
1:30 PM – 4:45 PM	Technical Sessions 12, 13, 14
1:30 PM - 3:00 PM	Technical Session 15
3:45 PM - 4:45 PM	Technical Session 16

### **Friday, May 10**

8:00 AM – 1:00 PM	Registration
8:30 AM - 11:45 AM	Technical Sessions 17, 18, 19, 20
1:00 PM - 5:00 PM	Facility Tour

## GREEN INITIATIVES AT WEF/IWA RBC 2019



### LEED® Gold for Existing Buildings 2012 & 2017

#### LEED GOLD

In July 2012, of 12 Convention and Conference Centers in the US, BCCC was the 3rd to achieve LEED Gold Certification for Existing Buildings and was the FIRST convention center in the State of Florida to have received LEED certification (at any level). Our 2nd LEED for Existing Buildings GOLD recertification was achieved in December 2017.

#### Green Guide Food Service: Organic Waste Recycling

In pursuit of our original LEED® Existing Building Gold Certification, in the Center invested in an Organic Waste Decomposition System: Eco-Safe Digester™, in December 2010. The Eco-Safe Digester™ uses micro-organisms to breakdown organic waste into a liquid which can be safely flushed down the drain. By turning the waste into water, to date the Center has diverted a total of 342,843 pounds or **more than 171 Tons** of organic food waste through December 2017 which would otherwise have been sent to a local landfill.

For more information go to: <https://bit.ly/2GtZtl7>

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### Hilton Fort Lauderdale Marina Receives Florida Green Lodging Programs “Three Palm” Designation

#### Environmentally-Friendly Hotel Conserves Resources, Saves Money and Attracts Customers

August 25, 2015 [Americas](#)

FORT LAUDERDALE, Fla. - The Florida Department of Environmental Protection (DEP) has awarded Hilton Fort Lauderdale Marina the coveted "Three Palm" designation as part of the Florida *Green Lodging* Program. The prestigious designation signifies the commitment the 589-room property on the Intracoastal Waterway in Fort Lauderdale, Florida has made to conserve and protect Florida's natural resources.

The Florida *Green Lodging* Program is a voluntary initiative of the Florida Department of Environmental Protection (DEP) that designates and recognizes lodging facilities that make a commitment to conserve and protect Florida's natural resources. To become designated, facilities must conduct a thorough property assessment and implement a specified number of environmental practices in five areas of sustainable operations:

## GREEN INITIATIVES AT WEF/IWA RBC 2019

- Communication and Education (Customers, Employees, Public)
- Waste Reduction, Reuse and Recycling
- Water Conservation
- Energy Efficiency
- Indoor Air Quality

"We recognize that *Green Lodging* practices bring added value to our brand, enhance our customer experience and contribute positively to our local environment, directly impacting the community in which our team members and their families live and work," said Kevin Speidel, area managing director, Hilton Worldwide. Hilton Fort Lauderdale Marina has several initiatives instituted at the property to help protect natural resources. The hotel participates in the Clean the World program, a soap reuse program as well as other community sustainable events and is currently working on managing their irrigation on a weather predictive program. In addition to retrofitting lighting systems to compact fluorescent or LED saving energy, the hotel also measures and records power usage in real time.

"It is wonderful to see businesses implement green practices such as water conservation, recycling and energy reduction because they are not only good for business, they are good for Florida's environment," said Deas Bohn, sustainable initiatives director, DEP.

Recently, Hilton Worldwide advanced its proprietary "LightStay 4.0" taking sustainability measurement and reporting to a new level, increasing hotel awareness, employee engagement and overall performance. Some of the new features include simplified metrics and reporting, energy and water normalization as well as data alerts to keep the hotel up-to-date on progress and energy reduction.

Launched in March 2004, the Florida Green Lodging Program establishes environmental guidelines for hotels and motels to conserve natural resources and prevent pollution. In 2007, Governor Crist signed three executive orders initiating state energy-use policies, including one that requires state agencies and departments to hold meetings and conferences only at hotels with the Florida Green Lodging Program designation as of January 1, 2008, whenever possible. For more information about the Florida Green Lodging Program, visit [www.dep.state.fl.us/greenlodging](http://www.dep.state.fl.us/greenlodging).

DEP's Office of Sustainable Initiatives is comprised of three voluntary, non-regulatory programs that assist Florida industry and citizens in protecting the environment. The *Clean Marina* Program, the Florida *Green Lodging* Program and the Florida *Pollution Prevention* Program offer a variety of services including on-site assessments, consultations, speakers and workshops, all at no cost to citizens or organizations. The goal of the Sustainable Initiatives programs is to meet the needs of the present population without compromising resources for future generations.

To learn more about DEP's Sustainable Initiatives, visit [www.dep.state.fl.us/green/](http://www.dep.state.fl.us/green/).

*Information provided from <https://newsroom.hilton.com/hhr/news/hilton-fort-lauderdale-marina-receives-florida-green-lodging-programs-three-palm-designation>*

## NOTES



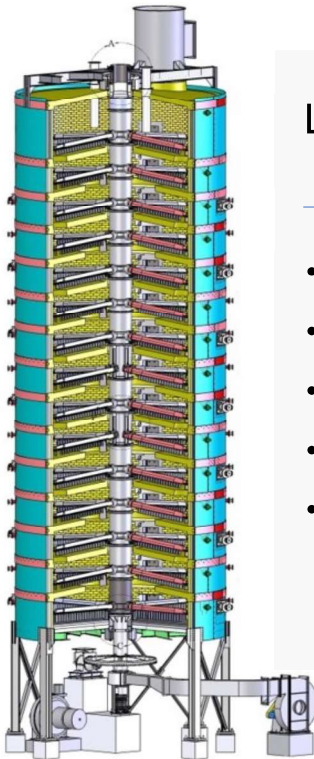
## NOTES



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