

Speaker and Abstract Information
for
2021 Onsite Wastewater Mega-Conference

VIRTUAL Agenda

October 2021

(Listed alphabetically by last name)

Marie-Christine Belanger, Premier Tech Water and Environment

Comparison of long-term performance of two disinfection approaches

Presentation without a paper, 50 minutes

Abstract:

Chlorination and UV light are currently the most common methods used for disinfection of wastewater. While these processes are generally well-adapted to community or municipal installations, their operation and maintenance needs present some limitations to assure sustainable performance for onsite wastewater treatment applications. In view of these limitations, Premier Tech developed in early 2000, a low maintenance-passive biological disinfection approach (FDi), which consists essentially in a lateral sand filter. Initial results obtained were presented at NOWRA International Conference-2007. This system, certified under BNQ standard 3680-910 in 2009, is submitted to an annual filed performance audit as per BNQ standard requirements. Now more than 10 years later, enough audit data are collected from the field to analyze and compare the performance of two certified disinfection systems: FDi and UV lamp. These two systems are installed after an Ecoflo biofilter. The data studied come both from certification tests and from data collected during annual audit campaigns, all carried out by the BNQ. The analysis is performed using different statistical tools. Although the results obtained for the FDi as compared to the UV systems during the certification reveal greater variability, the annual field performance audits confirm the greater robustness of the FDi with a 94.6% compliance with the regulatory threshold and only 70% for the UV, which highlights the importance of regular mail.

Bio:

Marie-Christine Bélanger is the current Product Director and Government Relations at Premier Tech Water and Environment (PTWE), a Canadian company and world leader in the Onsite Wastewater Treatment industry. She accumulated over five years of professional experience as a Project Manager for the development and implementation of decentralized wastewater treatment systems for GSI Environment before pursuing a career as Project Development Director at Group Celdex, a firm specializing in the development of integrated Waste Management programs in emerging countries. Ms. Bélanger joined PTA in 2002. Her functions at PTWE have brought her to play key roles on several

steering and advisory committees throughout North America, namely with the BNQ, CSA, NOWRA, NSF, local provincial and state organizations, etc. where she has taken part in the development and advancement of industry-wide regulations and standards leading to better protection of the environment and the public's health. Ms. Bélanger holds a Physics Engineering degree from Laval University and a Master's degree in Chemical Engineering from L'École Polytechnique de Montreal.

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Allison Blodig, Infiltrator Water Technologies

Understanding RV and Camper Wastewater Streams

Presentation without a paper, 50 minutes

Abstract:

RV parks produce a unique high strength wastewater stream with water conservation playing a large part in producing the concentrated wastewater. This presentation reviews the structure and function of the water and wastewater system in and RV and what it takes to break down the wastewater.

Bio:

Allison has been in the onsite wastewater treatment industry since 1997, first as a regulatory official and then in the wastewater treatment manufacturing industry. Currently she is an Engineered Systems Consultant with Infiltrator Water Technologies a leading developer of decentralized wastewater treatment technology. Along with a degree in Biology from Benedictine College in Atchison, KS, she has been a Registered Environmental Health Specialist and member of the National Environmental Health Association since 1996. She is the current treasurer for the Kansas Environmental Health Association (KEHA) and is also very active with the National Onsite Wastewater Recycling Association (NOWRA). She is the current Vice President for the organization as well as a former chair of the Technical Practices and the Conference Committees. Allison was the 2017 recipient of the Raymond Peat Lifetime Achievement award for outstanding achievement in the Kansas onsite wastewater field.

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Resiliency, Sustainability, and Onsite Wastewater

John Blount, P.E., County Engineer, Harris County, Texas Engineering Department

45 minutes

Abstract:

What have we accomplished and what is projected for the future? In days past onsite wastewater technology and regulation focused solely on disposal. Today with an emphasis on sustainability and

resilience, the reuse and conservation of wastewater is now being evaluated. John will review the County's current position and the path forward for the Houston Region, including discussion of massive reuse that goes mainly unnoticed and the future of onsite reuse and its impact in land planning.

Biography:

John Blount is a 1984 graduate of the University of Houston. After college he served as an Army Corps of Engineers officer on both active and reserve duty, achieving the rank of captain while being stationed in the United States, Republic of Germany and the Republic of Honduras. He has worked in the civil engineering field for 37 years and is a Registered Professional Engineer (WI) (TX) (ME) as well as a LEED Accredited Professional, Certified Flood Plain Manager (CFM) and Envision Sustainability Professional (ENV SP). He has been employed with Harris County for over 34 years starting as an Inspector and advancing to Director of the Engineering Department. He currently holds the position of County Engineer. He serves on the National Sanitation Foundation (NSF) Joint Wastewater Committee and was previously Chairman of the Texas Onsite Wastewater Research Council appointed by the governor. John is a leader in green infrastructure and sustainability practices.

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The Science of Science: Identifying Strategic Research Needs for Environmental Science, Engineering and Public Health

Bryan Brooks, Ph.D., Director of Environmental Health Science, Baylor University

Abstract:

What are the big research needs to achieve more sustainable environmental quality? The United Nations' Sustainable Development Goals provide a global framework to assist in advancing a more sustainable future for all people while protecting natural resources, but degradation of environmental quality decidedly challenges achieving these noble Goals. Studies of environmental quality have often been reactionary, responding to the newest disease, impaired ecosystem or species, and class of understudied chemical, physical or biological stressors.

Biography:

Bryan W. Brooks is Distinguished Professor in the Department of Environmental Science, and Director of Environmental Health Science at Baylor University in Waco, Texas. His research focuses on water quality and reuse, developing approaches to define and manage hazards and risks, environmental, aquatic and comparative toxicology and pharmacology, environmental and green chemistry, environmental public health, and the ecology, chemistry and toxicology of harmful algae blooms. Prof. Brooks has served on the NOWRA Board of Directors and coordinates NOW-R2 with NOWRA. He has served as Fulbright Visiting Research Chair in Water and the Environment at the University of Lethbridge in Canada, as a Visiting Erskine Fellow at the University of Canterbury in New Zealand, as visiting Pearl River Scholar Chair Professor at Jinan University in China, and as visiting professor at the University of South Bohemia in the Czech Republic. Prof. Brooks received the Kenaga Award from the Society of Environmental

Toxicology and Chemistry, a Leadership Award from the Water Environment Federation, the Recipharm International Environmental Award, the Past Presidents Award from the National Environmental Health Association, and two Scientific and Technological Achievement Awards from the U. S. Environmental Protection Agency. He has published over 250 manuscripts with students and colleagues, and is a Fellow of the Royal Society of Chemistry and the Society of Environmental Toxicology and Chemistry. Prof. Brooks serves as Editor-in-Chief of Environmental Science & Technology Letters (American Chemical Society Publications).

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Dennis Hallahan, Infiltrator Water Technologies

High Strength Waste Design: Best Practices and the way we do it in Texas

Presentation with a paper, 50 minutes

Abstract:

High Strength Wastewater (HSW) is generated by numerous types of facilities such as restaurants, RV Parks, Rest Areas, and numerous other facility types. The decentralized wastewater industry must be in a position to serve these types of facilities. There is the design, construction, and maintenance of the wastewater treatment system. This presentation will focus upon the design considerations as required by Texas Rules and provide an example and/or case study. In many states for the smaller flow systems codes do not address high strength waste and allow the usage of soil loading rates based upon residential strength waste. This leads to very short design life of HSW facilities. The shortcomings of that design rationale will be reviewed, and a discussion of best practices will be presented.

Bio:

Dennis has over thirty years of experience with the design and construction of on-site wastewater treatment systems. He has authored dozens of articles for on-site industry publications and has given numerous presentations nationally on the science and fundamentals of on-site wastewater treatment systems. Dennis also is responsible for product research and testing at Universities, test centers and with private consultants. His department develops system sizing charts for national and international approvals and assists customers and field representatives in the design, planning and review of large commercial decentralized systems. Some of these systems have design flows in excess of one million gallons per day. He received his MS in civil engineering from the University of Connecticut and his BS in civil engineering from the University of Vermont. Dennis is a registered professional engineer in Connecticut. He has been with Infiltrator Water Technologies for 21 years and holds the current position of Technical Director. Dennis also holds patents for on-site wastewater products and is a member of the Water Environment Federation and of the National Onsite Wastewater Recycling Association. Dennis has served for several years on the NOWRA Technical Practices (past chairman) and Educational Committees' and is also a member of the NEWEA (WEF) Small Communities Committee.

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Status of Advocacy / Lobbying Efforts on Behalf of Onsite and Decentralized Wastewater

Tracy Hammond, Senior Policy Advisor, Polsinelli, LLC

35 minutes

Abstract:

Tracy Hammond is a member of the firm's National Public Policy group and assists clients interested in shaping energy, environmental, and infrastructure legislation and regulation. He is part of the team which represents NOWRA on Capitol Hill. He will provide an analysis of the legislative and regulatory landscape, initiatives underway which may have an impact on the onsite/decentralized industry, and steps the industry can take to increase its influence in Washington on those initiatives.

Biography:

Tracy has spent over 15 years representing clients before Congress and many executive branch agencies. Tracy entered politics, serving as an aide to the Minority Floor Leader of the Missouri General Assembly in Jefferson City. Upon arriving to Washington, D.C., he began working for the Campaign Media Analysis Group (CMAG) where he serviced both electoral and issue advocacy campaigns by providing analysis on political media activity. Prior to joining Polsinelli, Tracy served as Vice President at Dutko, advising clients with the firm's Energy, Environment and Sustainability practice.

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Kayla Hanson, National Precast Concrete Association

Precast Concrete Tank Inspections & Installation Tips

Presentation without a paper, 50 minutes

Abstract:

Strong, durable, high-quality precast concrete wastewater structures are important components for long lasting and efficient onsite treatment systems. Routine inspections of onsite wastewater tanks – as they arrive on site, after installation, and while they are in service – play a significant role in the long-term performance of the tank and the system as a whole. During this session we will review TCEQ requirements for tank design and construction and discuss ways you can verify these requirements on site. We will also identify key inspection points – what to look for prior to tank installation, how to conduct an inspection prior to backfill, and how to assess a tank that's in service. We will also discuss crucial steps during installation that could impact watertightness, durability, and safety. This session share tips and examples that are beneficial for contractors, service providers and regulators.

Bio:

Kayla graduated from Purdue University in 2013 with a B.S. in Civil Engineering and emphasis in structures. Kayla is a licensed professional engineer in the state of Indiana. As NPCA's Director of Technical Services, Kayla works to coordinate the projects of NPCA's Technical Services engineering team. Kayla addresses technical questions from engineers, architects, and precasters; reviews and updates industry standards and specifications; conducts concrete-, wastewater-, and infrastructure-focused educational sessions at engineering conferences, onsite wastewater conferences, and universities across the country; develops technical publications; assists with the NPCA Plant Certification Program; performs Plant Evaluations at precast concrete manufacturing facilities; represents the Association on codes and standards committees; and serves as the staff liaison to NPCA's Wastewater Treatment Products Committee and Gravity Grease Interceptor Subcommittee. Kayla is also the Vice Chairman of ASTM Committee C27 on Precast Concrete Products.

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Kayla Hanson, National Precast Concrete Association

Resilient Wastewater Solutions: Building for the Future

Presentation without a paper, 50 minutes

Abstract:

Our nation's aging infrastructure is a common theme in the news. We hear about deteriorating roads, high-risk dams, and old and undersized treatment plants. Wastewater infrastructure is critical to society's daily functions, health, and safety, yet it is one of the lowest-rated aspects of our country's framework. Improving wastewater infrastructure involves billions of dollars of repair, rehabilitation, and new construction work. A key to long-term success is to select quality and resilient construction solutions. During this session we will investigate what resilience is and why resilient construction has become a focal point in both centralized and decentralized wastewater projects across the country. We will discuss what factors contribute to resilience and how resilient construction is changing the way wastewater solutions are developed. We will also investigate how resilient decentralized wastewater solutions can improve safety, reduce construction time, reduce costs, and extend service life.

Bio:

See above.

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Sara Heger, University of Minnesota

TSS - Sources, Impacts and Solutions

Presentation without a paper, 50 minutes

Abstract:

Total suspended solids (TSS) is found in all wastewater in varying amounts. The type of facility and activities influence the levels in the raw wastewater. This presentation will provide an overview of methods of quantifying solids in wastewater and typical levels in raw wastewater. The sizing of our primary treatment in septic tanks and the use of screens/filters will be discussed. The reduction of TSS in secondary treatment units such as aerobic units and media filters is another variable impacting TSS. If the levels are elevated it can impact the clogging of filters/screens, media filters, and soil treatment system. This presentation will discuss use, design, and management options to reduce the impacts of TSS on system performance and longevity.

Bio:

Dr. Sara Heger is a researcher and instructor at the University of Minnesota in the Onsite Sewage Treatment Program in the Water Resources Center and is an Adjunct Assistant Professor in the Bioproducts and Biosystems Engineering Department. For over 20 years, she has been conducting research and providing education and technical assistance to homeowners, small communities, onsite professionals, and local units of government regarding decentralized onsite wastewater treatment. Sara coordinates the research program at the U of MN focusing on issues related to decentralized wastewater, chlorides, and milk house process water. She has presented in over 30 different states and provinces in North America regarding the science of wastewater treatment including design, installation, and management. Sara is the president of the National Onsite Wastewater Recycling Association, serves on the NSF International Committee on Wastewater Treatment Systems and chairs Minnesota's SSTS Advisory Committee. She has a BS in Biosystems & Agricultural Engineering and a MS and PhD in Water Resource Science.

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Sara Heger, University of Minnesota

Challenging Waste Streams - Analysis and Case Studies

Presentation without a paper, 50 minutes

Abstract:

Septic systems are being negatively impacted by the use and disposal of varying chemicals, cleaners, medicines, and anti-bacterial products. This presentation will discuss challenges related to RV parks, convenience stores, home breweries, salons, dog grooming, medications in-home health care, and others. Data from related studies will be included and potential solutions offered.

Bio:

See above.

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Bruce Lesikar, TOWA

Effectively using Flow Equalization Tanks to Manage Wastewater

Presentation with a paper, 25 minutes

Abstract:

Flow equalization tanks are an effective tool for improving the performance of onsite wastewater treatment systems. Flow equalization tanks are typically placed in the treatment train after the first septic/trash tank. Water from the source is collected and time dosed to downstream treatment components. The first tanks are designed for the greatest peak flow rate, but downstream components can treat the water at an averaged flow rate. This averaged flow allows the downstream components to perform more effectively. The presentation will describe the purpose and function of the flow equalization tanks. The selection of the tank will be discussed and key components are identified. The tank components are discussed from a perspective of improving system performance and the associated operation and maintenance requirements. Buoyancy considerations are presented due to the risk of tank flotation. An extremely important part of the flow equalization tank system is the time dosed pump settings. The timer settings are presented. An example is presented on how to determine the timer settings for pump operation. The critical considerations when choosing the timer set points are presented and discussed.

Bio:

Bruce Lesikar, Filtration Application Engineer, United Rentals.

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Bruce Lesikar, TOWA

Water reuse using drip and spray distribution systems

Presentation with a paper, 50 minutes

Abstract:

Water reuse is an important approach to meeting our long-term water needs. Onsite wastewater reuse systems provide a valuable source of water to meet the landscape irrigation needs. Onsite water management will be implemented on residential and commercial properties to effectively utilize all available water sources. Landscape irrigation with wastewater facilitates property owners to have a conventional landscape even when facing landscape water use restrictions. Site water management is critical when designing a system utilizing all water sources on the property. All water sources are

identified and discussed with respect to meeting the customer’s water needs. Each Design, installation, operation and maintenance features are discussed for site water The A water balance will be discussed regarding the water available for meeting landscaping needs for residential and commercial system. An outline is presented for designing onsite wastewater treatment systems utilizing a landscaping water balance approach. The landscaping water needs on an annual basis is reviewed in comparison to water usage in a facility. System features that facilitate easy operation and maintenances actions for system long-term operation are defined.

Bio:

Bruce Lesikar, Filtration Application Engineer, United Rentals.

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Bruce Lesikar, TOWA

How Pump Tanks can be used to communicate the Need for System Maintenance to the Owner

Presentation with a paper, 50 minutes

Abstract:

Pump tanks are used in most secondary treatment systems to collect the treated water and then distribute reuse water into the landscaping around a facility. The pump tank can provide critical information facilitating communication about system performance. Operation and maintenance professionals can use the information gained through evaluating the data gained from these components to inform the customer about the need to perform maintenance activities. Evaluation of pump tanks provides valuable information on the system performance. The water quality in a pump tank following secondary treatment components can indicate to the customer that solids need to be removed from the system. Hydraulic and organic overloading of the treatment system can result in material accumulation in the pump tank. Operational data collected from cycle event counters and elapsed time meters and associated pump performance data can present information regarding the average daily water usage. Comparing the data from the cycle event counter and the elapsed time meter can communicate the need to perform maintenance on the downstream components. The critical components facilitating the collection of the data and how to interpret the data will be described. Data interpretation to communicate maintenance needs will be discussed using example scenarios.

Bio:

Bruce Lesikar, Filtration Application Engineer, United Rentals.

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Zachary Lowenstein, US EPA

EPA's Decentralized Wastewater Program Update

Presentation without a paper, 50 minutes

Abstract:

The U.S. Environmental Protection Agency (EPA)'s, Office of Wastewater Management, Decentralized Wastewater Program provides resources, education, and outreach at a national level for managing and maintaining decentralized wastewater systems. This presentation will highlight the major accomplishments and updates of the Decentralized Program in 2020-2021, including SepticSmart Week and the ongoing work of the Decentralized Wastewater MOU Partnership. The Decentralized Program's annual outreach campaign, SepticSmart Week, promotes proper care and maintenance of septic systems primarily for homeowners. EPA's Decentralized Wastewater MOU Partnership, which consists of associations and experts in the decentralized field, play a key role in the success of SepticSmart Week. This presentation will include progress updates on the MOU Partnership priorities such as homeowner outreach, data needs, technology, finance, and workforce development.

Bio:

Zach Lowenstein is an Environmental Scientist in EPA's Office of Wastewater Management (OWM), located in Washington, DC. Zach has been with EPA's OWM since 2017, with the Decentralized Wastewater Program, managing initiatives such as SepticSmart Week and the Decentralized Wastewater MOU Partnership. Prior to his employment at EPA, Zach worked for a couple of years in water use and well permitting at the South Florida Water Management District, and before that, as an environmental scientist at a small consulting firm in the oil and gas sector, focused on groundwater and soil remediation. Zach holds a Bachelor's in Environmental Science and Master's in Public Health, both from the University of Florida. Zach resides in Alexandria, VA with his wife and two children.

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EPA Update

Dr. Andrew Sawyers (invited), Director, Office of Wastewater, USEPA

40 minutes

Abstract:

Dr. Sawyers will discuss EPA's activities in support of onsite and decentralized wastewater systems. He will place particular emphasis on their implementation of federal legislation related to decentralized wastewater, and other EPA programs.

Biography:

In his capacity as the Director of the EPA Office of Wastewater Management Dr. Sawyers oversees the National Pollutant Discharge Elimination System (NPDES) program, the Clean Water Act's mechanism for the permitting of municipal and industrial discharge into surface waters of the U.S. As the Director of OWM, Dr. Sawyers is also responsible for multiple technical and financial assistance tools for the development and maintenance of the country's wastewater infrastructure, including WIFIA, the Clean Water State Revolving Fund (SRF) and EPA's Water Finance Center. He previously worked for the Maryland Water Quality Financing Administration where he managed the state's Clean Water and Drinking Water SRFs and the Maryland's Chesapeake Bay Restoration Fund. He has a Ph.D. from Johns Hopkins University in Geography and Environmental Engineering.

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Elisabeth Schlaudt, Environmental Protection Agency

Decentralized Needs and the Clean Watersheds Needs Survey

Presentation without a paper, 25 minutes

Abstract:

The Clean Watersheds Needs Survey (CWNS) is conducted by the Environmental Protection Agency (EPA) to assess the capital costs (or needs) to meet the water quality goals of the Clean Water Act and address water quality-related environmental and public health concerns. Needs are organized into categories based on project eligibilities in the Clean Water State Revolving Fund (CWSRF) program, a federal-state partnership that provides communities low-cost financing for a range of water quality infrastructure projects. Legislative changes to the types of projects eligible for loans through the CWSRF program and the elapsed time since the last data collection in 2012 prompted EPA to conduct an extensive review of the CWNS. A key result was the conclusion by state and other external partners that the decentralized wastewater treatment category was likely significantly underestimated in previous surveys. To work towards capturing decentralized needs to the greatest extent possible, EPA collaborated with state-level partners to design a new data entry portal and streamline the documentation requirements for submitting needs. In addition, EPA updated the underlying data for the cost estimation tool developed to help communities estimate their decentralized needs. State-provided data collected through survey participation will be used to validate the tool and improve future surveys. The results of the CWNS will be published in a Report to Congress and made publicly available.

Bio:

Elisabeth Schlaudt is a physical scientist at the EPA working on the development of the Clean Watersheds Needs Survey, a comprehensive assessment of the capital costs to meet the water quality goals of the CWA and address water quality and water quality related public health concerns. She has a masters in Geoscience-Hydrogeology and a masters in Water Resources Management both from the University of Wisconsin-Madison.

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Martine Seguin, Premier Tech Water and Environment

Challenges of treating high strength wastewater treatment – Comparing different approaches

Presentation without a paper, 50 minutes

Abstract:

Most states have not considered high-strength wastewater characteristics when defining guidelines for designing on-site sewage disposal systems. Wastewater is usually defined as high-strength when concentrations of BOD, TSS, FOG, or nitrogen are higher than typical domestic wastewater. The focus is commercial and non-residential water usages that lead to unusual or high wastewater strengths. These include restaurants, truck stops, breweries, etc. Many states now recognize that the treatment of high BOD5, TSS, or FOG concentrations requires different strategies than those used for typical domestic applications. Several pretreatment possibilities exist, but the extent to which they reduce high-strength wastewater is not fully understood. Treatment must not only reduce wastewater strength, but also bring effluent quality into conformity with stringent discharge limits. Highly variable conditions and limited operator knowledge mean that treatment systems must be simple, flexible, reliable, and robust. Premier Tech tested and adapted approaches to reach different treatment levels. These relied on trickling towers or MBBRs for water roughing, or combining one of these technologies with biofilters as a final polishing step to ensure the system consistently meets the most stringent discharge target because it acts as a physical barrier. This approach enhances performance on certain parameters, such as nitrification, without adding substantial cost. In addition, economic analysis show.

Bio:

Martine Séguin is an Application Engineer at Premier Tech Water and Environment (PTWE), a Canadian company and world leader in the Onsite Wastewater Treatment industry. She currently manages the Commercial, Communal and Institutional (CCI) engineering team within PTWE. Ms. Séguin joined Premier Tech in 2006 and has since occupied different functions in the wastewater treatment field, whether on the Research & Development team or design engineering CCI team. For more than 15 years, Ms. Séguin has developed a thorough knowledge of the decentralized wastewater treatment system industry. Her expertise benefits the clients in determining the appropriate solution, best suited for their needs. Ms. Séguin holds a Civil Engineering degree from the University of Ottawa.

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