

#WEOFodorsAir | www.wef.org/odorsair

2023

ODORS AND AIR POLLUTANTS CONFERENCE

CONFERENCE
MAY 16 – 19

WORKSHOP
MAY 16

EXHIBITION
MAY 17 – 18

CHARLOTTE CONVENTION CENTER
CHARLOTTE, NC

*This conference is held by the Water Environment Federation
in cooperation with North Carolina One Water.*





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WEF Odors & Air Pollutants Conference

May 16-19
Charlotte Convention Center

www.wef.org/OdorsAir
#WEFOdorsAir



*This conference is held by the Water Environment Federation
in cooperation with North Carolina One Water.*

Dear Colleagues:

On behalf of the Water Environment Federation and NC One Water, we welcome you to Charlotte, North Carolina for the Odors and Air Pollutants Conference.

We are pleased to have worked alongside the Conference Steering Committee, WEF Air Quality & Odor Control Committee, WEF staff, and all the volunteers who have dedicated their time and effort over the past 9 months to ensure that this event will be one to remember. We would also like to thank the generous support of our sponsors, exhibitors, speakers, and you, the attendees for supporting this event. You've come to the right place to learn all about odor characterization, control methods, and solutions!

We start on a high note with our Tuesday Workshop, "Odor Fundamentals - Let's Start At the Beginning!", where participants can engage with industry experts in an interactive setting. On Wednesday morning the conference will formally kick off with our Opening General Session; we will hear from local, national, and international leaders in the sector with keynote talks from Mike McGinley of St. Croix Sensory, Marc Deshusses of Duke University, and Javier Climent of FACSA in Spain.

The exhibits open promptly at 10:00 a.m. on Wednesday, which flows into the beginning of our technical sessions later that morning. Among our many presentations, we have two technology spotlights where you can learn from exhibitors at their booths with models and display materials that are not feasible in a typical conference setting. Don't forget the Networking Reception on the exhibit floor on Wednesday evening and the Meet the Speakers Event on Thursday, which will not only be an excellent opportunity to talk to presenters about the technical sessions but will also include some other fun items.

In addition to all of the exciting content we have scheduled for the Odors and Air Pollutants Conference, we are also pleased to be sharing the space with the WEF/IWA Residuals and Biosolids Conference. Feel free to check out any of their technical sessions and participate in networking activities to get the dialogue flowing between our two areas of expertise!

So, welcome to Charlotte! We hope you learn a lot, grow your professional network, participate in all the conference has to offer, and have a great time. We smell good things to come!

Good wishes from your Co-Chairs,

Sincerely,



Chris Hunniford
Conference Co-Chair



Inken Mello
Conference Co-Chair

TABLE OF CONTENTS

Conference Committees	2
Registration	4
Presenter and Moderator Information	4
Run with Carlos	4
Committee Meetings	5
Reception and Meal Functions	5
WiFi & Convention Center Info	6
Conference Safety and Security	6
WEF Policy and Code of Conduct	7
WEF Vision & Core Values	8
Continuing Education	9
Mobile App	11
Online Proceedings	11
Get Involved with WEF	12
Sponsorship Information	13
Sessions-at-a-Glance	14
Pre-Conference Workshop	15
Opening General Session	16
Technical Program	17
Technology Spotlight	21
Exhibition Information	33
Exhibitor Directory	34
Exhibition Floor Plan	51
Presenter and Moderator Directory	52
Conference Schedule-at-a-Glance	55
Upcoming WEF Education & Training Events	56

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

CONFERENCE COMMITTEE



Chris Hunniford
V&A Consulting Engineers, Inc.
WEF Conference Co-Chair



Inken Mello
Woodard & Curran
WEF Conference Co-Chair

CONFERENCE COMMITTEE

SPECIALTY CONFERENCE STEERING COMMITTEE

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Amay Associates

John Siczka
Jacobs

Bruce Singleton
CDM Smith

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 W201 AB *Sessions 1 through 4	7:45 a.m. – 8:15 a.m.
Thursday, May 18 — Room W201 AB *Sessions 5 through 13	7:45 a.m. – 8:15 a.m.

RUN WITH CARLOS

Whether you're a keen or a casual runner, '*Run with Carlos*' is a great way to see a city's sites. It is often true that we only have a little time for exploring the beautiful places our work takes us on business trips, so this is the perfect opportunity to see what the city of Charlotte offers on a tight schedule!

Join Carlos Diaz from the conference committee on a relaxing, slow-paced 6 km (3.7 miles) run around Charlotte on *Thursday, May 18 at 06:30 a.m.* Arrive on the conference's second day feeling fresh, energized, and ready to learn!

Meet at the Charlotte Convention Center. *Thursday, May 18 at 06:30 a.m.*

A map of the route can be found here:

<https://www.mapmyrun.com/routes/view/1055473923>

COMMITTEE MEETING

Air Quality and Odor Control Community Meeting

Thursday, May 18 | 12:30 p.m. – 1:30 p.m.

Room: W201CD

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 Odors and Air Pollutants 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.

Networking Receptions

Join fellow Odor and Air Pollutant and Residuals and Biosolids 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.

Meet the Speakers Reception

Thursday, May 18

Room W201 ABCD

4:45 p.m. – 5:45 p.m.

Meet the Speakers Reception sponsored by: Hazen and Sawyer

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.

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.

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: **#WEFOdorsAir**. 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 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 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...

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 #WEFOdorsAir and #WEFIWABiosolids



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 Odors and Air Pollutants 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.

GET INVOLVED WITH WEF

The Water Environment Federation offers many ways to get engaged, build a network, and improve your skills as a water professional. See below for just a few examples.

Become a WEF Member

WEF is your access to water knowledge and invaluable networking opportunities with more than 30,000 professionals and thought leaders in water quality. For more information about membership categories, pricing, and member benefits, visit www.wef.org/membership/join-wef.

Join a WEF Community

More than 2,500 WEF members participate in WEF committee activities, developing conference programs, writing technical manuals and books, developing training materials and program content, and many other WEF program activities. Committees include Air Quality and Odor Control, Public Communications and Outreach, and more! To learn more about joining a committee, visit www.wef.org/committees. WEF membership is required to participate.

Submit to Water Environment Research

Published since 1928, Water Environment Research (WER) is an international multidisciplinary water resource management journal for the dissemination of fundamental and applied research in all scientific and technical areas related to water quality and resource recovery. In addition to original research articles, short communications, case studies, reviews, and perspectives are encouraged.

Continue your Education Online

In addition to in-person conferences, WEF also offers a variety of technical and leadership courses online. Through the WEF Learning Center, members and non-members can sign up to join webcasts, online courses, and virtual workshops. Visit <https://learn.wef.org> for more information. In addition, WEF also offers a blending learning program called the Water Leadership Institute which brings together water professionals from around the US, Canada, and world. Learn more at www.wef.org/wli.

Attend WEFTEC

WEFTEC is WEF's largest and most comprehensive conference, featuring dozens of technical sessions, a massive exhibit hall, and plenty of networking opportunities. WEFTEC 2023 will be held September 30 – October 4, 2023, in Chicago. More information can be found at www.weftec.org.

SPONSORS

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



ENVIRONMENTAL SOLUTIONS

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www.hazenandsawyer.com

Meet the Speakers

SESSIONS AT A GLANCE

Session Number	Session Title	Start Time	End Time	CE Credits
Tuesday, May 16				
Workshop A	Odor Fundamentals - Let's Start At the Beginning!	1:30 P.M.	5:00 P.M.	0.3 CEUs
Wednesday, May 17				
OGS	Opening General Session	8:30 A.M.	10:00 A.M.	1.5 GCHs
Session 01	Measuring and Mitigating Greenhouse Gas Emissions from Wastewater Treatment	10:45 A.M.	11:45 A.M.	1.0 PDH
Session 02	Community Relations and Odor Complaints	10:45 A.M.	11:45 A.M.	1.0 PDH
Session 03	You Can't Manage What You Can't Measure	1:30 P.M.	4:45 P.M.	2.5 PDHs
Session 04	International Guidance on Odor Dispersion Modeling	1:30 P.M.	3:00 P.M.	1.5 PDHs
TS I	Technology Spotlight I	3:45 P.M.	4:45 P.M.	1.0 GCH
Thursday, May 18				
Session 05	Collaborative Improvements: Owner, Vendor, and Consultant Perspectives on Optimizing a System Wide Collection System Odor and Corrosion Control Program	8:30 A.M.	10:00 A.M.	1.5 PDHs
Session 06	Dispersion and Ventilation Modeling	8:30 A.M.	10:00 A.M.	1.5 PDHs
Session 07	A 360 Approach: Increasing the Life of Infrastructure Assets	10:45 A.M.	11:45 A.M.	1.0 PDH
TS II	Technology Spotlight II	10:45 A.M.	11:45 A.M.	1.0 GCH
Session 08	Model, Monitor, and Treat: Controlling Collection System Odors	1:30 P.M.	4:45 P.M.	2.5 PDHs
Session 09	Bacteria and Synthetic Media: A Match Made in Odor Heaven	1:30 P.M.	3:00 P.M.	1.5 PDHs
Session 10	Beyond the Odor Nuisance: Airborne Pollutant Emissions	3:45 P.M.	4:45 P.M.	1.0 PDH
Friday, May 19				
Session 11	Plant & Interceptor Vapor Phase Planning Controls Odors/Corrosion	8:30 A.M.	11:15 A.M.	2.5 PDHs
Session 12	Just When You Thought There Was Nothing New: Odor Innovation	8:30 A.M.	10:00 A.M.	1.5 PDHs
Session 13	How to Be a Good Neighbor – A YP Perspective	10:15 A.M.	11:15 A.M.	1.0 PDH

PRE-CONFERENCE WORKSHOPS

(Additional fees required)

Workshop A: Odor Fundamentals - Let's Start At the Beginning!

Tuesday, May 16, 2023

Room: W209F

1:30 p.m. – 5:00 p.m.

0.3 CEUs

- | | |
|------------------|------------------------------------------------------------------------------|
| 1:30 p.m. | Introduction
Richard Pope, Hazen and Sawyer |
| 1:45 p.m. | Odor Formation and Corrosion
Randy Nixon, Corrosion Probe, Inc. |
| 2:00 p.m. | Field Monitoring
Ryan McKenna, Hazen and Sawyer |
| 2:15 p.m. | Interactive Component |
| 2:30 p.m. | Chemical Addition
Vaughan Harshman, Evoqua Water Technologies |
| 2:50 p.m. | Vapor Phase Technologies
Chris Hunniford, V&A Consulting Engineers |
| 3:10 p.m. | Coffee and Networking Break |
| 3:30 p.m. | Interactive Component |
| 3:45 p.m. | Odor Dispersion Modeling
Ray Porter, Porter Odor Science |
| 4:00 p.m. | Community Outreach
Dirk Apgar, King County |
| 4:15 p.m. | Interactive Component |
| 4:30 p.m. | Summary and Q&A |
| 5:00 p.m. | Workshop adjourns |

TECHNICAL PROGRAM

Opening General Session

Wednesday, May 17, 2023

8:30 a.m. – 10:00 a.m.

Room: W208

1.5 GCHs

- 8:30 a.m.** **Welcome from the Conference Chairs**
Chris Hunniford, V&A Consulting Engineers, Inc.
Inken Mello, Woodard & Curran
- 8:40 a.m.** **Everyone Has an Odor Story**
Mike McGinley, St. Croix Sensory
- 9:05 a.m.** **How Much Does Odor Management Cost in a Water Resource Facility?**
Carlos Diaz Jimenez, Ambiente et Odora; Asier Lopez-Etxebarria, Consorcio Aguas Bilbao Bizkaia; Lidia Saucobozic, DAM Aguas; Javier Climent, Sociedad de Fomento Agrícola Castellonense S.A. (FACSA)
- 9:30 a.m.** **Supercritical Water Oxidation: A Sustainable and Effective Approach to PFAS and Biosolids Control**
Marc Deshusses, Duke University & 374Water Inc.
- 9:55 a.m.** **WEF Board of Trustees Welcome**
Howard Carter, City of Saco, Maine
- 10:00 a.m.** **Session adjourns for networking break**

TECHNICAL PROGRAM

**Session 01: Measuring and Mitigating Greenhouse Gas Emissions
from Wastewater Treatment**

Wednesday, May 17, 2023

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

Room: W209DE

1.0 PDHs

Moderators: Ashwin Dhanasekar, The Water Research Foundation; Bruce Koetter, Webster Environmental Associates, Inc.

**10:45 a.m. To Measure or Not to Measure, That is the Question!
Optical Remote Sensing of Greenhouse Gas Emissions
from Wastewater Treatment**

Mostafa Mehrdad, University of Calgary; Bo Zhang, Ardurra;
Sheng Li, Ke Du, University of Calgary

**11:15 a.m. Sustainability within Collection Systems: Methane
Mitigation as a Result of Odor and Corrosion Prevention
Programs Utilizing Calcium Nitrate**

Danielle Arney, Quinn Moss, Vaughan Harshman, Calvin
Horst, Evoqua Water Technologies; David Hunniford, V&A
Consulting Engineers, Inc.; Nickolas Wagner, Manatee County
Utilities

11:45 a.m. Session adjourns for networking luncheon in exhibit hall

TECHNICAL PROGRAM

Session 02: Community Relations and Odor Complaints

Wednesday, May 17, 2023

Room: W209F

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

1.0 PDHs

Moderators: Mark Perkins, Mead & Hunt; Carlos Diaz, Ambiente et Odora

10:45 a.m. Community-Based Odor App: A Tool to Engage the Community in Solving Odor Problems

Ted Bowie, Ember Chadwick, Rachel Han, Charlie Libicki, Shari Libicki, Emma Lupoff, Ramboll

11:15 a.m. Knocking the Foul Odors Out of the Ballpark: Solving a Stinky Collection System Problem Through Field Investigation and Ventilation Modeling

Roland Gutierrez, San Antonio Water System; John Siczka, Jacobs

11:45 a.m. Session adjourns for networking luncheon in exhibit hall

TECHNICAL PROGRAM

Session 03: You Can't Manage What You Can't Measure

Wednesday, May 17, 2023

Room: W209DE

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

2.5 PDHs

Moderators: Ian Watson, USP Technologies; Jay Boyd, ADS
Environmental Services

1:30 p.m. Odor Testing Meets Molecular Odor Analysis
Michael McGinley, Charles McGinley, Olivia Rice, St Croix
Sensory

**2:00 p.m. An Odor Attribution Study to Determine the Relative
Contribution from Three Closely Located Facilities**
Bart Kraakman, Scott Cowden, Jacobs; Jerry Bovee, Bay Area
Air Quality Management District; Peter Zemek, Montrose
Environmental Group; Mel Suffet, UCLA

**2:30 p.m. Comparison of Physical and Operational Characteristics
of Flux Chambers for VOCs Measurement from Porous
Media**
Lisha Liu, Ruth Fisher, Ademir A. Prata, Richard Stuetz, The
University of New South Wales

3:00 p.m. Networking break

**3:45 p.m. An Evaluation of Masked Nuisance Odors from a Source
by Chemical and Sensory Analyses**
Mel Suffet, UCLA; Virginie Decottignies, CIRSEE – Suez
Environment; Yubin Zhou, Yuge Bian, UCLA; Tadeo Vitko,
Orange County Sanitation District

**4:15 p.m. The New E&T&C Certification, a Methodology to Rate
Engagement, Transparency, and Communication in Water
Resource Recovery Facilities: When the Odor Unit is Not
Enough**
Carlos Diaz Jimenez, Cynthia Izquierdo, Ainhoa Anton,
Ambiente et Odora

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

TECHNICAL PROGRAM

Session 04: International Guidance on Odor Dispersion Modeling
Wednesday, May 17, 2023 **Room: W209F**
1:30 p.m. – 3:00 p.m. **1.5 PDHs**

Moderators: Carlos Diaz Jimenez, Cyntia Izquierdo, Ainhoa Anton,
Ambiente et Odora

Odor dispersion modeling is a complex subject. This session is intended to provide attendees with the resources needed to understand the issues related to odor modeling. Odor modeling is a critical tool for determining the impact of odors on the surrounding community. Thus, the degree to which odor management methods need to be applied to protect the community for adverse odor impacts can have a critical consequence. As odor practitioners, we need to apply best practices to our work products when recommending odor management strategies to our clients. Thus, understanding the best modeling approaches that lead to those recommendations is imperative.

- 1:30 p.m.** **Status of the Handbook on Odour Exposure Modelling**
Carlos Diaz Jimenez, Cyntia Izquierdo, Ainhoa Anton,
Ambiente et Odora
- 1:40 p.m.** **Source Parameters and Odor Emission Rates**
Raymond Porter, Porter Odor Science
- 2:00 p.m.** **Odor Dispersion Models**
Phyllis Diosey, Hazen & Sawyer
- 2:30 p.m.** **Meteorology**
Raymond Porter, Porter Odor Science
- 3:00 p.m.** **Session adjourns for networking break**

TECHNOLOGY SPOTLIGHT I

Technology Spotlight I

Wednesday, May 17, 2023

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

*The three exhibitors listed below will each be holding the same 18-minute presentation three times in a row at their exhibit booth. Participants are invited to join a different presentation at each of the times listed below. Presentations kickoff concurrently at: **3:50 p.m.**, **4:08 p.m.**, and **4:26 p.m.** in each of the five booths.*

3:45 p.m.	Technology Spotlight Introduction at entrance to exhibit hall
3:50 p.m.	3 Simultaneous Presentation A
4:08 p.m.	3 Simultaneous Presentation B
4:26 p.m.	3 Simultaneous Presentation C

Booth 814 **Hydraulic Odor Control in Sewer Drops**
Kerry Koressel, IPEX USA, LLC

Booth 512 **SulFeLox: Field Results from a New Low-Hazard Option
for Collection System Sulfide Control**
Samuel Kohl, USP Technologies

Booth 913 **Everyone is Getting High on Oxygen**
Allison Trollier, Eco Oxygen Technologies, LLC

TECHNICAL PROGRAM

Session 05: Collaborative Improvements: Owner, Vendor, and Consultant Perspectives on Optimizing a System Wide Collection System Odor and Corrosion Control Program
Thursday, May 18, 2023 Room: W209DE
8:30 a.m. - 10:00 a.m. 1.5 PDHs

Session Coordinator: Dave Hunniford, V&A Consulting Engineers, Inc.

Presenters: Nickolas Wagner, Manatee County, Florida; Vaughan Harshman, Evoqua Water Technologies; David Pickard, Premier Magnesia

8:30 a.m. History and Current Status of the Manatee County Utilities (MCU) Odor & Corrosion Program

- Odor Control Program –Pre 2018
- Transition to Odor & Corrosion Control Program (OCCP) –2018-2020
- Refining OCCP –2021-2023

Nickolas Wagner, Manatee County, Florida

8:45 a.m. Interactive Polling

8:55 a.m. Identifying the Low Hanging Fruit in Implementing MCU OCCP

- System Wide Factors
- H₂S response vs investment
- Reducing H₂S release and Leveraging ventilation

Dave Hunniford, V&A Consulting Engineers, Inc.

9:15 a.m. Conversations & Input

9:20 a.m. Practical Operational & Economic Challenges

- Transition Period –2018-2020
- Ongoing Period –2021-2023
- Moving Forward –2023-2025

Vaughan Harshman, Evoqua Water Technologies; David Pickard, Premier Magnesia

Session 05 agenda continued on next page

TECHNICAL PROGRAM

Session 05 agenda continued from previous page

- Session 05: Collaborative Improvements: Owner, Vendor, and Consultant Perspectives on Optimizing a System Wide Collection System Odor and Corrosion Control Program**
- Thursday, May 18, 2023** **Room: W209DE**
8:30 a.m. - 10:00 a.m. **1.5 PDHs**
- 9:40 a.m. Panel Discussion**
- **Force Main, Gravity Lines, Lift Station, and WRF Headworks Designs**
 - **Individual Basin Dynamics –Flows, Temperature, Expansion**
 - **Mining Performance & Operational Data**
 - **Next Steps –refinement of H₂S goals, leveraging system operations/design changes**
- 9:50 a.m. Q&A**
- 10:00 a.m. Session adjourns for networking break**

TECHNICAL PROGRAM

Session 06: Dispersion and Ventilation Modeling

Thursday, May 18, 2023

8:30 a.m. - 10:00 a.m.

Room: W209F

1.5 PDHs

Moderators: Inken Mello, Woodard & Curran; Robert Jeyaseelan, Vapex Environmental

8:30 a.m. Monitoring and Dispersion Modeling to Become Good Neighbors

Miranda Mair, Kelsey Kenel, John Maley, Brian Balchunas, HDR; Shannon Spence, Prince William County Service Authority

9:00 a.m. Using Advanced Sewer Ventilation Modeling to Size Vapor Phase Controls

Melissa Berry, Jacobs; Matthew Ward, The WATS Guys

9:30 a.m. I Smell a New Approach — A Utility's Adoption and Use of a Sewer Process Model

Mark Holstad, Albuquerque Bernalillo County Water Utility Authority; Adrian Romero Flores, Jacobs; Brandon De Flon, Austin Water

10:00 a.m. Session adjourns for networking break in exhibit hall

TECHNICAL PROGRAM

Session 07: A 360 Approach: Increasing the Life of Infrastructure Assets

**Thursday, May 18, 2023
10:45 a.m. - 11:45 a.m.**

**Room: W209DE
1.0 PDHs**

Moderators: Michael Lannan, Tech Environmental; Chris Hunniford, V&A Consulting Engineers, Inc.

10:45 a.m. Brooklyn Trunk Sewer Long Term Investment Plan
Brandon Levi, Graeme Hamer, David Lynch, Jacobs; Michelle Wotten, Kirsty Mountford, Melbourne Water

**11:15 a.m. City of Los Angeles, Bureau of Sanitation (LASAN)
Utilizing Innovating Technology For Increasing Carbon Life**
Amirmohammad Jafarnejad, Spencer Yu, Rowena Lau, City of Los Angeles; Cyrus Gilani, Cyrus and Associates

11:45 a.m. Session adjourns for networking luncheon in exhibit hall

TECHNOLOGY SPOTLIGHT II

Technology Spotlight II

Thursday, May 18, 2023

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

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10:45 a.m.	Technology Spotlight Introduction at entrance to exhibit hall
10:50 a.m.	3 Simultaneous Presentation A
11:08 a.m.	3 Simultaneous Presentation B
11:26 a.m.	3 Simultaneous Presentation C

Booth 213 **Micro Sampling Technology and ELD Sensors Extend In-Situ Gas Sampling Duration and Minimize Expenses within Wastewater Treatment Plants, Collection Systems and Odor Control Scrubbers**
Lindy Eppinger, Detection Instruments

Booth 404 **Biological Odor Control - What's New and What's Next?**
Louis Le Roux, BioAir Solutions, LLC

Booth 622 **Advanced Odor Control Using Digitally Enabled Dosing Feed System (ORCA)**
Elizabeth Chaffin, Evoqua Water Technologies

TECHNICAL PROGRAM

Session 08: Model, Monitor, and Treat: Controlling Collection System Odors

Thursday, May 18, 2023

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

Room: W209DE

2.5 PDHs

Moderators: David McEwan, Brown and Caldwell; Dirk Appgar, King County

1:30 p.m. Numerous Odor Control Treatment Alternatives, but What is Best for us? Effective Assessment to Determine the Optimal Odor and Corrosion Mitigation Strategy

Stephanie Schramm, Jacobs; Gabrielle Sinsky, Jefferson County Commission; William Desing; Adrian Romero Flores, Jacobs; Mia Welch,

2:00 p.m. Comprehensive Collection System Odor and Corrosion Control through Integrated Planning

Kelsey Kenel, HDR; Matthew Ward, Jes Vollertsen, The WATS Guys; Jeff Bognar, City of Raleigh

2:30 p.m. Pima County's 'Smart Collection System': Real-Time H₂S Monitoring Pinpoints Problematic Sites in Pima County, AZ

Rudy Daniels, Pima County, AZ; Brogan Quist, Megan Livak, SmartCover

3:00 p.m. Networking break

3:45 p.m. Continuous Measurement of Dissolved Sulphide in Sewers

Esther Vollertsen, Envidan A/S; Yansi Jesuloganathan, Bo Jacobsen, Aarhus Vand A/S; Jes Vollertsen, Aalborg University

4:15 p.m. OC San Strategies and Pilot Testing to Optimize Collection System Odor Control

Brian Reed, Jeffrey Brown, Orange County Sanitation District (OCSAN); Ganesh Rajagopalan, AECOM

4:45 p.m. Session adjourns for Meet the Speakers reception

TECHNICAL PROGRAM

Session 09: Bacteria and Synthetic Media: A Match Made in Odor Heaven

Thursday, May 18, 2023

Room: W209F

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

1.5 PDHs

Moderators: Bart Kraakman, Jacobs; Heri Mumma, Tetra Tech

1:30 p.m. Pilot-Scale Comparison of Synthetic Biotrickling Filter Media for Hydrogen Sulfide Removal at the Los Coyotes Water Reclamation Plant

Wonho Song, Naoko Munakata, Philip Ackman, Nikos Melitas, Michael Sullivan, Ajay Malik, LA County Sanitation District

2:00 p.m. Effectiveness of Biotrickling Filters as Standalone Technology to Treat Municipal Odors in Harsh Desert Environments — Case Study

Haidar Ezal-deen, Louis Le Roux, BioAir Solutions, LLC; Catherine Rapheal, Ras Al Khaimah Wastewater Agency

2:30 p.m. Trade Ya! One Organic, Open Biofilter for One Synthetic, Modular, Closed Biofilter

Richard Pope, Hazen and Sawyer

3:00 p.m. Session adjourns for networking break in exhibit hall

TECHNICAL PROGRAM

Session 10: Beyond the Odor Nuisance: Airborne Pollutant Emissions
Thursday, May 18, 2023 **Room: W209F**
3:45 p.m. - 4:45 p.m. **1.0 PDHs**

Moderators: Scott Cowden, Jacobs; Ray Porter, Porter Odor Science

3:45 p.m. Are Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Air Pollution?

Michael Lannan, Katherine Mears, Tech Environmental Inc.

4:15 p.m. Styrene? Not in my Ambient Air! A DC Water Case Study for Air Quality Monitoring and Testing during CIPP Installation at Soapstone Valley Park

Burak Kaynak, William Elledge, DC Water

4:45 p.m. Session adjourns for Meet the Speakers reception

TECHNICAL PROGRAM

**Session 11: Plant & Interceptor Vapor Phase Planning Controls
Odors/Corrosion**

Friday, May 19, 2023

Room: W209DE

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

2.5 PDHs

Moderators: Vaughan Harshman, Evoqua Water Technologies; Louis le Roux, BioAir Solutions

8:30 a.m. Leveraging the Odor Toolbox - A Comprehensive Approach to Evaluating Odor and Corrosion in a Large Diameter Interceptor System

Steve Graziano, Jacobs; Sid Lockhart, Oakland County Water Resources Commissioner; Adrian Romero Flores, Bill Desing, Jacobs

9:00 a.m. Odor Control Technology Isn't Enough Without Effective Capture

Lynn Grijalva, Richard Pope, Hazen and Sawyer; Sharon Yin, Brian Waite, Orange County Sanitation District; Swaid Alhariji, Nadia Maher, Hazen and Sawyer

9:30 a.m. Keeping it Under Vacuum: Vapor-Phase Odor Control for Nearly One Mile of Large Diameter Interceptor Sewer

Marty Kazmierczak, Stephanie Acosta, Dewberry; Yovanni Catano Lopera, Black & Veatch; Greg Mueller, Dewberry

10:00 a.m. Networking break

10:15 a.m. MWRA Nut Island Headworks Odor Control - How Lasers and Data Analytics Kept Bids in the Ballpark, and Treated Air Flowing at Nut Island

Nicholas Ellis, Hazen and Sawyer

10:45 a.m. Deep Sewerage Tunnel Ventilation & Odor Control Design and Operational Experiences in Hot Climate Conditions

Bart Kraakman; Scott Cowden, Jacobs

Alternate The Functional Design of Odor Control Systems

Samuel Boswell, Carollo Engineers

11:15 a.m. Conference adjourns

TECHNICAL PROGRAM

Session 12: Just When You Thought There Was Nothing New: Odor Innovation

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

Room: W209F
1.5 PDHs

Moderators: Ian Watson, USP Technologies; David Hunniford, V&A Consulting Engineers, Inc.

8:30 a.m. Bakersfield's Odor Control Breakthrough: SulFeLox Saves Money, Improves Performance

Michael Collins, Peter Huhn, Lam Nguyen, Ian Watson, USP Technologies; Kevin Peoples, Brandon Stevens, City of Bakersfield, CA

9:00 a.m. Circular Cross Section Horizontal Airflow Vertical Bed Dry Media Odor Scrubber Design Considerations for Easy Operation and Maintenance

Diederik Apgar, Ternessa Nech, Gabriel Valea, King County - Wastewater Treatment Division

9:30 a.m. Treatment of Odors and Emissions using an In-Situ Floating Reactive Barrier Technology

Jeffrey Martin, Kieran Armstrong, H2nanO Inc.; Tia Chai, Genecis Bioindustries Inc & H2nanO Inc.; Zac Young, Tim Leshuk, H2nanO Inc.; Frank Gu, H2nanO Inc. & University of Toronto

10:00 a.m. Session adjourns for networking break

TECHNICAL PROGRAM

Session 13: How to Be A Good Neighbor – A YP Perspective
Friday, May 19, 2023 **Room: W209F**
10:15 a.m. - 11:15 a.m. **1.0 PDHs**

Moderators: Inken Mello, Woodard & Curran; Ian Watson, USP
Technologies

10:15 a.m. Environmental Justice Policy Considerations in Permitting
Julie Settembrino, Woodard & Curran

10:45 a.m. Corrosion Investigation and Mitigation Approach for the
City of Fresno Sanitary Wastewater Collection System
Alejandro Caicedo-Ramirez, Dave Hunniford, Chris Hunniford,
V&A Consulting Engineers, Inc.; Arturo Alvarez, Tolbert
Campbell, City of Fresno

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.

Exhibitor Directory Continues on Next Page

ODORS & AIR POLLUTANTS EXHIBITOR DIRECTORY

As of April 24, 2023

For Company Descriptions, view Exhibitors in the mobile app.

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

Exhibitor Directory Continues on Next Page

ODORS & AIR POLLUTANTS EXHIBITOR DIRECTORY

For Company Descriptions, view Exhibitors in the mobile app.

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*

Exhibitor Directory Continues on Next Page

ODORS & AIR POLLUTANTS EXHIBITOR DIRECTORY

For Company Descriptions, view Exhibitors in the mobile app.

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

Exhibitor Directory Continues on Next Page

ODORS & AIR POLLUTANTS EXHIBITOR DIRECTORY

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

Exhibitor Directory Continues on Next Page

ODORS & AIR POLLUTANTS EXHIBITOR DIRECTORY

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*

Exhibitor Directory Continues on Next Page

RESIDUALS & BIOSOLIDS EXHIBITOR DIRECTORY

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

Exhibitor Directory Continues on Next Page

RESIDUALS & BIOSOLIDS EXHIBITOR DIRECTORY

For Company Descriptions, view Exhibitors in the mobile app.

- 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*

Exhibitor Directory Continues on Next Page

RESIDUALS & BIOSOLIDS EXHIBITOR DIRECTORY

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

Exhibitor Directory Continues on Next Page

RESIDUALS & BIOSOLIDS EXHIBITOR DIRECTORY

For Company Descriptions, view Exhibitors in the mobile app.

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

Exhibitor Directory Continues on Next Page

RESIDUALS & BIOSOLIDS EXHIBITOR DIRECTORY

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*

Exhibitor Directory Continues on Next Page

RESIDUALS & BIOSOLIDS EXHIBITOR DIRECTORY

For Company Descriptions, view Exhibitors in the mobile app.

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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 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



Worldwide Experts in Water Treatment An Ovivo Division

Ovivo USA LLC **Booth 212**
 www.ovivowater.com/en
 Phone: 801-981-3070
 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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For Company Descriptions, view Exhibitors in the mobile app.

- 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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EXHIBITION FLOOR PLAN



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 12, Workshop A,
 Moderator Session
 08

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*Evoqua Water
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 01

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Jacobs
 Presenter Session
 06

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Carollo Engineers
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 03

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*V&A Consulting
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 Spotlight II

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 (FACSA)*
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 12

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 01

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 11

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Albuquerque Bernalillo County Water Utility Authority
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Christopher Hunniford
V&A Consulting Engineers, Inc.
 Presenter Workshop A, Moderator Session 07

David Hunniford
V&A Consulting Engineers, Inc.
 Presenter Session 05, Moderator Session 12

Amirmohammad Jafarnejad
City of Los Angeles
 Presenter Session 07

Robert Jeyaseelan
Vapex International
 Moderator Session 06

Burak Kaynak
DC Water
 Presenter Session 10

Marty Kazmierczak
Dewberry Engineers Inc.
 Presenter Session 11

Kelsey Kenel
HDR
 Presenter Session 06, 08

Bart Kraakman
Jacobs
 Presenter Session 11, Moderator Session 09

Bruce Koetter
Webster Environmental Associates
 Moderator Session 01

Samuel Kohl
USP Technologies
 Presenter Technology Spotlight I

Kerry Koressel
IPEX USA, LLC
 Presenter Technology Spotlight I

Michael Lannan
Tech Environmental
 Presenter Session 10, Moderator Session 07

Louis LeRoux
BioAir Solutions, LLC
 Presenter Session 09, Moderator Session 11, Presenter Technology Spotlight II

Brandon Levi
Jacobs
 Presenter Session 07

Lisha Liu
The University of New South Wales
 Presenter Session 03

Jeffrey Martin
H2nanO Inc
 Presenter Session 12

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Brown and Caldwell
 Moderator Session 08

Michael McGinley
St. Croix Sensory
 Presenter OGS, Session 03

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06, 13

Heri Mumma

Tetra Tech
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09

Randy Nixon

*Corrosion Probe,
Inc.*
Presenter Workshop
A

Mark Perkins

Mead & Hunt
Moderator Session
02

David Pickard

Premier Magnesia
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05

Richard Pope

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09, 11, Coordinator
Workshop A

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Porter Odor Science
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A, Session 04,
Moderator Session
03, 10

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OCSAN
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08

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08

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13

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02

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UCLA
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03

Allison Trollier

*Eco Oxygen
Technologies, LLC*
Presenter
Technology
Spotlight I

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Envidan A/S
Presenter Session
08

Nickolas Wagner

Manatee County
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05

Ian Watson

USP Technologies
Moderator Session
12, 13

Sharon Yin

*Orange County
Sanitation District*
Presenter Session
11

Spencer Yu

City of Los Angeles
Presenter Session
07

CONFERENCE SCHEDULE AT-A-GLANCE

Tuesday, May 16

7:00 a.m. – 5:00 p.m. Registration
1:30 p.m. – 5:00 p.m. Workshop A

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 p.m. Technical Sessions 1, 2
11:45 a.m. – 1:30 p.m. Networking Luncheon
1:30 p.m. – 4:45 p.m. Technical Session 3
1:30 p.m. – 3:00 p.m. Technical Session 4
3:45 p.m. – 4:45 p.m. Technology Spotlight I
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. – 10:00 a.m. Technical Sessions 5, 6
10:00 a.m. – 3:45 p.m. Exhibit Hall Hours
10:45 a.m. – 11:45 a.m. Technical Session 7
10:45 a.m. – 11:45 a.m. Technology Spotlight II
11:45 a.m. – 1:30 p.m. Networking Luncheon
1:30 p.m. – 4:45 p.m. Technical Session 8
1:30 p.m. – 3:00 p.m. Technical Session 9
3:45 p.m. – 4:45 p.m. Technical Session 10
4:45 p.m. – 5:45 p.m. Meet the Speakers Reception

Friday, May 19

8:00 a.m. – 11:00 a.m. Registration
8:30 a.m. – 11:15 a.m. Technical Session 11
8:30 a.m. – 10:00 a.m. Technical Session 12
10:15 a.m. – 11:15 a.m. Technical Session 13
11:15 a.m. Conference Adjourns

UPCOMING WEF EDUCATION & TRAINING EVENTS

WEF/IWA Innovations in Process Engineering Conference

June 6-9, 2023
Portland, Oregon
www.wef.org/processengineering

WEF Collection Systems Conference & WEF Stormwater Summit

June 27-30, 2023
Kansas City, Missouri
www.wef.org/collectionsystems
www.wef.org/stormwatersummit

WEF Circular Water Economy Summit

July 18-20, 2023
Nashville, Tennessee
www.wef.org/cwesummit

WEFTEC

September 30-October 4, 2023
Chicago, Illinois
www.weftec.org

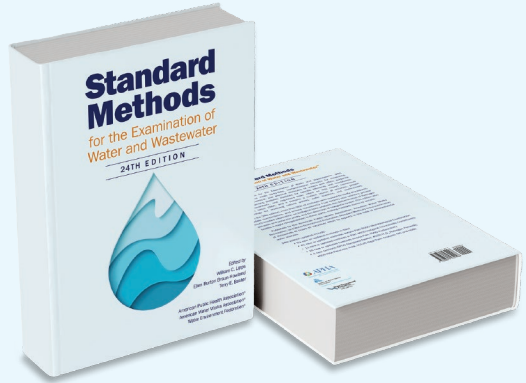
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