

# 28<sup>TH</sup> ANNUAL

# SOLID WASTE TECHNICAL CONFERENCE 2018



## CONFERENCE DAY: WEDNESDAY, APRIL 11, 2018

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

## TRAINING DAY: THURSDAY, APRIL 12, 2018

Michigan CAT  
7650 Millett Hwy., 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 28 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.

A post-conference training session, designed to provide practical guidance on industry issues will take place on Thursday, April 12th at Michigan CAT.



All conference day and/or training 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 \$115 (plus applicable taxes) per night for Standard Double, Queen or King. To make a reservation please call 517-432-4000 or 800-875-5090 and provide the code 1804ENGSOE to receive the discounted rate. The group reservation rate is based upon availability.

**Interested in Sponsoring or Exhibiting?** Sponsorship & exhibit opportunities are available. For information, visit [www.esd.org](http://www.esd.org) or contact Leslie A. Smith, CMP @ [lsmith@esd.org](mailto:lsmith@esd.org) or 248-353-0735, ext. 152.

### Conference and Training Day Cost

(Lunch and breaks are included in the event pricing.)

#### Conference Day:

- \$180** Full Day ESD/MWRA/SWANA Member
- \$100** Full Day Government/MDEQ
- \$220** Full Day Non-Member
- \$75** Full Day Student Rate
- \$239** Join ESD at 50% discount and attend the conference

#### Training Day:

- \$230** Member
- \$305** Non-Member
- \$100** Government/MDEQ

**To Register:** Visit [www.esd.org](http://www.esd.org) to register online or call 248-353-0735.  
**Cancellation Policy:** All cancellations must be received by Friday, April 6, 2018 in order to receive a refund.

## CONFERENCE DAY

Wednesday, April 11, 2018

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, Central Region Vice President, Cornerstone Environmental-A Tetra Tech Company**

8:35 am - 9:20 am

**Trends in the Solid Waste Industry**

An overview of major trends affecting the solid waste industry with a focus on safety in particular. Additionally, this presentation will include updates on the effects of Chinese waste restrictions, tax law changes, regulation, and other timely topics important to industry professionals told from both an international, national, and state-level perspective.

**Speaker: Jesse L Maxwell, Advocacy & eLearning Program Manager, Solid Waste Association of North America (SWANA)**

9:20 am - 10:00 am

**Part 115 Update - MDEQ**

Landmark legislation is under development to refocus how Michigan manages waste materials. Highlights include a new county solid waste planning process, permitting and oversight of materials utilization facilities, adjusting the postclosure care period, and changes to financial assurance. Steve will provide an overview of the legislation and its status. He will also touch on other emerging issues in the solid waste program.

**Speaker: Steve Sliver, Assistant Division Director, Waste Management and Radiological Protection Division, Michigan Department of Environmental Quality (MDEQ)**

10:00 am - 10:30 am

**Networking Break and Visit with Exhibitors**

10:30 am - 11:15 am

**Elevated Temperature Landfills**

Elevated temperature landfills (ETLFs) are municipal solid waste landfills generating higher temperatures (greater than 130 to 150 F°) than typically observed. Key reasons for why a handful of MSW landfills are showing elevated temperatures is currently being evaluated in lab to field-scale studies. This talk will focus on field data from selective landfills and results of 3D numerical modeling

carried out using a commercial geothermal model. The model results provide good conceptual understanding of overall heat generation within MSW, key mechanisms for heat transfer and overall heat balance of the landfill.

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

11:15 am - 11:25 am

**Introduction to PFAS**

**Speaker: Jeffrey L. Woolstrum, Partner, Honigman Miller Schwartz and Cohn LLP**

11:25 am - 12:15 pm

**Emerging Contaminant Issues, Like PFAS at Active and Closed Landfills, What to Expect and How to Manage**

Emerging contaminants, like PFAS compounds, have been used in numerous commercial and industrial products like clothing, food packaging, rugs, fire-fighting foams, and numerous industrial applications. The EPA and several state PFAS guidance documents identify landfills as typical sources of PFAS compounds, along with facilities like DOD fire training areas. Many legacy, unlined landfills, have gone through groundwater investigations and remedies, but few if any have considered PFAS constituents. These constituents pose a risk for re-opening these sites. Operating RCRA designed landfills are not immune to these emerging contaminants. For example, there is disagreement among waste water treatment plant operators whether PFAS influents may have an adverse impact on use and safety of their biosolids. We will describe what PFAS are, history of use, life cycle in landfills, and what to expect and how to manage risks associated with PFAS constituents at your active and closed landfills.

**Speakers: Kenneth J. Quinn, Technical Director - Hydrogeologist, TRC Environmental Corp. and Nikki Roy, NE/NY Group Leader and Senior Geologist, Golder Associates**

12:15 pm - 1:45 pm

**Luncheon with Presentations**

**MWRA Welcome**

Issues, challenges and opportunities impacting the solid waste industry.

**Speaker: Kevin Kendall, Sales Manager, Republic Services**

**Keynote Presentation:**

**Demographic and Labor Trends in the State**

**Speaker: Evan Linskey, Economic Analyst, Bureau of Marketing Information & Strategic Initiatives**

1:45 pm - 2:00 pm

**Transition to Breakout Sessions**

2:00 pm - 2:30 pm - Breakout Sessions

## TRACK A

**Use of Technology to Identify and Mitigate Subsurface Oxidation Events at an MSW Landfill**

Through the use of drone-based aerial reconnaissance thermal imaging and ground based follow-ups, an area of surface oxidation was identified. By the creative use of liquid carbon dioxide the area of concern was mitigated for the MSW Landfill.

**Speaker: Lee Daigle, Senior Project Manager, Cornerstone Environmental - A Tetra Tech Company**

## TRACK B

**Solar Development on Landfills**

Michigan Energy Options (MEO), a clean energy nonprofit, has spearheaded the development of a

community solar park on a former capped landfill. MEO has also created a "solar on brownfields" online tool that identifies potential development sites. Prioritizing such marginal lands can provide economic multipliers for property owners and communities, such as adaptive reuse, land lease and property tax revenues. However, challenges exist within communities for developers to turn such sites into clean, renewable energy generation. MEO's lessons learned can help landfill owners who are interested in this win-win reuse option.

**Speaker: John A. Kinch, PhD, Executive Director, Michigan Energy Options**

2:30 pm - 3:00 pm - Breakout Sessions

## TRACK A

**Organics Management in Ontario, Canada - The Impacts of a Potential Landfill Ban**

The Proposed Food and Organic Waste Framework was released in the Province of Ontario in November 2017. The Framework proposes to ban food and organics waste from ending up in disposal sites. The proposed framework will be discussed as well as the actions that are currently being taken by a number of municipalities to explore how to confirm to the proposed regulatory changes.

**Speaker: Michael Cant, Principal, GHD Ltd.**

## TRACK B

**Revenue Stream from Solar Photovoltaic Systems and Landfill Sites**

Landfill sites, both active and closed, provide vast land areas that cannot be utilized for any other purpose besides landfill operations. We seek to create a revenue stream by means of electricity generation from solar photovoltaic systems installed on suitable areas at landfill sites.

**Speaker: Sachit Verma, Program Manager-Energy, NOVA Consultants, Inc.**

3:00 pm - 3:15 pm

**Networking Break and Visit with Exhibitors**

3:15 pm - 3:45 pm - Breakout Sessions

## TRACK A

**Recent Advances on Municipal Solid Waste Properties, Degradation and Implications in Design**

For a long time, landfill engineering practice on issues related to the properties of solid waste and the implications on stability of landfills, has evolved using generic recommendations on material properties and prescriptive standards that generally "worked". However, a number of factors highlight that such assumptions may no longer be adequate. Such factors include the growth of waste streams that were not previously diverted for disposal in landfills, the growing need for landfill expansion towards taller, bigger landfills, and the increased efforts towards energy recovery from landfills. In this presentation, recent advances related to the mechanical properties of solid waste, and their evolution as a function of increased degradation and gas generation will be presented with a focus on the implications on the landfill design and stability.

**Speaker: Dimitrios Zekkos, Associate Professor, University of Michigan, Department of Civil and Environmental Engineering**

## TRACK B

**MSW Landfill Air Rule Update: NSPS XXX**

This presentation provides an overview of the New Source Performance Standard (NSPS) Subpart XXX and associated Emission Guidelines (EG) Subpart Cf.

The presentation will include a discussion of past vs. present rules, when they apply, and will focus on portions of the rule that are sometimes overlooked.

**Speaker: Ryan Birkenholz, Senior Consultant, Golder**

**3:45 pm – 4:15 pm - Breakout Sessions**

#### TRACK A

##### **Prescriptive Alternative Covers**

Alternative final covers (AFCs) have been permitted on a case by case basis in many states since late 1990s. Permitting AFCs in sub-humid and humid regions usually requires comprehensive soil testing and water balance modeling. Regulators in Texas and Colorado have developed guidance documents with “prescriptive” designs primarily to efficiently and consistently manage review of AFC permit applications. In this presentation, the speaker will discuss the technical approach used to develop such prescriptive designs in Texas and how such approach can be used for MSW and CCR landfills in other states.

**Speaker: Dr. Miles V. Khire, Professor of Civil & Environmental Engineering, University of North Carolina at Charlotte**

#### TRACK B

##### **Geotechnical Aspects of Engineered Turf Cover System**

Recent years have seen increased use of the engineered turf cover system for closure of municipal solid waste landfills, coal combustion residual impoundments, and other waste disposal facilities. This presentation will include an introduction of the system and the geotechnical aspects. A comparison of final cover veneer slope stability between the engineered turf cover and the soil cover will be presented, followed by a case study where the engineered turf cover system was installed at an industrial sludge impoundment to accommodate large differential settlement. The longevity of the system has been evaluated through outdoor UV exposure testing. The results of predicted design life will be presented. The wind tunnel test results will be discussed too, which demonstrate the wind uplift resistance of the system. This presentation will help site owners, regulators, and engineers better understand this relatively new final cover technology.

**Speaker: Ming Zhu, Director of Engineering, Watershed Geosynthetics**

**4:15 pm**

**Conference Adjourns**

**4:15 pm – 5:45 pm**

**Exhibitor Reception and Networking**

## POST-CONFERENCE TRAINING DAY

Thursday, April 12, 2018

Location: Michigan CAT

7650 Millett Hwy, Lansing, MI 48917

**Michigan CAT**



**8:00 am – 8:30 am**

**Registration and Continental Breakfast**

**8:30 am – 8:35 am**

**Welcome**

**Speaker: Christina Pearse, Environmental Manager, Republic Services**

**8:35 am – 9:15 am**

##### **Sensors in Landfills - Do's and Don'ts**

Sensors have been increasingly used to monitor the temperature, water content and pore pressure in landfills. The data collected is used to make long-term as well as real-time decisions on operation of the landfill. This presentation will focus on do's and don'ts associated with proper selection of the sensors and calibration and installation of the sensors

**Speaker: Dr. Miles V. Khire, Professor of Civil & Environmental Engineering, University of North Carolina at Charlotte**

**9:15 am – 9:55 am**

##### **Applications of Unmanned Aerial Systems in Landfills**

Unmanned Aerial Systems (UASs), or drones, are having a dramatic effect on the way we are used to doing many things in life. In this presentation specific examples of application of UASs to address important landfill engineering issues will be presented. Specifically, UASs are expected to provide a rapid and inexpensive way to collect landfill performance data, including assessing construction process, calculating areas, volumes related to waste operations, derive landfill geometries for use in stability or other purposes, and even, possibly, measure methane emissions. Ongoing research work and examples associated with such applications will be presented and specific guidance for the implementation of UASs in landfill practice will be provided.

**Speaker: Dimitrios Zekkos, Associate Professor, University of Michigan, Department of Civil and Environmental Engineering**

**9:55 am – 10:35 am**

##### **Drone Mapping in Landfills: What We've Learned So Far**

We will discuss the use of Unmanned Aerial Systems (UASs) or drones in solid waste landfills. We will look at an overview of the systems, various types of hardware and their uses, deliverables that can be expected, and the best practices for their use.

**Speaker: Kory Allred, Ph.D., PLS, Professional Land Surveyor, Weaver Consultants Group**

**10:35 am – 10:55 am**

**Networking Break**

**10:55 am – 11:35 am**

##### **Rapid, Direct Seepage Measurement in Environmental Containment Structures**

New, advanced technology allows direct seepage or specific discharge measurements from environmental containment structures overnight. The presentation will include discussion of seepage theory, measurement variables, test preparation, and demonstration of the DeltaProbe™ Seepage Meter System for various environmental and engineering applications.

**Speakers: Michael A. Olson, P.E., President, Abletech Industries, LLC and Richard L. Burns, Sr. VP, NTH Consultants, Ltd.**

**11:35 am – 12:15 pm**

##### **Geosynthetic Clay Liners**

Since the late 1980s, Geosynthetic Clay Liners (GCLs)

have been specified and used by design engineers, agencies, and owners as an alternative to soil barriers in various applications. They are very effective as a hydraulic barrier even under high gradient conditions; they are easy to install; show a high robustness against installation stresses and they can withstand elongation as well as settlement stresses without significant impact on their hydraulic performance. Numerous laboratory studies have shown the excellent performance capable with natural Wyoming based sodium bentonite Geosynthetic Clay Liners. In more recent years, field conditions have been replicated in large-scale simulations to study complex environmental effects such as wet/dry and freeze/thaw cycles as well as ionic exchange. The aim of this presentation is to provide updated information that GCLs have evolved over the years. Not all GCLs are made alike, and engineers must update their project specification GCL requirements to avoid using inferior GCLs on their project sites. Manufacturing of GCLs will be presented as well as various projects and university case study research on GCLs.

**Speaker: Bruno Herlin, P. Eng, Project Manager, TerraFix**

**12:15 pm – 1:15 pm**

**Luncheon**

**1:15 pm – 4:15 pm**

Join us for demonstrations and hands-on activities on the grounds of the innovative campus of Michigan CAT. Attendees will get a firsthand look at some of the industry's latest equipment.

Demonstrations include:

- Geoprobe Technology - Mannik & Smith
- Drone Survey Technology - Weaver Consultants
- Landfill Heavy Equipment - Michigan CAT
- GPS Equipment - Michigan CAT

**4:15 pm**

**Adjournment**

**NOTE: Attendees will need to bring a high-vis vest and safety glasses to training day.**

## Thanks to the Solid Waste Conference Planning Committee:

**Adam Larky, PE (Chair),** Cornerstone Environmental-  
A Tetra Tech Company

**Richard Burns,** NTH Consultants

**Graham Crockford,** TRC Solutions

**Douglas M. Gatrell, PE,** GHD

**Debora Johnston,** Waste Management

**Milind Khire,** The University of North Carolina,  
Charlotte

**Art Mohr,** Environmental Specialties International

**Justin Obermeyer,** Weaver Consultants

**Christina Pearse,** Republic Services, Inc.

**Dawn Prell,** Golder Associates Inc.

**Margie Ring,** Waste Management and Radiological  
Protection Division

**Ibraheem Shunnar,** Mannik & Smith

**Dimitris Zekkos,** University of Michigan

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20700 Civic Center, Ste 450  
Southfield, MI 48076

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TRAINING DAY: Thursday, April 12, 2018 | Michigan CAT • Lansing, MI



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## EVENT



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