

FINAL PROGRAM



38TH INTERNATIONAL CONFERENCE ON THERMAL TREATMENT TECHNOLOGIES & HAZARDOUS WASTE COMBUSTORS

Virtual Conference • January 27-28, 2021
www.awma.org/IT3



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ASSOCIATION

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GENERAL INFORMATION

CONFERENCE OVERVIEW

The 38th International Conference on Thermal Treatment Technologies and Hazardous Waste Combustors provides a forum for the discussion of state-of-the-art technical information, regulations, and public policy on thermal treatment technologies and their relationship to air emissions, greenhouse gases, climate change, renewable energy or alternative energy production, and sustainability.

IT3/HWC CONFERENCE COMMITTEE

Technical Chair

William Norris, *Ramboll*

Technical Vice Chair

David Ostaszewski, *Ramboll*

Andrew Bartocci, *Envitech, Inc.*

Chih C. Chao, *Cantech Environmental Services*

Michele Gehring, *Coterie Environmental*

Helen Lou, *Lamar University*

Michael Mannuzza, *Ramboll*

Margarita Murach, *Dürr Systems, Inc.*

2021 AWARD RECIPIENTS

IT3 Distinguished Service Award: Michael Mannuzza

American Society of Mechanical Engineers Floyd Hasselriis

Pioneer Award: Stephen G. Deduck

For bios, go to www.awma.org/IT3awards.

REGISTRATION

Register online at www.awma.org/IT3.

Registration includes access to all live keynotes, panels, and presentations offered online during the conference, plus recordings of all of the presentations online for three months following the conference.

Online registrants will receive a confirmation and receipt, which they can access at any time by logging into their account. Your registration will not be processed without payment.

A few days prior to the conference, registrants will receive instructions on how to access the links for the virtual conference.

CONFERENCE PROCEEDINGS/ON DEMAND ACCESS

Conference proceedings will include recordings of the live sessions and slides from presenters who have provided permission. The online proceedings will be accessible from the virtual conference website for three months following the conference. Attendees will be notified when the recordings and slides have been posted.

CONTINUING EDUCATION UNITS

Conference attendees may be eligible for continuing education credits and can apply to receive a Certificate of Participation for the sessions attended. For more information, please contact Gloria Henning at +1-412-904-6021 or glhenning@awma.org.

ABOUT THE AIR & WASTE MANAGEMENT ASSOCIATION

A&WMA is a non-profit, nonpartisan professional organization that enhances knowledge and expertise by providing a neutral forum for technology exchange, professional development, networking opportunities, public education, and outreach to more than 5,000 environmental professionals in 65 countries. A&WMA also promotes global environmental responsibility and increases the effectiveness of organizations to make critical decisions that benefit society. For more information, please visit www.awma.org.

TECHNICAL PROGRAM – Wednesday, January 27

OPENING KEYNOTE

8:30 am – 10:00 am ET

Opening Welcome

William Norris, Conference Chair

From Natural Disasters to Pandemics: Remaining Operational and Compliant

Chair: William Norris, Ramboll

During natural disasters and uncertain times, like we are in now during a pandemic, ensuring facility compliance can be challenging. In some cases, it may not even be possible. Most companies have solid contingency plans for certain types of natural disasters, like weather, when you know it is coming, or even have plans for unplanned events like fires. But it was hard to think that a small microscopic virus could have upended our lives this way. Ensuring compliance was almost impossible for all aspects of businesses when supplies for normal daily items, like gloves or chemicals that are typically in abundant supply, simply disappear. Then, to think the unthinkable: if your employee base couldn't work. These are the new operating conditions we have to think about. This session will look at options to ensure you stay operational and in compliance by properly preparing, recordkeeping and reporting, and working with regulators to ensure that issues are communicated so your compliance record doesn't hang in the balance.

Panelists:

- Selin Hoboy, *Vice President, EHS & Compliance, GFL Environmental*
- Kristin Gordon, *Houston Office Director/Senior Consultant, All4 LLC*

10:00 am – 10:15 am ET

Break

SESSION 1: SOLID WASTE RESOURCE RECOVERY AND CONTROL

10:15 am – 11:45 am ET

Sponsored By:

Chair: Robert Baxter, B3 Systems, Inc.



IT3-05

Incinerator Ash: Diverse Solutions to Achieve Near Zero Waste
Timothy A. Marth, Allied Mineral Products, Columbus, OH, USA

IT3-08

Wet Solids Waste Resource Recovery Using Supercritical Water Oxidation

Doug Hatler, 374Water Inc., Durham, NC, USA; Kobe Nagar, Duke University, Durham, NC, USA

IT3-16

An Environmentally Friendly and Economically Viable Solution to Recover and Reuse the Municipal Solid Waste Incinerator Fly Ash

Sue-Huai Gau, Department of Water Resources and Environmental Engineering, Tamkang University, New Taipei City, Taiwan, ROC

11:45 am – 12:30 pm ET

Break

PANEL: PFAS THERMAL TREATMENT PERSPECTIVES

12:30 pm – 2:30 pm ET

Sponsored By:

Moderators: Lara Phelps and Jeff Ryan, U.S. EPA



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Panelists:

- Carlos Pachon, *U.S. EPA, Office of Land and Emergency Management*
- Erin Newman, *U.S. EPA Region 5*
- Mel Keener, *Executive Director, CRWI*
- Jeff Ryan, *U.S. EPA, Office of Research and Development*
- Janice Willey, *U.S. Department of Defense, U.S. Navy*

The thermal treatment of PFAS wastes, including AFFF, is an emerging issue that is rapidly evolving and involves multiple sectors with many different perspectives. This panel includes representatives from EPA, the States, DOD and the thermal treatment industry who will share their perspectives. Topics to be covered include an overview of EPA's NDAA interim guidance and associated research needs and activities.

2:30 pm - 2:45 pm ET

Break

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TECHNICAL PROGRAM

Wednesday, January 27, con't.

SESSION 2: PFAS AND EMISSION CHARACTERIZATION

2:45 pm – 4:15 pm ET

Chair: Prakash Acharya, APTIM

IT3-03

PFAS Emitted from a Wastewater Treatment Plant with Sewage Sludge Incinerator

Ian C. MacGregor, Aaron Frank, Brannon A. Seay, Jon T. Eastep, George A. Fenton, Jonathan R. Thorn, Matthew Schumitz, Denise M. Schumitz, Derik Heiss, Stephanie S. Buehler, Martha W. McCauley, Kristara Abrams, Kavitha Dasu, Battelle, Columbus, OH, USA; Paul M. Meeter, Wes Fritz, Lisa Kammer, Weston Solutions, Inc., West Chester, PA, USA; William C. Anderson, Courtney Adkins, Eurofins Test America, Knoxville, TN, USA; Kelley Begin, Woodard and Curran, Andover, MA, USA

IT3-13

Estimating Emissions from Plastic-to-Fuel Pyrolysis: Data Needs, Challenges and Methods to Estimate Air Emissions

Biljana Cosic, Taylor Roumeliotis, Phillip Labarge, Ramboll, Mississauga, ON, Canada

IT3-15

Other Test Method 45 (OTM-45) for PFAS Sampling and Analysis from Stationary Emission Sources

Ray Merrill, U.S. Environmental Protection Agency, RTP, NC, USA

4:15 pm – 4:30 pm ET

Break

Virtual Networking Social for all attendees

4:30 pm - 5:30 pm ET

Join fellow presenters and attendees for a video networking social to connect, chat, and discuss the conference topics through Zoom.

TECHNICAL PROGRAM

Thursday, January 28

PANEL: LESSONS LEARNED — HAZARDOUS WASTE INCINERATOR COMPREHENSIVE PERFORMANCE PROGRAM BEST PRACTICES

8:30 am - 10:00 am ET

Moderator: David Ostaszewski, Ramboll

Panelists:

- Robert Baxter, B3 Systems, Inc.
- Jesse Rocha, Alliance Source Testing, Inc.
- Prince Knight, Norlite Corporation

Hazardous waste incinerator comprehensive performance source test programs, or "CPTs," are one of the most complex emission testing programs conducted with many moving parts and responsible parties involved. This panel will discuss various aspects of successful CPT programs with the panelists sharing their experiences, best practices, and lessons learned. The panelists have diverse CPT experience which will enable them to share their insights on topics ranging from process operations and waste feed injection to source emission field testing.

10:00 am – 10:15 am ET

Break

TECHNICAL PROGRAM – Thursday, January 28

SESSION 3: PFAS EMISSION CONTROL STRATEGIES

10:15 am – 11:45 am ET

Chair: Helen Lou, Lamar University

IT3-04

Combustion of C₁ and C₂ PFAS: Kinetic Modeling and Experiments

Paul M. Lemieux, Jonathan Krug, Chun-Wai Lee, Jeffrey V. Ryan, Peter Kariher, Erin Shields, Lindsay Wickersham, William P. Linak, U.S. Environmental Protection Agency, Office of Research and Development, RTP, NC, USA; Martin Denison, Kevin Davis, Dave Swensen, Reaction Engineering International, Salt Lake City, UT, USA; Rucker Burnette, Jacobs Technology Inc., Cary, NC, USA; Jost O.L. Wendt, University of Utah, Department of Chemical Engineering, Salt Lake City, UT, USA

IT3-10

Experimental Thermal Decomposition of PFOS and PFOA

Nathan H. Weber, Sebastian P. Stockenhuber, Ammar Abu Fara, Charles C. Grimison, John A. Lucas, John C. Mackie, Michael Stockenhuber and Eric M. Kennedy, Discipline of Chemical Engineering, School of Engineering, University of Newcastle, Callaghan, NSW, Australia

IT3-14

Design Considerations for Adapting Existing Thermal Oxidizers for PFAS Destruction

Michael Mannuzza, William P. Norris, Ramboll, USA

11:45 am – 12:30 pm ET

Break

PANEL: THERMAL TREATMENT – A HISTORICAL PERSPECTIVE FROM 1980s TO 2020

12:30 pm – 2:00 pm ET

Moderator: Prakash Acharya, APTIM

Panelists:

- *Prakash Acharya, PE, CHMM, APTIM*
- *Mel Keener, Executive Director, CRWI*
- *Thomas Busmann, Vice President, Focus Environmental, Inc.*

In the US, over the past four decades there have been many changes in thermal treatment technologies and regulations. This panel will review a historical perspective of the journey. The systems and technologies discussed are mobile and transportable incinerators and thermal desorbers, commercial fixed facility incinerators, off-site TSDF's (Treatment, Storage, and Disposal Facility) for disposal of wastes such as PCBs (polychlorinated biphenyls), dioxins and industrial wastes and gasifiers for energy recovery.

2:00 pm - 2:30 pm ET

Break

SESSION 4: ADVANCEMENTS IN EMISSION CONTROL TECHNOLOGIES

2:30 pm – 3:30 pm ET

Chair: Margarita Murach, Dürr Systems, Inc.

IT3-12

Using DSI for Flexible Air Emissions Control

Jon Norman, United Conveyor Corporation, Waukegan, IL, USA

IT3-07

Emission Requirements and the Methodology to Achieve Environmental Compliance in the Chemical Industry

Nina B. Zerman, Dürr Systems, Inc., Southfield, MI, USA

3:30 pm – 4:15 pm ET

Closing Remarks and Award Presentation

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