



WEDNESDAY, MARCH 27, 2019

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 29 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.

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 1903ESDSOL 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 or contact Leslie A. Smith, CMP at lsmith@esd.org or 248-353-0735, ext. 152.

Full-Day Conference Cost:
(Lunch and breaks are included in the event pricing.)

- \$230 = Non-Member
- \$190 = ESD/MWRA Member
- \$100 = Government/MDEQ
- \$239 = Join ESD at 50% discount and attend the conference
- \$75 = Student Rate (Limited student sponsorships are available. Please contact Leslie Smith at lsmith@esd.org for information.)



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

To Register: Visit www.esd.org to register online or call 248-353-0735.
Cancellation Policy: All cancellations must be received by Friday, March 22, 2019 in order to receive a refund.

Wednesday, March 27, 2019

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**Michigan Taking Action on PFAS**

Michigan is a national leader in the effort to address per- and polyfluoroalkyl substances (PFAS) contamination. Its unique, multi-agency approach is led by the Michigan PFAS Action Response Team (MPART). This presentation will cover what has been learned so far from MPART's comprehensive and systematic investigation and evaluation of PFAS contamination, and the current efforts and challenges that remain.

Speaker: Steve Sliver, PFAS Executive Lead, Michigan Department of Environmental Quality (MDEQ)

9:20 am - 10:00 am**Opportunities and Risks in Managing Marijuana Waste**

There are a host of issues with the legalization of marijuana: safety, penalties for possession by minors, and the risks involved in crossing borders. Yet it's no secret the cannabis market generates a lot of waste. This waste has the potential to create many unintended consequences, as well as future business opportunities, as legalization spreads across North America.

Speaker: Rich Thompson, Managing Partner, TEC, LLC

10:00 am - 10:30 am**Networking Break and Visit with Exhibitors****10:30 am - 11:10 am****Landfill Gas Utilization Industry Update**

Opportunities to develop new and challenges in the operation of existing landfill gas beneficial use projects are ever present in the landfill to energy industry. This presentation will include development trends, new technologies and current state of the industry in the US and Michigan.

Speaker: Richard M. DiGia, President & CEO, Aria Energy

11:10 am - 11:50 am**The Mosquito in the Room - Dealing with Nanogram Discharge Limits for Leachate**

For decades, leachate has been the elephant in the room for many landfills. Everyone knows it is there, but no one wants to talk about it. As a big expensive problem, most landfills figured out a way to handle the elephant. The well known compounds in leachate like heavy metals and organics are treated using well known, time proven technologies, or waved away as someone else's problem by sewer discharge or hauling. But in 2019, we are in the age of nanograms per liter (parts per trillion) detection limits. It only takes a single mosquito to transfer bubonic plague or West Nile virus. Similarly, it only takes a tiny amount of fluorinated compounds (PFAS) to contaminate leachate. Regulation of PFAS is coming, either in the form of Federal Regulation, or more likely State or even local control. Leachate concentrations have been measured hundreds of times higher than expected drinking water limits. And these compounds are not treated by most sewage treatment plants. This presentation will talk about some treatment options for PFAS compounds.

Speaker: Patrick Stanford, General Manager, Rochem Americas, Inc.

11:50 am - 12:50 pm**Luncheon****12:50 am - 1:00 pm****Transition to Breakout Sessions****1:00 pm - 1:30 pm****TRACK A****Back to Basics—Landfill Liners and Cover Systems**

Geosynthetic liner and cover systems have been mainstays in landfill engineering since the introduction of Subtitle D regulations in the early 1990s. This presentation will get "back-to-basics" touching on important design and operational elements related to various liner systems, from historical geosynthetic systems to more advanced technologies available today.

Speaker: David R. Lutz, P.E., NTH Consultants, Ltd.

TRACK B**Challenges with Designing Over a Closed Landfill**

Commercial development over a solid waste landfill presents numerous challenges to site owners, developers, and consultants. It also offers the opportunity to convert a property that is seen as a nuisance by the community into one that is seen as a benefit and to convert a property that is in a long-term O&M phase into a revenue generator. There are several steps in the process of developing a commercial space over a landfill that occur before design is considered. Those steps primarily provide an answer to whether the benefit (financial, environmental, social, etc.) outweighs the cost of the development. Design begins if development is determined to be beneficial and based on the schedule of the project, design may continue into the construction phase of the project. Our example project design commenced in late 2017 and continues to this day. The design includes a landfill gas collection system and landfill cap over a 42-acre site, and a building protection system for a 21-acre structure. The design accommodates for ongoing settlement of the waste and provides for the installation of a continuous geosynthetic liner that allows for the installation of over 1,700 driven concrete piles and pile caps, numerous grade beams, elevator pits, escalator pits, tree pits, sumps, loading docks, and miles of utility trenches.

Speakers: Todd Martin, Principal Project Manager, TRC and Martin Bowen, Senior Engineer, TRC

1:40 pm - 2:10 pm**TRACK A****Back to Basics - Landfill Gas Management**

Per NSPS regulations landfills are required to collect landfill gas (LFG) from each area where the initial solid waste has been placed for a period of 5 or more years, if the area continues to receive new waste, or 2 years or more if the area ceased to accept new waste or is at final elevation. To collect the generated gas, landfills must install and periodically upgrade the gas collection and control system (GCCS). Typical gas collection and control system consist of LFG extraction vertical wells and/or horizontal collectors, a network of header and lateral pipes that transport the gas to a flare or beneficial use facility, and a condensate management components that remove liquids from the functioning GCCS.

Speaker: Jakub Sowa, Project Manager, Cornerstone Environmental Group - Tetra Tech Company

TRACK B

SEM Monitoring Using Drones

The Municipal Solid Waste (MSW) industry offers a wealth of yet untapped potential for unmanned aerial vehicles (UAVs) and related systems. One such application that is prime for an advancement is the industry's method for surface emissions monitoring, which falls within the compliance monitoring requirements of the EPA's New Source Performance Standards and Method 21. This presentation will discuss current efforts to automate surface emission monitoring, using a drone, within the regulatory framework; it will include details of the potential benefits, required technologies and initial results.

Speaker: David Barron, CTO, Sniffer Robotics

2:10 pm – 2:40 pm

Networking Break and Visit with Exhibitors

2:40 pm – 3:10 pm

TRACK A

Back to Basics - Leachate Management

Leachate can have a significant impact on a landfill's budget, as well as the surrounding environment if not properly managed. This discussion gets back to the basics of modern leachate management, giving an overview of landfill leachate from development/generation, through collection and treatment/disposal, to monitoring and general compliance considerations. This presentation should assist facilities with understanding the fundamentals such that they can implement better overall management practices.

Speaker: Stephanie Stolz, Senior Solid Waste Engineer, GHD

TRACK B

PFAS Remediation at MSU-Fraunhofer: Electrochemical Destruction in Wastewater and Landfill Leachates Using Boron-Doped Diamond Electrodes

Boron-doped diamond (BDD) electrodes have shown promise over the last decade for contaminant degradation with a number of studies showing its ability to degrade PFASs. The BDD material provides a combination of rigidity, high oxygen over-potential, and overall electrode lifetime, which makes it an attractive option for an electrochemical treatment system. This presentation will cover the basic and applied research findings of using electrochemical oxidation (EO) with BDD electrodes to destroy PFAS in wastewater and other complex samples such as landfill leachates. Various complimentary treatment technologies for PFAS remediation will also be addressed.

Speaker: Mary Ensch, Graduate Research Assistant, Michigan State University

3:20 pm – 3:50 pm

TRACK A

Back to Basics—Environmental Compliance Monitoring

An overview of the compliance monitoring requirements for a solid waste facility. Topics will include: groundwater sampling, perimeter landfill gas monitoring, gas monitoring of facility structures, surface water monitoring, and leachate collection system sampling.

Speaker: Carolyn E. Powrozek, C.P.G., Senior Project Geologist, Golder Associates Inc.

TRACK B

Construction Quality Assurance (CQA)

A Construction Quality Assurance (CQA) Program is intended to ensure landfill cells are constructed in compliance with the approved design and specification, and are protective of the environment. A well thought out and designed CQA Plan is critical to a successful CQA Program. This session will look at the differences between an average CQA Plan and a great CQA Plan, as well as how those differences affect landfill construction. The second critical piece of a CQA Program is the construction inspection and documentation portion. We will discuss the importance of experience, prioritization, and oversight in construction inspection and how they affect landfill cell construction and operation. The final piece of the CQA Program is the Construction Certification. This last piece is a certification statement, signed and sealed by a registered engineer, that the landfill was constructed in accordance with the CQA Plan, the Part 115 rules, and the approved engineering plans. Submitted with the certification is a copy of the construction records documenting the reports, inspections, observations, measurements, repairs, and tests completed during construction. We will discuss the importance of the construction certification and how it impacts the current CQA process.

Speaker: Gary Schwerin, Senior Environmental Engineer, Michigan Department of Environmental Quality

4:00 pm – 4:30 pm

TRACK A

Back to Basics—Landfill Operations Management

In this session, we will cover several aspects of managing a landfill. Specifically, we will discuss Leachate Management, Gas Management, Environmental Monitoring, Liner and Cover Systems, and other site management topics.

Speaker: Michael O'Rourke, Disposal Operations Management Trainee, Waste Management, Inc.

TRACK B

Hydrogen Sulfide Removal from Landfill Gas

The removal of hydrogen sulfide from landfill gas has become an increasingly large part of the landfill gas industry for both environmental compliance as well as beneficial-use purposes. We'll explore the reasons why we have hydrogen sulfide in the landfill gas stream, why the levels of hydrogen sulfide have increased from historical levels and what methods are available to effectively remove this contaminant from the landfill gas stream.

Speaker: Thomas A. Bilgri, P.E., Manager – Biogas Engineering Services Cornerstone Environmental Group, LLC - A Tetra Tech Company

4:30 pm

Conference Adjourns

4:30 pm – 6:00 pm

Exhibitor Reception and Networking

Thank you to the Solid Waste Conference Planning Committee:

Adam Larky, PE (Chair), EDL

Richard Burns, NTH Consultants

Graham Crockford, TRC

Douglas M. Gatrell, PE, GHD

Nicole Green, Republic Services, Inc.

Debora Johnston, Waste Management

Milind Khire, The University of North Carolina, Charlotte

Art Mohr, Environmental Specialties International

Christina Pearse, Republic Services, Inc.

Dawn Prell, Golder Associates Inc.

Margie Ring, Michigan Department of Environmental Quality

Ibraheem Shunnar, Mannik & Smith

Dimitris Zekkos, University of Michigan

29TH ANNUAL

SOLID WASTE TECHNICAL CONFERENCE 2019



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