31st Annual
2022 Solid Waste Technical Conference

THE ENGINEERING SOCIETY OF DETROIT®
FOUNDED IN 1895

Michigan Waste & Recycling Association

Conference Day: **Thursday, March 10, 2022**

Kellogg Hotel and Conference Center
55 S. Harrison Road, East Lansing, MI

THIS CONFERENCE HAS BEEN DESIGNED WITH WASTE MANAGEMENT AND ENVIRONMENTAL PROFESSIONALS IN MIND.

Whether you're in private industry, a government employee, consultant, or equipment supplier, this conference will be beneficial to you. It will give you the opportunity to:

- Network with top local specialists and professionals in the solid waste field
- Learn about emerging technologies and regulatory changes effecting the industry
- Gain information from presentations and case studies

For over 31 years, The Engineering Society of Detroit (ESD), in partnership with the Michigan Waste & Recycling Association (MWRA), has hosted this annual conference to focus on cutting-edge technological innovations and solutions related to the solid waste industry. This year's conference will feature experts in waste management practices to help attendees learn about issues related to policy, new technologies, regulatory updates and what the future holds for the solid waste industry.

CEU CREDITS AVAILABLE

SWANA SOLID WASTE ASSOCIATION of North America

All conference day attendees will be eligible for **Continuing Education Credits** based on hours of instruction time. SWANA credits will be available.

ACCOMMODATIONS:

Discount overnight accommodations are available at the Kellogg Hotel & Conference center at the rate of $128 (plus applicable taxes) per night for Standard Double, Queen or King. To make a reservation please call (517) 432-4000 or 1-800-875-5090 and provide the code 2203ESDSOL to receive the discounted rate. The group reservation rate is based upon availability.

INTERESTED IN SPONSORING OR EXHIBITING?

Sponsorship and exhibit opportunities are available. For information, visit esd.org or contact Leslie A. Smith, CMP at lsmith@esd.org or 248-353-0735, ext. 152.

EVENT FEES

Conference Day Fees - (Full day conference, continental breakfast, lunch and reception are included in the event pricing.)

$190	ESD/MWRA Member
$230	Non-Member
$100	Government/MEGLE
$75	Student Rate (applies to undergraduate students only)
$239	Join ESD at 50% discount and attend the conference

To Register: Visit esd.org to register online or call 248-353-0735.
Cancellation Policy: All cancellations must be received by Friday, March 4, 2022 in order to receive a refund.

2022 Solid Waste Technical Conference

Thursday, March 10, 2022

Building on the success of previous conferences, there will be an all-day exhibit area to provide manufacturers and suppliers with the unique opportunity to interact and explore some of the latest achievements in the solid waste and environmental industries.

7:30 am – 8:30 am

Registration, Continental Breakfast and Visit with Exhibitors

8:30 am – 8:35 am

Welcome

Speaker: Adam Larky, PE, Senior Project Manager, EDL

8:35 am – 9:20 am

SWANA Industry Update

This session will provide an update on the leading issues facing the industry, including the driver shortage, safety, recycling policy, PFAS, and of course, the continuing impact of Covid-19. The session will include information on upcoming SWANA training and educational events.

Speaker: David Biderman, Executive Director, Solid Waste Association of North America (SWANA)

9:20 am – 9:50 am

The Future of the Energy Industry with Landfills and the Solid Waste Industry

The Solid Waste Industry has been aware of the value of the benefits and value associated with the by-products of decomposition of waste. Transformative change in the Renewable Energy space has led to additional value brought by the Solid Waste Industry and Landfills. That additional value includes aspects of Waste sites that are only more recently being tapped into and energy project developers are competing more than ever for the value-added proposition brought by Landfill sites. Learn what you bring and how to capture it.

Speaker: Marc Pauley, Business Development Director, EDL Energy

9:50 am – 10:15 am

Networking Break and Visit with Exhibitors

10:15 am – 11:00 am

MMD Update

This session will provide Material Management Division updates.

Speaker: Elizabeth Browne, Director, Materials Management Division, State of Michigan Department of Environment, Great Lakes & Energy

11:00 am – 11:45 am

Innovations with Polyethylene Geomembranes

Topics which will be covered during the presentation include the following:

- Updates to GRI GM13 HDPE Specification
- Chemical resistance of polyethylene
- Geomembranes as vapor barriers
- PFAS Containment
- Zero leakage rates at waste containment facilities

Speaker: George R. Koerner, Director, Geosynthetic Institute (GSI)

11:45 am – 1:30 pm

Luncheon with Presentations

Update on Association, Initiatives and Opportunities

Speaker: Kevin Kendall, President, Michigan Waste and Recycle Association

Strategy Tactics in Public Policy Advocacy

Understand how National Waste and Recycling Association approaches public policy advocacy.

Speaker: Darrell Smith, President & CEO, National Waste and Recycling Association

1:40 pm – 2:10 pm

TRACK A: Measurement of PFAS Air Emissions from Stationary Sources

Stationary source (stack) emissions of PFAS have been implicated in ground and surface water contamination in areas in close proximity to the industrial facilities emitting these compounds. In January 2021 the USEPA published Other Test Method 45 (OTM-45) entitled "Measurement of Selected Per- and Polyfluorinated Alkyl Substances from Stationary Sources", the first air emissions test method for semi-volatile polar PFAS compounds. PFAS can partition in stack emissions into several different fractions due to the physical properties of these species. In order to measure these partitioned fractions, the stack effluent is sampled isokinetically (to accurately sample particles and droplets) and captured on a heated filter, an XAD-2 sorbent resin tube (a second XAD cartridge is added to detect breakthrough), and in impingers filled with a chemical solution. The train components are recovered separately and rinsed with a methanol/ammonium hydroxide solution. The four fractions are extracted and analyzed following procedures in the Method utilizing isotope dilution LC/MS/MS. The EPA Office of Research and Development has been evaluating additional sampling and analysis approaches for PFAS air emissions, particularly for non-ionic, volatile, and unidentified PFAS species. The presentation will discuss the details of sampling and analysis of PFAS with OTM-45, the precautions that must be taken to mitigate bias from fluorinated compounds including PFAS now pervasively present in the environment, and the additional methods under development.

Speaker: Thomas A. Dunder, PhD, Technical Director, TRC Companies

TRACK B: Renewable Natural Gas Project Development - Regulatory Considerations

The solid waste industry is heating up. As the country progresses toward low or zero carbon in the energy and transportation markets, demand for alternatives to traditional fossil fuels are providing opportunities to divert methane from landfills or farms into Renewable Natural Gas. Incentives driven by the federal Renewable Fuels Standard and state-specific low carbon fuel standards are being seen across much of the Midwest, including Michigan. These RNG plants convert waste-derived landfill gas (LFG) and other organic wastes into a source of clean and reliable energy to be used as a transportation fuel or to heat and power homes and businesses. The presentation steps through the regulatory and permitting pathway for development and approval of RNG; converting garbage into green.

Speaker: Rhiana C. Dornbos, PE, Vice President, NTH Consultants, Ltd.

2:15 pm – 2:45 pm

TRACK A: MWRA's WWTP PFAS Discharge Local Limit Approach

Recognizing that municipal wastewater treatment operations and landfills are both in the position of receiving wastewater or waste containing perfluoroalkyl and polyfluoroalkyl substances (PFAS) and have roles in managing PFAS in the environment, the Michigan Waste and Recycling Association has collaborated with the Michigan Water Environment Association and the Michigan Department of Environment, Great Lakes, & Energy to identify potential approaches for managing landfill leachate discharges to wastewater treatment plants. The goal of this effort was to identify a cost-effective, risk-based strategy to support WWTPs that receive landfill leachate in meeting their NPDES permit limits. Landfill leachate is a complex matrix that can be more difficult to treat than many other discharges to WWTPs, and may require flexible solutions, particularly for PFAS. MWRA has developed example approaches consistent with EPA guidance that local pretreatment authorities can use to develop local limits for industrial users, including landfills. This presentation will outline the challenges associated with PFAS in landfill leachate discharges and present examples of alternative local limit approaches.

Speaker: Kathryn A. Hall, QEP, Senior Environmental Scientist, LimnoTech

TRACK B: Hydraulic Conductivity of GCL Subjected to Elevated Temperatures

While most MSW landfills maintain temperatures less than 150 °F, a portion of a small number of U.S. landfills have elevated temperature conditions where the temperature

of the waste is above 200°F. Understanding the effect of elevated temperatures on the hydraulic performance of landfill liners is vital. This presentation will focus on results of an experimental study which evaluated the hydraulic conductivity of a geosynthetic clay liner (GCL) subjected to up to 212 °F.

Speaker: Prof. Milind V. Khire, PhD, PE, BCEE, University of North Carolina at Charlotte

2:45 pm – 3:15 pm

Networking Break and Visit with Exhibitors

3:15 pm – 3:45 pm

TRACK A: PFAS-Impacted Biosolids Management

This presentation will focus on the challenges with PFAS-impacted biosolids and methods to better handle these materials.

Speaker: Susan J. Masten, Professor, Michigan State University

TRACK B: Removing Hydrogen Sulfide from Biogas - Lessons Learned to Overcome Obstacles, Reduce Cost, and Ensure Success

With the increasing need for H_2S treatment, more and more technology providers have entered the market, and many are offering an increased menu of options for tailoring systems to specific applications. This presentation will go into some of the ways to get the most efficient removal of H_2S out of the biogas stream in the most economical manner. The results of laboratory testing on some actual spent media utilized in the field demonstrated measured removal efficiency.

This session will address common questions for both existing facility owners as well as those contemplating a new system such as:

- When should I install H_2S treatment at my facility?
- How easy will the system be to operate and maintain?
- What are some of the newer systems on the market and are they worth the investment?
- Is there a time that I should consider upgrades or replacement of an existing system?
- What media should be used?
- Should the system be a pressure or vacuum system?

Speaker: Thomas A. Bilgri, PE, Manager-Biogas Engineering, Cornerstone Environmental Group—A Tetra Tech Company

3:50 pm – 4:20 pm

TRACK A: Deep Well Injection for Leachate and Wastewater Management

Leachate and contact water management can be a landfill's largest annual expense and an increasingly important technical challenge for industrial and municipal landfill owners and operators. Current practices, such as discharge to an off-site publicly owned treatment works, may not be a viable long-term solution due to the changing regulatory environment and economic considerations. This presentation will provide a discussion of an alternative approach to manage these wastewaters: deep well injection. This presentation will:

- Provide an overview of deep underground injection
- Describe the conditions under which deep underground injection may be a favorable solution
- Present the highlights of permitting, designing, constructing, and operating a deep underground injection well
- Discuss the benefits and costs of deep underground injection

Speaker: Arlen Striegl, Senior Project Engineer, Golder Associates USA Inc.

TRACK B: Heat Generation in Landfills Located in Humid vs. Dry Climates

All MSW landfills generate heat due to anaerobic decomposition of MSW. The rate of decomposition of MSW depends on many factors and one of them is the moisture content. In this field-scale modeling study, heat generation rates were estimated for landfills located in humid, sub-humid and arid climates. The landfills simulated in this study have field temperature monitoring system. This presentation will focus on field temperatures and estimated heat generation rates for MSW landfills.

Speaker: Terry Johnson, PG, Senior Director of Groundwater and Technical Programs, Waste Management, Inc.

4:25 pm – 4:55 pm

TRACK A: Data Summary of PFAS in Groundwater Near Landfills in Michigan and Other States

The presence of PFAS in the environment including groundwater is a societal issue where landfills, as non-users or generators of PFAS, continue to work closely with others to protect the environment and drinking water. Groundwater sampling for PFAS near landfills has been occurring with increasing frequency in Michigan and many other States. The concentration and specific PFAS compounds detected in groundwater can vary based on whether a landfill has had a previously release, liner design, age of the landfill, other sources of PFAS (sewer and city water lines, septic fields, car washes, agriculture (herbicides and sludge application, etc.), plus potentially other factors. Nevertheless, the detection of PFAS in groundwater near landfills is generally at low levels as compared to contaminated PFAS sites such as AFFF sites or industrial facilities that manufacture or use PFAS. This presentation provides a general summary of the concentrations and types of PFAS being detected in groundwater near landfills. This information should assist stakeholders in making technically sound environmental protection decisions to reasonably protect drinking water (and surface water, when applicable) where landfills exist.

Speaker: Louis Bull, Director, Groundwater and Technical Programs, Waste Management & Joe Montello, Sr. Manager, Hydrogeology, Republic Services, Inc.

TRACK B: To Be Announced

4:55 pm

Conference Adjourns

5:00 pm – 6:15 pm

Exhibitor Reception and Networking

THANK YOU to the Solid Waste Technical Conference Planning Committee:

Adam Larky, PE (Chair), EDL Energy
Richard Burns, NTH Consultants, Ltd.
Dr. Bora Cetin, Michigan State University
Graham Crockford, TRC Solutions
Douglas M. Gatrell, PE, GHD
Nicole Green, Republic Services, Inc.
Debora Johnston, Waste Management
Milind Khire, The University of North Carolina, Charlotte
Art Mohr, Sniffer Robotics
Christina Pearse, Republic Services, Inc.
Dawn Prell, Golder Associates Inc.
Margie Ring, Michigan Department of Environment, Great Lakes, and Energy
Ibraheem Shunnar, Mannik & Smith
Patrick Triscari, EDL Energy
Chris Uhlrich, Tetra Tech

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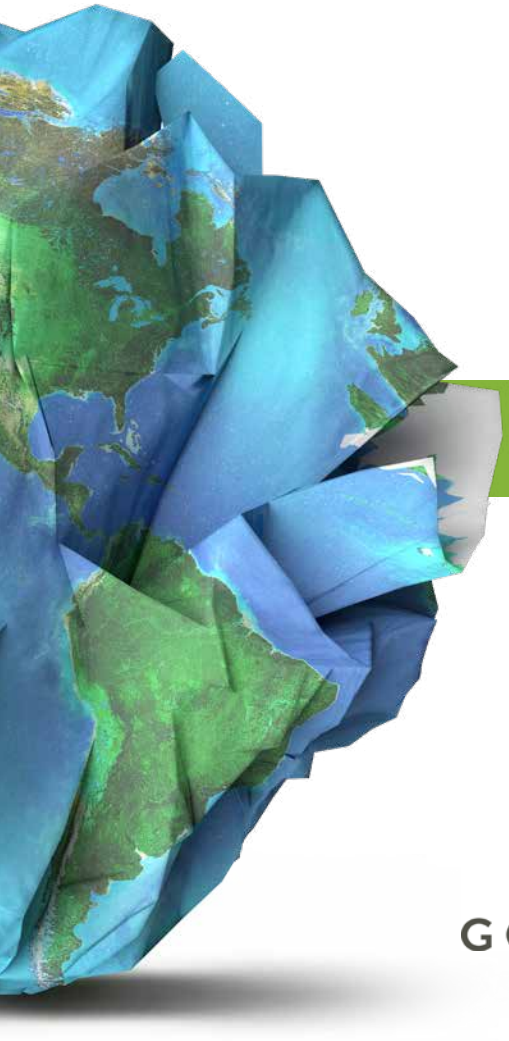

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To ensure a safe environment for all attendees at our in-person conference, plans will be in accordance with CDC and state COVID-19 guidance.

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