

NOW ENTERING  
**THE  
TWILIGHT  
ZONE**  
OF WASTE CONTROL



Where  
to  
next?

MWCC Environmental Conference  
July 11- 13, 2021

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## CONFERENCE SCHEDULE

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### SUNDAY, JULY 11

10:00 AM      **GOLF TOURNAMENT**      **The Oaks Golf Course**  
Shotgun Start

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2:00 PM      Exhibit Set Up Opens      **Paradise Ballrooms A, B**  
4:00 PM      Registration Opens      **Foyer, Paradise Ballrooms**

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6:00 PM      **WELCOME RECEPTION**      **Paradise Ballrooms A, B**  
*SPONSORED BY*  
*ST. LOUIS COUNTY PUBLIC HEALTH AND*  
*JETT ENVIRONMENTAL CONSULTING*

8:00 PM      **Young Professionals Social Event**      **Windgate 60 - 61**  
(New to the industry - less than 5 years)  
*SPONSORED BY MWCC BOARD OF DIRECTORS*

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### MONDAY, JULY 12

7:30 AM      Registration and Exhibits Open      **Paradise Ballrooms A, B**  
Coffee and "Meet and Greet"

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8:30 AM      **BREAKFAST AND PLENARY SESSION**      **Paradise Ballroom C**  
*SPONSORED BY*  
*MoDNR BROWNFIELDS/VOLUNTARY CLEANUP PROGRAM*  
*AND REPUBLIC SERVICES*

**CORY DAVIS**  
Chief Executive Officer, CTEH, LLC and Executive Vice President,  
Montrose Environmental Group, Inc.

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10:00 AM      Break with Exhibits      **Paradise Ballrooms A, B**  
*SPONSORED BY*  
*PACE ANALYTICAL SERVICES AND*  
*BURNS & MCDONNELL*

**The Solid Waste Track program has been developed  
in partnership with SWANA Missouri**



**SOLID WASTE TRACK**



**Nautical Wheeler Room**

*Moderator: Mike Parris, MoDNR Waste Management Program*

**• Demolition Waste Program**

*Kathrina Donegan, St. Louis County Department of Public Health*

Green Issues: St. Louis County's demolition waste program and new demo inspections initiative, studies on dust fall and lead from demolition activities, and how improvements in environmental justice and health equity are being realized by performing demo waste application inspections.

**• Using the Landfill as a Learning Lab - Engaging the Community in Talking Trash!**

*Laurie Davis, City of Springfield Department of Environmental Services*

A landfill is perfect for engaging all ages of the community with a wealth of knowledge related to operations, environmental impact and topics for future generations to consider in relation to solid waste. From career options, to science content, to building community awareness, this session will share strategies and ideas that staff in the Solid Waste division of City of Springfield's Dept. of Environmental Services are utilizing to make the landfill a learning lab!

**• The Renewable Natural Gas "Gold Rush"**

*Robert W. Craggs and Scott Martin, P.E., Burns & McDonnell*

This presentation will provide an overview of the quickly growing market for renewable natural gas, including the various end markets, various feedstock, financial incentives, and regulatory drivers. Several project examples (e.g. organics, manures) will be described along with key financial, technical, and environmental considerations. Lastly, the presenters will discuss the critical factors associated with a successful RNG project.

**ENVIRONMENTAL ISSUES TRACK**



**Parasol I**

*Moderator: Ken Ewers, R.G., GREDELL Engineering Resources, Inc.*

**• Meeting the Challenge of Aqueous PFAs Wastewater Management**

*Frank Marine, Texas Molecular*

If ever there was an environmental issue in the "Twilight Zone," it is the management of PFAS. To borrow from Rod Serling, PFAS is in "another dimension"... "You are moving into a land of both shadow and substance, of things and ideas. You've just crossed over into ....the Twilight Zone." PFAS is in the "middle ground..... between science and superstition". Shadows (uncertainties), ideas, substance, science, and superstition (perception) are all a part of the questions surrounding PFAS. In an effort to bring some direction, the EPA published Interim Guidelines for managing PFAS materials in December 2020. Although no standards were suggested, the guidelines provide a look at the current state of treatment options. We may not be leaving the PFAS "Twilight Zone" yet, but we are able to get a glimpse of how to manage PFAS when regulations become more clear.

- **In Situ and Ex Situ Thermal Remediation of PFAs**

*Mark Kluger, TRS Group*

Recent bench testing evaluated the effects of PFAS treatment by volatilization at elevated temperatures. The boiling point temperature of most PFAS substances is less than 300 degrees Celsius. The testing drove temperatures of the PFAS to levels where they exhibited elevated vapor pressures; however, removal efficiencies were disappointing. Subsequent testing at higher temperatures and extended duration allowed virtually complete removal from the soil by volatilization. A vapor collection system collected the volatilized PFAS for subsequent treatment, which could include condensing the PFAS and storing it on activated carbon for off-site disposal or treatment or thermally oxidizing the compounds for on-site destruction. The DOD has funded two pilot studies through its Environmental Security Technology Certification Program (ESTCP) for the removal of PFAS from soils: one for the removal of PFAS from the vadose zone and the other for soil stockpiles. This presentation will discuss the PFAS volatilization process, related challenges, and results.

**BROWNFIELDS TRACK**

**Windgate 62-64**

*Moderator: Scott Huckstep, MoDNR Brownfields/Voluntary Cleanup Section*

- **Brownfields 101 - A Beginners Guide to Brownfield Redevelopment**

*Scott Huckstep and Bobbie Pennington, MoDNR Brownfields/Voluntary Cleanup Section, and Maggie Egbart Belanger, KSU TAB*

This session will introduce the participant to the world of brownfield redevelopment. We will walk you through the terms, processes, partners, resources, and how to help your community members get involved in brownfield cleanup and redevelopment.

**TANKS TRACK**

**Parasol II**

*Moderator: Ken Koon, MoDNR Tanks Section*

- **UST Cleanups in MO - What Can We Do to Make the Process Faster?**

*Jason Smith, Environmental Works, Inc.*

It is one of the most common questions an environmental consultant faces when working for a new client – How long will this take? The answer can vary by many years. All too often, the optimistic consultant over-promises and leaves their client frustrated when, ten years later, they still do not have a No Further Action letter. So, why is it that some sites with large releases can be finished in just a few years while others, with what appears to be less risk, drag on for over a decade? This case study compares multiple scenarios where the time frame to NFA varied from just a few years to nearly two decades. Scenarios evaluated include: release discovery mechanism, the extent of impact caused by the release, complete exposure pathways associated with the sites, and methods used for characterizing the site. By evaluating what we have done right and wrong in the past, this session focuses on what we (as consultants) can do to tweak our methods to shorten the time to NFA while still ensuring the standards set in the risk-based corrective action guidance are met.

- **Stream Sampling - Expectations Regarding Stream and Sediment Samples for Tanks Sites**

*Ken Hannon and Porter Henze, Mo Department of Natural Resources*

Streams, ponds, and springs are among several surface water features that a consultant may encounter during site investigation. Under the Missouri Risk-Based Corrective Action (MRBCA) process for Petroleum Storage Tank Sites, potential impacts to streams and other surface water bodies from a release must be evaluated and surface water quality protected. This session will address when a stream or other surface water body needs to be sampled, best water and sediment sampling practices, and possible remediation techniques.

## MONDAY, JULY 12

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12:00 Noon **LUNCH AND AWARD PRESENTATIONS**

**Paradise Ballroom C**

Speaker: **RICH THOMPSON, TEC, LLC**

*SPONSORED BY  
SCS ENGINEERS AND  
ARMOR EQUIPMENT*

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**1:30 - 3:00 PM**

**CONCURRENT BREAKOUT SESSIONS**

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**SOLID WASTE TRACK**



**Nautical Wheeler Room**

*Moderator: Keith Connor, P.E., Terracon*

- **An Uncommon Approach to Landfill Emissions Control**

*Ben Tucker, Champ Landfill, and Doug Doerr, P.E., SCS Engineers*

Waste Connections and SCS Engineers would like to show how a little outside the box thinking, a drone, and a laser falcon could change the way landfills monitor fugitive emissions at landfills. Since 2016 Champ Landfill has continuously searched for alternate ways to manage odors and surface emissions, and although progress was made, we have recently found a technology that opens up possibilities we didn't know existed. In 2021, Champ Landfill and SCS Engineers teamed up to explore a technology that allows methane detection from 30 meters above the earth's surface. Initial results have been unexpected and have provided an enhanced view of the landfill surface to reduce odors and site emissions.

- **More's Lake CCR Impoundment - Historic Lake Takes on New Life**

*Brian Weis, Burns & McDonnell*

More's Lake was originally constructed by the More family of Columbia, Missouri in the late 1800s for farm and recreational purposes. In the early 1900s, More's Lake become an ash pond for the Columbia Municipal Power Plant. By 2015, when the Federal Coal Combustion Residuals (CCR) Rule was promulgated and after 100 years of operation, the lake was filled with over 90,000 cubic yards of coal ash. The rule prompted the City of Columbia to begin the More's Lake CCR Impoundment Closure and Restoration Project. Join us to learn how this comprehensive project mitigated an environmental liability, beneficially utilized waste coal ash, and set the stage for the development of Power Plant Park. This project was honored with an ACEC Grand Award for engineering excellence in February 2021.

**ENVIRONMENTAL ISSUES TRACK**



**Parasol I**

*Moderator: Molly Starkey, R.G., Mo Department of Natural Resources*

- **High-Resolution Tools and 3D Visualization: Science Fiction, Silver Bullet or Something In-Between**

*James Depa, Terracon*

The introduction will provide a brief overview about the operation of several different high-resolution tools – including the Membrane Interface Probe (MIP), Laser-Induced Fluorescence (LIF) tools, and Hydraulic Profiling Tool (HPT) and will include methods of operation and the types of data generated. The presentation will focus on the 3D visualization of the resulting data and will highlight how specific visualization software can be used to statistically interpolate data and efficiently create highly-matured Conceptual Site Models (CSMs). The presentation will also explore how the models give confidence that subsurface contamination issues are fully delineated and understood in order to realize a successful investigation and/or redevelopment. The presentation will conclude with two case studies where high-resolution tools and 3D visualization technology were used successfully: a former gasoline service station in the Midwestern US, and an active state brownfield project at a former Manufactured Gas Plant (MGP) in Columbia, South Carolina.

• **Fault Migration Potential in Southwest Missouri: A GIS Approach**

*Bobbi Koepke, Environmental Works, Inc. and Kelly Frank, Missouri State University*

Southwest Missouri is a concentration of complex geology which can seem deceptively simple at first glance, given the generally horizontal formations. However, karst conditions, heterogeneity within units, and faulting has within recent years brought this area's complexities into the spotlight, as it relates to the potential for vertical migration of contaminants in groundwater through the Ozark Confining Unit. General consensus among experts in the regional geology of this area note that as long as the Northview Shale, as part of the Ozark Confining Unit, is not offset or punctured, it functions well as an aquitard between the two aquifers present in the area, which leads to the question of "how much offset is present around faults in the area". Recently, Missouri State University and Environmental Works, Inc. collaborated to create a GIS model which seeks to answer this question. The GIS model utilizes publicly available Missouri Geological Survey data to evaluate a) the thickness of the Northview shale formation across the study area, and b) the amount of vertical offset along either side of faults in the area, and then compare the two datasets. The layer can be used as a decision-making tool on a site-by-site basis to evaluate the potential for vertical migration via faults. This session will focus on the development of this tool, where stakeholders can find it for use, and give examples of implementation at sites in the area.

• **Geophysics - A Cost Effective and Non-intrusive View into the Subsurface**

*Eric Carlson, EI, and Patrick Lehrmann, PG, PGp(CA), RG(OR), Atlas Technical Consultants*

Both today and into the future, we are continually looking for ways to better image and characterize the subsurface conditions. A long standing, cost effective, and non-intrusive method to achieve this is geophysics. Whether it is locating buried pipes or obstacles, delineating limits of waste, locating faults, or characterizing groundwater conditions, geophysics can help us reduce the uncertainty and, in doing so, help us create safer working environments now and for years to come. Topics of discussion will include electromagnetics, seismics, ground penetrating radar (GPR), magnetics, electrical resistivity, and gravity and how these methods can provide the answers we are looking for. Numerous informative case studies will be presented.

**BROWNFIELDS TRACK**

**Windgate 62-64**

*Moderator: Scott Huckstep, MoDNR Brownfields/Voluntary Cleanup Program*

• **Brownfield Assessments and Available Resources**

*Brian McCurren, P.E., and Christine O'Keefe, MoDNR Brownfields/Voluntary Cleanup Program, and Maggie Egbart Belanger, KSU TAB*

Phase I and Phase II assessment – What does it mean and why would I want one? How much will it cost to remediate my brownfield site? How can I find money to clean up my brownfield site? These questions and more will be answered in this session.

**TANKS TRACK**

**Parasol II**

*Moderator: Ken Koon, MoDNR Tanks Section*

• **Domestic Use of Groundwater in Greene County**

*Brenna McDonald, R.G., Mo Department of Natural Resources*

The domestic use evaluation in Greene County is complicated. This presentation will discuss the needed geological evaluation and verification of domestic wells within the Greene County area to evaluate the domestic use pathway. This topic will focus on the changes to previous assumptions in the Greene County area based on current geological knowledge of the Ozark Aquifer.

# MONDAY, JULY 12

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3:00 PM Break with Exhibits **Paradise Ballrooms A, B**  
*SPONSORED BY*  
*GREDELL ENGINEERING RESOURCES, INC. AND*  
*ENVIRONMENTAL RESTORATION LLC*

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## 3:30 - 5:00 PM CONCURRENT BREAKOUT SESSIONS

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### **SOLID WASTE TRACK** **Nautical Wheeler Room**

*Moderator: Laura Drescher, P.E., Burns & McDonnell*

- **Control of Micromillimeter Dry Aerosol Compounds from Leachate Ponding**  
*Robert Ballantyne, Resource West, Inc.*

The speaker shares results from his three year study on droplet controls to prevent pollution plume in the form of dry aerosols.

- **Solid Waste Industry Perspective on Management and Treatment of PFAs**  
*Brian Hoye, Burns & McDonnell*

This presentation will review the current areas of per- and polyfluoroalkyl substances (PFAS) treatment research and development, provide a regulatory review and status update, and present general approaches to consider for managing compliance moving forward.

- **Proper Installation Considerations for Leachate**  
*Tim Hasslen, EPG Companies, Inc.*

The purpose of this presentation is to discuss proper installation considerations for leachate pumping systems. We cover best management practices for safe and efficient installations. We cover some overlooked components that can help you determine the health and efficiency of your pumps and controls. It covers the most often causes of early pump and control problems and provides preventative maintenance considerations to keep your systems safe, efficient and extends the life of your investment.



**ENVIRONMENTAL ISSUES TRACK**

**Parasol I**

*Moderator: Jeremiah Jackson, R.G., Missouri Geological Survey*

- **Evaluation and Remediation of a Large Commingled Dilute VOC Plume in Western Ohio - A Case Study**

*Craig Cox, Cox-Colvin & Associates, Inc.*

In 1998, the detection of chlorinated volatile organic compounds (CVOCs) in a public well field led Ohio EPA to begin a search for potential sources. By 2002, as many as four different consultants, representing local industries, had identified a commingled plume extending a distance of four miles. The highly permeable, well oxygenated, federally-designated sole source aquifer has a hydraulic conductivity on the order of 1200 feet/day and a horizontal flow velocity estimated at 10 feet/day. By chance, most of the industries lay along a common groundwater flow path and had tended to use similar CVOCs. This situation complicated the issue of source identification and potential responsibility. The objective soon became source area identification and dissection of the commingled plume to assign ownership. Following plume delineation, the sources of CVOCs were addressed through a variety of source area remedial actions (some of which are still proceeding). A GAC Treatment system was added to the public water system and affected domestic well owners were provided permanent connections to public water. The current objective is to monitor the return of groundwater quality to drinking water standards throughout the length of the plume.

- **Successful Closure of a DNAPL Site - lessons Learned**

*Craig Cox, Cox-Colvin & Associates, Inc.*

In 1985, a catastrophic release of 500 gallons of TCE occurred within a process room at an industrial site in central Ohio. Initial remedial efforts conducted by an environmental consulting firm were able to reduce a small portion of the contaminant mass located in the immediate vicinity of the building. However, it was suspected that the majority of the mass remained trapped beneath the building slab and foundation. The site was assessed and a long-term groundwater monitoring program ensued under a consent order. A proposed remedy for the site would have required demolition of the facility, which was unacceptable to the site owner. At the end of the proposed groundwater monitoring period, site remediation would be required. The site owner's objective was to successfully obtain RCRA close without the need to demolish the site and abandon its operations.

- **Innovative and Proven Method to Accurately Access Location and VI Potential to Better Define Your CSM Model**

*Laurie Chilcote and Craig Cox, Cox-Colvin & Associates, Inc.*

The ability to accurately assess the location, and vapor intrusion (VI) potential of VOC sources beneath buildings is vital in developing an effective conceptual site model (CSM). An innovative and proven method has significantly streamlined and improved the assessment process. Through these new advances, the professional can complete a thorough and accurate assessment of sub-slab vapor conditions in less time and at a lower cost. Information generated by an accurate assessment can then be leveraged using GIS to increase the understanding of a VOC source's age and the potential release mechanism and better define your CSM.



# MONDAY, JULY 12

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3:30 - 5:00 PM      **CONCURRENT BREAKOUT SESSIONS (continued)**

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## **BROWNFIELDS TRACK**

**Windgate 62-64**

*Moderator: Scott Huckstep, MoDNR Brownfields/Voluntary Cleanup Program*

- **BVCP Technical Panel -  
Ask the Brownfields/Voluntary Cleanup Program Project Managers**

*Wes March, Chris Cady, Ph.D., Bobbie Pennington, and Christine O'Keefe,  
MoDNR Brownfields/Voluntary Cleanup Program*

This session brings together a technical panel of the Missouri DNR Brownfields/Voluntary Cleanup Program's project managers. It will be your opportunity to ask questions about the various activities in the Brownfield Assessment Program, the Voluntary Cleanup Program, and more.

## **TANKS TRACK**

**Parasol II**

*Moderator: Ken Koon, MoDNR Tanks Section*

- **LCSM Process and Data Interpretation**

*Steve Lang, P.E., MoDNR Tanks Section*

The LNAPL Conceptual Site Model is the process used by the Department to determine when free product at a UST site has been recovered to the extent practicable. This session will cover the regulatory requirements, how to ingrate site-specific data into the standard models and common misinterpretations, identification of data gaps, and quantitative model verification.

- **Tank Issues - Helpful Information on Various Topics Related to Tanks**

*Laura Luther, MoDNR Tanks Section*

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**5:00 PM      RECEPTION**

**Paradise Ballrooms A, B**

Food, drink and games for the entire family.

*SPONSORED BY GFL AND  
GLOBAL CONTAINMENT SOLUTIONS*

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**Please turn in your  
BALLOTS and  
COMMITTEE PREFERENCES  
before lunch on Tuesday**

TUESDAY, JULY 13

7:30 AM      Registration and Exhibits Open      **Paradise Ballrooms A, B**  
 Breakfast and "Meet and Greet"      **Paradise Ballrooms A, B**  
*SPONSORED BY*  
*GEOSYNTEC AND WSP USA*

7:30 AM      SWANA Meeting (look for the reserved tables)      **Paradise Ballrooms A, B**

**8:30 - 10:00 AM      CONCURRENT BREAKOUT SESSIONS**

**SOLID WASTE TRACK**



**Nautical Wheeler Room**

*Moderator: Larry Lehman, MoDNR Land Reclamation Program*

- **Bringing GIS Technology to the Solid Waste World**  
*Keith Connor, P.E., and Justin Reynolds, P.E., Terracon*

GIS platforms have been advanced to manage and access proprietary and publicly available data. Our projects have long been registered and tied together through a GIS platform. In recent years the firm has begun to access this internal platform which stores project geotechnical and environmental data for the benefit of our clients through our Stage 1 Reports. This session will begin with a demonstration of this GIS platform and associated Stage 1 Reports.

- **Who, What, When, Where, Why - Solving the Mystery of Changing Air Regulations**  
*Julie Hall, Weaver Consultants Group*

Over the past 10 years the EPA has reached out to the solid waste industry and other interested parties in preparation for several rounds of revisions to the New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPs). As rules were finalized in the 1990s, landfills have been complying with these regulations for over 20 years. In August 2016, the NSPS Subpart XXX regulations and the EG Subpart Cf were finalized. In March 2020, the NESHAP Subpart AAAA regulations were revised. In May 2021, the Federal Plan implementing the EG Subpart Cf was issued and will become effective. As the waves of new regulations began rolling out, landfills are left scrambling to not only understand how the new and revised regulations would impact site operations, but also just to understand what rules apply and what actions would be needed. This presentation will examine several case-studies of actual landfills across the country and how they navigated the evolving regulatory network.

- **Leak Location Survey Services**  
*Shawn Struckhoff, Weaver Consultants Group*

Leak location surveying is a means used for locating potential leak paths in installed geomembrane through the use of electrical methods. This presentation will discuss various methods in which surveying may be performed, useful application areas, and how leaks are located in geomembrane systems.

## ENVIRONMENTAL ISSUES TRACK

Parasol I

Moderator: Gil Kauffmann, Heritage Environmental

- **Funnel and Gate as a Groundwater Protection Element for a CAMU**

Emily P. Forthaus, P.E., Golder Associates, a member of WSP

At a former battery recycling plant, lead, cadmium and other metals contamination in on-site soils and groundwater and in on-site and off-site sediment in the adjacent creek are being addressed in order to facilitate Site closure. Golder designed (and is permitting) a Corrective Action Management Unit (CAMU) to consolidate and cap soils and sediment atop of the existing concrete foundation of the former plant. In order to meet the CAMU design standards for placement of waste in an unlined unit, a groundwater protection element was incorporated into the design. Golder opted for a funnel and gate system that would be protective of the creek, allow the annual groundwater flux to flow beneath the unit, and prevent the saturation of the excavated soils and sediments placed in the CAMU. Golder performed hydraulic conductivity and aquifer testing, groundwater modeling, and column tests simulating various mixtures of zero-valent iron (ZVI) with the Site water. The design was modified by adding a "reactor sump" in an area of buried stream channels where the highest hydraulic conductivities were reported. The anticipated groundwater mounding in the area will allow for gravity driven flow from the sump to the reactive gate some 500 feet away. The reactor sump doubles as a pretreatment system as the sump is proposed to contain a similar makeup (ZVI/sand) as the gate. Golder proposed secant walls (large diameter borehole filled with cement/bentonite grout and intervals of permeable materials) to help guide the treated groundwater to the creek. Overall the funnel and gate system allows the use of a groundwater remedy to be incorporated into the CAMU design, working together with other design components, to prevent contaminant migration from the unit and achieve long-term remedial goals.

- **Synthesize Zero-Cement Concrete Using Waste Material from Coal-Fired Electric Power Plants**

Mohamed ElGawady, Ph.D., Missouri University of Science and Technology



This study has investigated the feasibility of using locally available fly ashes (FAs) to synthesize zero-cement concrete (ZCC) for different structural and repair applications. The mixing procedure, water/FA, Alk/FA, SS/SH, curing regime, fresh properties, mechanical properties, durability, repair applicability, and cost analysis of the ZCC were investigated in this study. Approximately 300 mortar and concrete mixtures were tested. A 5000 psi MoDOT conventional concrete (CC) mixture was prepared and tested for comparison purposes. Three curing regimes (oven, ambient, and moist) were applied to the ZCC. This study revealed that ZCC can be used as a replacement for conventional concrete. ZCC showed good workability and adequate compressive strength for structural applications ranging from 3,660 psi to 7,465 psi based on the curing regime and source of FA.

- **Using Crumb Rubber in Civil Engineering Applications**

Mohamed ElGawady, Ph.D., Missouri University of Science and Technology



Chip seal is a widespread type of pavement that is used either for maintenance or as the main pavement. This study presents an investigation on an eco-friendly chip seal, where the mineral aggregate was replaced by crumb rubber obtained from scrap tires. Replacing mineral aggregates with crumb rubber aggregate can address several issues linked to using mineral aggregates in chip seal. Crumb rubber aggregate potentially can address all these issues. The ambient crumb rubber was found to have about 20% higher surface area compared to cryogenic crumb rubber and hence was used throughout this study. The aggregate retention was measured using five tests included the standard sweep test, modified sweep test, Vialit test, modified Vialit test, and Pennsylvania test. The performance of the new chip seal was also compared with that of conventional chip seal manufactured using two different types of mineral aggregate. The examined tests specimens were manufactured using two types of emulsions and two types of asphalt cement binders. This study concluded that the crumb rubber can be used in the chip seal as partial or full replacement of mineral aggregates. The crumb rubber showed a remarkable performance in aggregate retention.

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**8:30 - 10:00 AM**

**CONCURRENT BREAKOUT SESSIONS (continued)**

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**TANKS TRACK**

**Parasol II**

*Moderator: Ken Koon, MoDNR Tanks Section*

**• Overview of Training Document for Plume Stability Evaluations  
at Petroleum Release Sites**

*Joe A. Ricker, P.E., EarthCon Consultants, Inc., a member of WSP*

Demonstrating plume stability is a requirement of the Missouri Risk-Based Corrective Action (MRBCA) process for Petroleum Storage Tank sites and must be performed at all remediation sites with groundwater impacts above default target levels before a 'No Further Action' letter can be issued. This session will focus on the recently published MDNR Staff Training Document which discusses the types of plume stability evaluation methods and how to evaluate plume stability using methods commonly used by environmental professionals. The training document is intended to help project managers work through the methods that are acceptable to the Missouri DNR Tanks Section (the Department) and are commonly used to evaluate plume stability at petroleum storage tank sites. This session includes discussion of various ground water plume stability evaluation methods, plume stability evaluation method application, and examples of how to perform plume stability evaluations using well-by-well techniques and whole plume evaluations using the Ricker Method®.

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10:00 AM

Break with Exhibits

**Paradise Ballrooms A, B**

*SPONSORED BY*

*WASTE CONNECTIONS*

## SOLID WASTE TRACK



## Nautical Wheeler Room

Moderator: Michele Clark, Weaver Consultants Group

- **Mo Uncommon Designs**

*Brady Stewart, Waste Connections*

After the 2018 presentation at MWCC, Champ personnel are ready and eager to talk about what did and didn't work on our Road to Premier. We'd love to share lessons learned from one uncommon landfill design. Since our discussion in 2018, Champ has strayed from the common approach to leachate pretreatment with the help of few fundamental design concepts we believe can and should be part of any design. As our leadership style dictates, Champ personnel want to share what did and didn't work in our journey towards the safe handling of leachate pretreatment. The process wasn't always smooth and pretty, but our leachate pretreatment process is already being used at several other Waste Connection landfills throughout the Midwest.

- **When Recycling Doesn't Make Cents**

*Laura Drescher, P.E., Burns & McDonnell Engineering*

Many local communities are currently evaluating the viability of recycling programs due to high processing fees and low revenue from recyclables. This presentation will review the financials of a community recycling program, their place in the waste management hierarchy, considerations for decision-making on stopping programs, and provide their recommendations to optimize recycling processing contracts, recycling programs, and educational outreach.

- **Know They Emissions Before Others Do**

*Arthur Mohr, Sniffer Robotics, LLC*

Increased scrutiny of emissions monitoring has arrived. Penetration inspection and more stringent localization and reporting of emissions are now required through new regulations. Advanced technologies are identifying low-level and 'super emitters' of methane and other greenhouse gases from offsite, and much of this data is becoming public. Are your operations ready for this new normal?

## ENVIRONMENTAL ISSUES TRACK

## Parasol I

Moderator: Kirsten Schaefer, Missouri Geological Survey

- **Kansas PFAS Inventory Project**

*Robert J. Loudon, Professional Environmental Engineers, Inc.*

In April 2019, PE was awarded a statewide PFAS inventory and mapping project for the Kansas Department of Health and Environment (KDHE). The purpose of the project was to develop a statewide list and GIS map of all facilities that potentially used, stored, and/or produced PFAS compounds within the state of Kansas, including, perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), and related chemicals. The inventory focused on facilities using/storing/producing known PFAS-containing substances. A list of nearly 9,300 Kansas entities was compiled to develop a comprehensive list of current facilities where PFAS compounds may have potentially been produced/used/stored. Internet sources and state/Federal databases were searched to identify discharged or spilled AFFF locations (including fire/crash sites and training areas, airports with FAA CFR Part 139 permits, military bases, railroads and other transportation sites), oil and gas extraction sites, POTWs, and landfills. The list was entered into a ESRI ArcGIS master database. The database was used to produce county maps of potential PFAS facilities for all 105 counties in Kansas; blowup maps of congested urban areas were also produced. The list of sites, GIS maps, and descriptions of work completed were included in a final report (along with the ESRI ArcGIS database) and delivered to KDHE in late June 2019.

• **An Evaluation of Several On-Site Analytical Methods for the Determination of PFAs Impacts to Soil and Groundwater**



*Mike Rossi, Pace Analytical*

Performance evaluations for the analytical methods were established based precision/accuracy, throughput and cost. The results will be presented along with an overall assessment of how these methods can be combined and optimized to allow for maximum efficiency while satisfying project's data quality objectives.

• **Missouri Biogas - A Sustainable Energy Source**

*Ian Smith, Trinity Consultants, and Brandon Butler, Roeslein Alternative Energy*



Lagoons containing organic wastes from animal production have long been a source of concern. Many communities in rural Missouri have struggled with these issues and siting new animal production facilities is now a hot topic. In order to mitigate some of these issues, Roeslein Alternative Energy (RAE) has developed a process to convert animal lagoons into anaerobic digesters. The process involves covering the lagoons, converting the organic wastes into biogas, cleaning the biogas and constructing short pipelines to carry the biogas to a gas distribution pipeline near the site. RAE and Trinity have worked closely with the Missouri Department of Natural Resources (MDNR) to ensure that all of the facilities are properly permitted, minimizing the risks to the environment and meeting or regulated emission limits for criteria pollutants. The pipelines are routed to minimize the impacts to any wetlands, endangered species and archeological or historic sites.

**TANKS TRACK**

**Parasol II**

*Moderator: Ken Koon, MoDNR Tanks Section*

• **Q&A for Joe Ricker**

• **Dissolved Phase Plume Stability Evaluation: Question and Answer**

*Todd Birky and Porter Henze, MoDNR Tanks Section*

Plume stability is often the last step for a site in order to be considered for a 'No Further Action' Letter under the Missouri Risk-Based Corrective Action (MRBCA) process for Petroleum Storage Tank sites. Methods used to determine plume stability include well-by-well techniques such as the Mann-Kendall and Mann-Whitney statistical tests, as well as whole plume evaluations such as the Ricker Method®. Recently, the Missouri Department of Natural Resources (MoDNR) published a Staff Training Document on Plume Stability to assist Department project managers to accurately and consistently evaluate Plume Stability models. Although the document is not considered a Technical Guidance, the document can be helpful to consultants who are attempting to evaluate dissolved phase plumes to Department standards, and is available upon request. This session will be an opportunity for Consultants and Regulators to ask questions about the Plume Stability Evaluation process and the new Plume Stability Staff Training Document. The session will be held in a Question and Answer format.

12 Noon

**NETWORKING LUNCH**

**Paradise Ballroom C**

Drawings, prizes and election results

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## SOLID WASTE TRACK



## Nautical Wheeler Room

*Moderator: Scott Martin, P.E., Burns & McDonnell*

- **Passive No-Purge Samplers - Cheaper Solution?**

*Jenny Holt and Andy Limmer, R.G., Weaver Consultants Group*

Weaver Consultants Group has deployed passive samplers in place of standard bailers and low-flow sampling pumps at several solid waste facilities in settings of low volume, high volume greater than 100 feet, and in difficult monitoring environments. In addition, Weaver has performed a direct comparison of sampling results from the passive samplers and standard low-flow pumps. This session will describe the benefits and drawbacks of using passive samplers based on our experience over the past two years of using passive samplers..

- **The Role of Solid Waste Management in Protecting Missouri's White-Tailed Deer**

*Jasmine Batten, Missouri Department of Conservation*

Solid Waste management is crucial to protecting Missouri's white-tailed deer herd. Chronic wasting disease (CWD) is an emerging disease that threatens the long-term sustainability and health of this important resource. This talk will explore the known science regarding the disease itself as well as what is known about prion migration in the solid waste stream. Risk concerns from the solid waste perspective will be examined as well as the broader context of why white-tailed deer matter. First detected in confined deer in Northeast Missouri in 2010 and wild deer in 2012, the disease has now been found in sixteen counties throughout the state. Wildlife managers believe addressing carcass disposal concerns is critical to slowing the spread of CWD in Missouri and beyond.

- **Can Missouri Afford A Waste Management Program?**

*Kevin Perry, REGFORM*

This is the story of how Missouri stakeholders stepped up in the face of a fiscal cliff that threatened to cripple Waste Management Program and the Environmental Remediation Program key functions. A plan was proposed and vetted. The Commission approved the plan and it became a regulation. But the new fee structure did not survive the 60-day review process in the General Assembly. How will Missouri pay to maintain these programs?



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1:00 PM - 2:30 PM

CONCURRENT BREAKOUT SESSIONS (continued)

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**ENVIRONMENTAL ISSUES TRACK**



**Parasol I**

*Moderator: Jeremiah Jackson, R.G., Missouri Geological Survey*

- **Update on Environmental Law in Missouri**

*Steve Jeffery, J.D., Jeffery Law Group, LLC*

This session will update the audience on recent environmental law cases and issues in Missouri.

- **Effective Community and Media Relations**

*Gary Pendergrass, P.E., R.G., GREDELL Engineering Resources, Inc.*

Communicating clearly and effectively has never been more important than in today's world. Cameras are everywhere, and social media is instantaneous. The wrong word or awkward phrase can go viral at the speed of light; sometimes with profound impacts on your project, your company, or your family. This presentation will teach you the skills necessary to successfully navigate the pitfalls of community and media interaction. Effective communication is not about being slick or evasive – it is all about being clear and direct, and communicating the message you intend. The “dos and don'ts” of effective communication will be illustrated using real world examples in slides and videos. “There are weapons that are simply thoughts, attitudes, prejudices, to be found only in the minds of men.” The Twilight Zone, Season 1, Episode 22.

**TANKS TRACK**

**Parasol II**

*Moderator: Ken Koon, MoDNR Tanks Section*

- **Tanks Section Q & A Panel**

*Laua Luther, Matthew Stone, Brenna McDonald, R.G., Todd Birky, Steve Lang, P.E., and Ken Hannon, MoDNR Tanks Section*

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2:30 PM

Conference adjourns