

# Pennsylvania Water Environment Association **CONFERENCE PROGRAM**



**PennTec 2021 • June 20-23, 2021**

Kalahari Resort & Convention Center, Pocono Manor, PA



**PennTec**   
**2021** 92<sup>nd</sup> Annual Technical  
Conference & Exhibition

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# ■ CONFERENCE AT A GLANCE

## Sunday, June 20

3:00-5:00pm Registration Open

## Monday, June 21

7:15am-5:00pm Registration Open

7:45-8:45am Continental Breakfast in Salon EF

8:45-11:45am

### Morning Technical Programs

*Biosolids - Suite 40*

*Collection Systems - Salon B*

*Engineering & Construction - Suite 30*

*Stormwater - Salon G*

*Utility Management - Salon C*

10:15-10:45am

Morning Break in Salon EF

11:45am-1:00pm

Exhibit Hall Opens

Complimentary Lunch in Exhibit Hall

12:30-1:00pm

### Annual Business Meeting

with Dessert & Coffee - **Salon EF**

1:00-3:30pm

**Professional Operators (PO) and Students & Young Professionals (SYP) Plant Tour - Meet at Convention Center Main Entrance at 12:30pm**

1:00-4:30pm

### Afternoon Technical Programs

*Biosolids - Suite 40*

*Collection Systems - Salon B*

*Engineering & Construction - Suite 30*

*Stormwater - Salon G*

*Utility Management - Salon C*

2:30-3:30pm

Afternoon Break in Exhibit Hall

4:30-5:30pm

**President's Reception** in Exhibit Hall

5:45-7:00pm

**Annual PWEA Awards Ceremony and Reception - Salon EF**

7:15-9:30pm

**Tailgate Dinner and Cornhole Tournament** organized by the PWEA SYP Committee - **River Ballroom Veranda & Patio**

## Tuesday, June 22

7:00am-5:30pm

Registration Open

7:30-8:30am

Continental Breakfast in Exhibit Hall

8:00-11:30am

### Morning Technical Programs

*Collection Systems - Salon B*

*Engineering & Construction - Suite 30*

*Industrial Pretreatment - Suite 40*

*Stormwater - Salon G*

*Utility Management - Salon C*

9:30-10:30am

Morning Break in Exhibit Hall

11:30am-1:00pm

Complimentary Lunch in Exhibit Hall  
Student Research Poster Presentations

11:30am-1:00pm

**Women's Initiative Summit and Luncheon - River Ballroom**

1:00-4:30pm

### Afternoon Technical Programs

*Collection Systems - Salon B*

*Engineering & Construction - Suite 30*

*Industrial Pretreatment - Suite 40*

*Laboratory Practices - Salon C*

*Safety - Salon G*

*Student Research Presentations - Aloeswood*

2:30-3:30pm

Afternoon Break in Exhibit Hall

2:30-4:30pm

**Operations Challenge** in Exhibit Hall

4:30-5:30pm

**Beer & Pretzels Reception** in Exhibit Hall  
**Operator Olympics** in Exhibit Hall

## Wednesday, June 23

7:00-8:30am

Continental Breakfast in Kilimanjaro Lounge

7:00am-12:00pm

Registration Open

8:30am

Annual PWEA Golf Outing - **Pre-registration was required.**

8:00-11:00am

### Morning Technical Programs

*Engineering & Construction - Suite 30*

*Professional Operators - Suite 40*

9:30-10:00am

Morning Break in Kilimanjaro Lounge

11:30am

Conference Concludes

## NEED CONTACT HOURS OR PDH CREDIT?

Pick up your tracking sheet in the PWEA Registration Area

## Workshops

These workshops are approved for additional PA DEP contact hours. **You must have a ticket to attend.** Limited tickets are available onsite.

### Monday, June 20

**8:45-12:00pm** Tips for PT Success  
**Rosewood Room**

**8:45am-4:00pm** Securing Drinking Water & Wastewater Treatment Facilities  
**Aloeswood Room**

**8:45am-4:30pm** Wastewater Exam Study Prep Course  
**Ironwood Room**

**1:00-5:00pm** Fundamentals of Wastewater Treatment  
**Rosewood Room**

### Tuesday, June 21

**8:00-11:00am** Personal Protective Equipment  
**Aloeswood Room**

**8:00am-4:00pm** Distribution Systems  
**Ironwood Room**

**8:00am-4:30pm** Wastewater Professionals Guide to Online Process Instrumentation for BNR Activated Sludge Monitoring  
**Rosewood Room**

### Wednesday, June 22

**8:00-11:30am** Fats, Oils and Grease  
**Rosewood Room**

**8:00-11:30am** Laboratory Ethics  
**Ironwood Room**





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# REINER

## PUMP SYSTEMS





# ■ A MESSAGE FROM THE PWEA LEADERSHIP



*Lisa Webb*  
Chair, PennTec 2021  
Conference Committee

On behalf of the PWEA Board of Directors and the 2021 Conference Committee, we welcome you to PWEA's 92nd Annual Technical Conference and Exhibition (PennTec 2021) on June 20-23 at the Kalahari Resort & Convention Center in Pocono Manor, PA.

This year's Conference Program includes a wide range of topics related to water quality. In addition to the Conference technical sessions, we are also presenting workshops which have been approved by the PA DEP for additional contact hours for water and/or wastewater operator licenses. By attending these workshops, you could earn **up to 15.0 DEP contact hours, or up to 15.0 Professional Development Hours**, in just a few days!

A very important part of the Conference is the vendor exhibition. By visiting the exhibits, you will gain insight into new and innovative solutions and discover new products, equipment and services that will help you do your job in a more efficient and safer manner. We encourage you to talk to the vendors about what is most important to you.

The Conference includes many networking opportunities for you to meet and interact with your colleagues. The Students & Young Professionals (SYP) Committee organized a **Community Service Project** for Sunday. On Monday, the Professional Operators Committee and the SYP Committee is hosting a **Plant Tour**. Following the Monday sessions will be the **President's Reception**; the **Annual PWEA Awards Ceremony & Reception**; and the **Tailgate Dinner & Cornhole Tournament**.

On Tuesday, there is the **Women's Initiative Summit & Luncheon**; the **Operations Challenge** event; the **Beer & Pretzels Reception**; and **Operator Olympics**. The **Annual PWEA Golf Outing** is on Wednesday.

We believe the PennTec Conference will provide everything you need under one roof—education, vendor contacts, and networking.



*David Brown*  
PWEA President



*Edward Woyden*  
Chair, PennTec 2021  
Program Subcommittee

## COVID-19

Any government restrictions and/or health and safety protocols in place at the time of the Conference will be followed. Current information regarding hotel protocols can be found at:

<https://kalaharimeetings.com/our-covid-19-response/>

<https://www.kalahariresorts.com/what-we-are-doing-to-ensure-a-safe-getaway/>

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Please be respectful of the presenters and other attendees. Set your cell phone to vibrate or turn it off during conference training sessions, workshops and the Annual Business Meeting. If you see that you're receiving a call, please exit the training or meeting room to accept or return the call. Thank you!



### Consent for Use of Photographic Images

Registration and attendance at, or participation in, the PWEA Annual Technical Conference & Exhibition and related activities constitutes an agreement by the registrant to permit PWEA's use and distribution (both now and in the future) of his/her image in photographs, promotional materials, electronic reproductions, etc., of these events and activities.



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### Community Service Project

Sunday, 8:30am

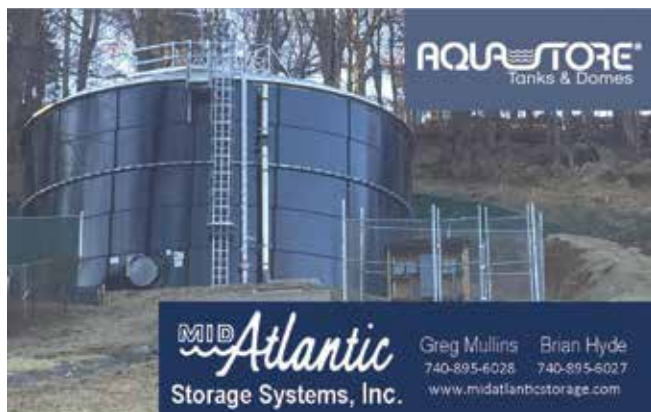
This year was the third Community Service Project organized by the Students & Young Professionals (SYP) Committee, and held in conjunction with the PennTec Conference.

PWEA and the SYPs partnered with the Eastern Pennsylvania Coalition of Abandoned Mine Reclamation (EPCAMR) to host a trail and roadway cleanup at Nescopeck State Park. EPCAMR is a regional non-profit environmental organization that works with many organizations throughout Northeastern and North Central Pennsylvania's Anthracite, Semi-Anthracite and Bituminous Coalfields to support the reclamation of abandoned mine lands (AML) and the remediation of polluted abandoned mine drainage (AMD) rivers and streams impacted by past mining practices.

Nescopeck State Park is one of the newest state parks in Pennsylvania. In the early 1970s, the state acquired 164 properties which made up the park. Bordered on the south by steep Mount Yeager and on the north by Nescopeck Mountain, the 3,550-acre Nescopeck State Park encompasses wetlands, rich forests, and many diverse habitats. Nescopeck Creek, a favorite of anglers, meanders through the park. Hiking trails follow the creek, pass through quiet forests, and skirt wetlands.

PWEA volunteers focused on removing litter, tires, and other debris along Honey Hole Road and nearby hiking trails throughout the Park. The cleanup event will aid in the protection of Nescopeck Creek, which is a cold-water fishery included in the PA Fish and Boat Commissions statewide trout stocking program.

We would like to acknowledge the Conference attendees who volunteered their time to help PWEA promote environmental stewardship and to leave a positive imprint on this year's host location.



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### PO & SYP Plant Tour Mount Pocono Municipal Authority Mount Pocono, PA Monday, 1:00-3:30pm

Mount Pocono Municipal Authority (MPMA) consists of a publicly owned wastewater treatment facility and collection system located in Monroe County, PA. Originally constructed in 1975, the wastewater treatment facility has a daily organic capacity of 1800 pounds of BOD, 350 pounds of nitrogen and 65 pounds of phosphorus. The plant has a hydraulic loading capacity of .600 MGD. MPMA services 1,400 connections, maintaining 14 miles of collection system, two pump stations, and operates a 70-acre spray irrigation system. MPMA's plant process is a sequencing batching reactor (SBR). MPMA utilizes gas chlorine for filamentous control, Magnesium Hydroxide for PH control, aluminum sulfate for phosphorus removal, and ultraviolet light for disinfection. MPMA uses aerobic digestion for biosolids processing, which is then hauled off site. MPMA recently completed a \$20,000,000 upgrade to its WWTP

**A limited number of tickets may be available at the PWEA Registration Desk. The cost is \$20 per person. Bus will begin boarding at 12:30pm and will depart at 12:45pm. Meet at the Convention Center Entrance.**

### PWEA Annual Awards Ceremony & Reception

Monday, 5:45-7:00pm - Salon EF

The Annual Awards Ceremony honoring your colleagues who have won prestigious state and national awards will take place during this reception, which is open to all Conference attendees. Includes hors d'oeuvres and a drink ticket.



### Tailgate Dinner & Cornhole Tournament

Monday, 7:15-9:30pm - River Ballroom Veranda & Patio

The PWEA Students & Young Professionals Committee will host a fun and friendly evening of networking, cornhole tournament, food, drinks and great prizes. A tailgate themed dinner buffet will begin at 7:15pm and cornhole teams will be randomly formed beginning after dinner. The event is open to all experience levels, professionally and competitively. Attendees are encouraged to don their favorite teams tailgating attire.

**A limited number of tickets may be available at the PWEA Registration Desk. Tickets are \$40 per person. Dinner and drink tickets are included.**





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### **Latrobe**

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### **Plymouth Meeting**

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### **State College**

814-357-3130





### PWEA Student Research Poster Contest

Tuesday, 11:30am-1:00pm

The PWEA Research Committee reviews student research submissions and invites qualifiers to participate in the Poster Contest. After judging by faculty and practicing engineers, the top three poster presenters in both undergraduate and graduate categories are chosen. Posters will be available for viewing by Conference attendees. Awards will be presented at the Student Research Program.



### Women's Initiative Summit & Luncheon

Tuesday, 11:30am-1:00pm - River Ballroom

Join your colleagues for the Women's Initiative Networking Summit. This luncheon will feature networking opportunities along with a panel discussion with prominent women in the water quality sector to share their personal and professional challenges and successes, work/life balance, and education experiences.

**Pre-registration was requested. There is no charge to attend.**



### Operations Challenge

Tuesday, 2:30-4:30pm - Exhibit Hall

How do operators and technicians overcome flooding, a sewer collapse, process failure, and other emergencies? Do you ever wonder what transpires behind the scenes during the operation of a wastewater treatment facility? Instead of continuing to take these unsung specialists for granted, come see wastewater collection and treatment personnel display their skills at Operations Challenge.

Scores are determined by a weighted point system for five events (collection systems, laboratory, process control, maintenance, and safety), each designed to test the diverse skills required for the operation and maintenance of wastewater treatment facilities, their collection systems, and laboratories. This year two teams will demonstrate some of these events during the PennTec Conference.





### Operator Olympics

Tuesday, 4:30-5:30pm - Exhibit Hall

This is a fun activity based on some real Olympic events, but with a twist. Games may include:

- Bowling, using a ball from a pump and BOD bottles
- Plunger Toss, tossing small plungers into a bucket
- Golf Ball Chip, chipping golf balls into a toilet
- Hockey, score a goal through a toilet seat
- Turd Toss, throw (plastic!) turds into a bucket.

Can you think of a better way to spend the afternoon?

**There is no charge and pre-registration is not required.  
This is a competitive event and prizes will be awarded**

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# EXHIBIT HALL HIGHLIGHTS & FLOOR PLAN

## Exhibit Hall Bingo

The PWEA Exhibits & Sponsors Committee organized this event for Monday and Tuesday during the Conference.

### How it Works:

Conference attendees will receive a Bingo card in their registration packets, along with a list of participating exhibitor names. Each participating exhibitor will be assigned a letter/number from the Bingo cards. Attendees will need to visit the exhibitors in order to have their cards stamped.

Once the squares are stamped horizontally, vertically or on the diagonal, the attendee will then turn in the card to **Booth 43 or Booth 8** during the afternoon break of each day (Monday or Tuesday) for confirmation. **Attendees must be present to win** and can only turn in one card, either on Monday or on Tuesday.

Prizes will be awarded during the Exhibit Hall receptions on Monday and on Tuesday.



## Bingo Participants

(as of May 31st; final list available at Registration Desk)

<b>Alloway</b>	<b>Excelsior Blower Systems Inc</b>	<b>Mid Atlantic Pump &amp; Equipment Co</b>
<b>ARRO Consulting Inc</b>	<b>Flow Assessment Services LLC</b>	<b>Mr Rehab LLC</b>
<b>Beck, Harold &amp; Sons Inc</b>	<b>Flygt—Xylem</b>	<b>Municipal Maintenance Co Inc</b>
<b>Cemtech Energy Controls Inc</b>	<b>Geiger Pump &amp; Equipment</b>	<b>PA One Call System Inc</b>
<b>Charter Machine</b>	<b>Godwin—Xylem</b>	<b>Riordan Materials Corporation</b>
<b>Coyne Chemical Environmental Services</b>	<b>Greenman-Pedersen Inc</b>	<b>Robert Brown Associates Inc</b>
<b>CUES Inc</b>	<b>Hach</b>	<b>Sherwood Logan &amp; Associates</b>
<b>Diversified Technology Corp</b>	<b>Herbert, Rowland &amp; Grubic Inc</b>	<b>Spotts, Stevens and McCoy</b>
<b>Eastcom Associates Inc</b>	<b>HOBAS Pipe USA</b>	<b>Suburban Testing Labs Inc</b>
<b>Envirep/TLC</b>	<b>IDEXX Laboratories Inc</b>	<b>Thaddeus Stevens College of Technology</b>
<b>Epoxytec</b>	<b>Iron Horse Environmental</b>	<b>The Cope Company Salt / AUTOBrine</b>
<b>Eurofins QC LLC</b>	<b>JHA Companies</b>	<b>Trumbull Mfg</b>
<b>Evoqua Water Technologies</b>	<b>Keystone Engineering Group Inc</b>	<b>VTSCADA by Trihedral Engineering</b>
	<b>Keystone Pump &amp; Power LLC</b>	<b>Walker Process Equipment</b>

## Exhibit Hall Hours

The Exhibit Hall will be open during the following times:

<b>Monday</b>	<b>11:45am-5:30pm</b>
Lunch	11:45am-1:00pm
Afternoon Break	2:30pm-3:30pm
President's Reception	4:30pm-5:30pm
<b>Tuesday</b>	<b>7:30am-5:30pm</b>
Continental Breakfast	7:30am-8:30am
Morning Break	9:30am-10:30am
Lunch	11:30am-1:00pm
Afternoon Break	2:30pm-3:30pm
Beer & Pretzels Reception	4:30pm-5:30pm

Be sure to visit with the exhibitors!



## Raffle Prizes

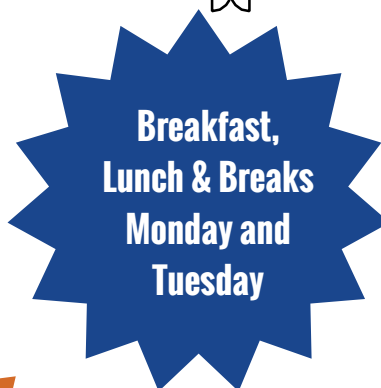
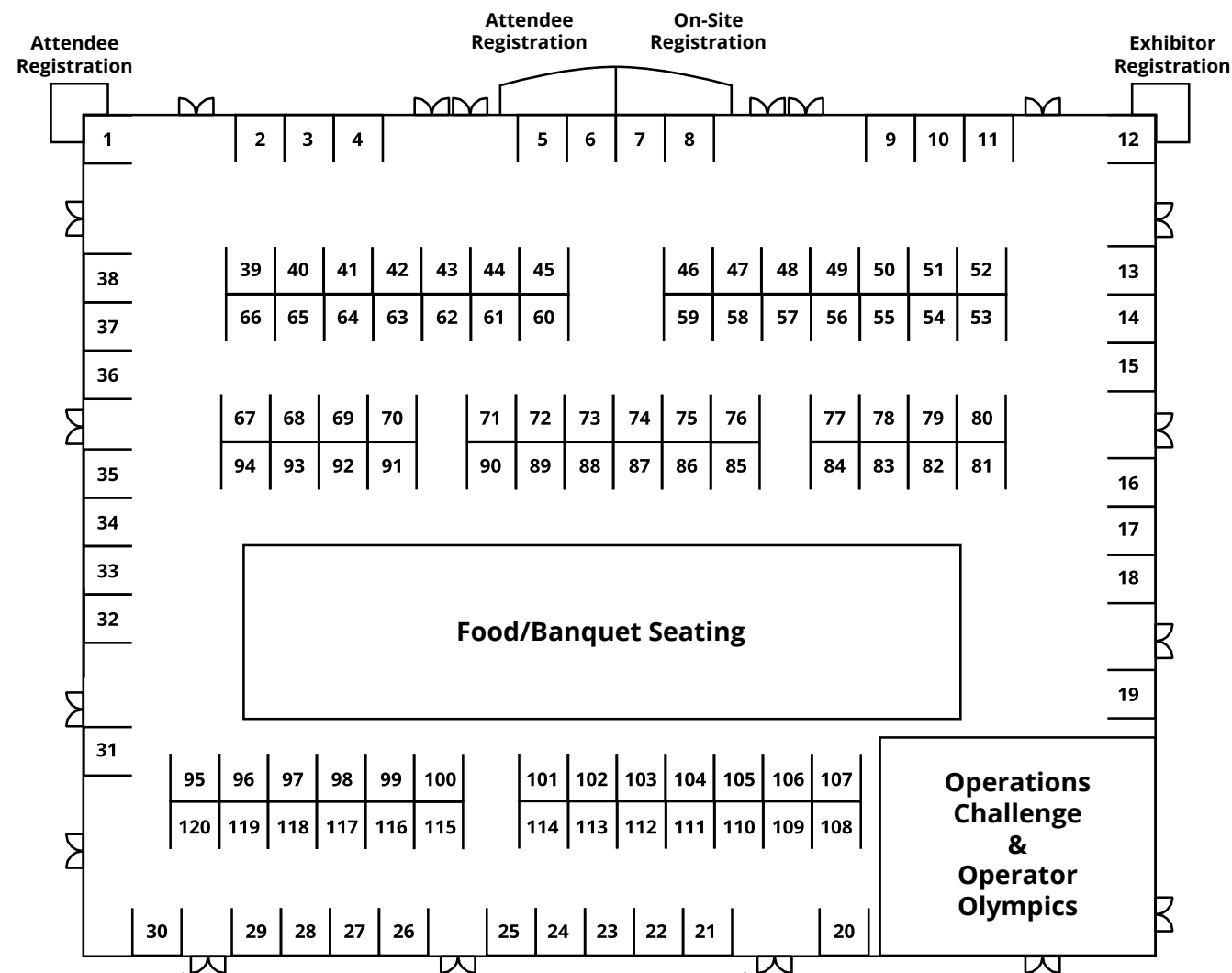
Prizes will be raffled at different times throughout the Conference. Attendees registered for the conference will be given raffle tickets, and there will be marked containers placed randomly throughout the Exhibit Hall—one for each prize. Attendees may put as many of their tickets as they'd like in each marked container. You must be present to win. Guests and exhibitor representatives are not eligible for these drawings.

**See page 29 for the Raffle Prize Drawing Schedule.**





# EXHIBIT HALL HIGHLIGHTS & FLOOR PLAN





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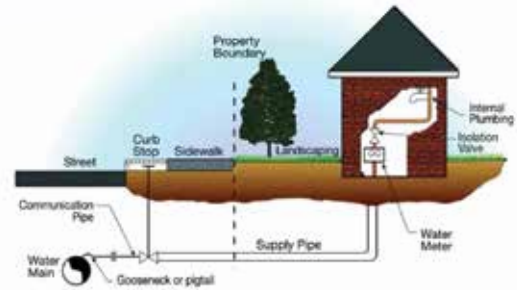
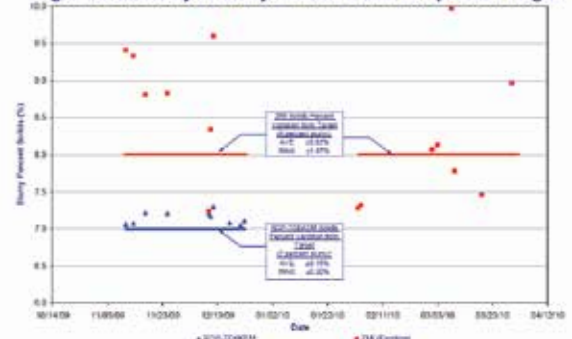


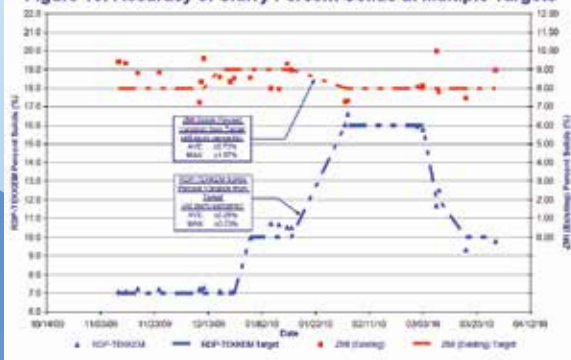
Exhibit 2.2: Typical Water Service Connection that May Provide Sources of Lead (Sandvig et al., 2008)

Figure 9: Accuracy of Slurry Percent Solids at 7 percent Target



The accuracy, reliability, and repeatability of the **RDP-TEKKEM Slaking System** is documented in these graphs by independent third parties

Figure 10: Accuracy of Slurry Percent Solids at Multiple Targets



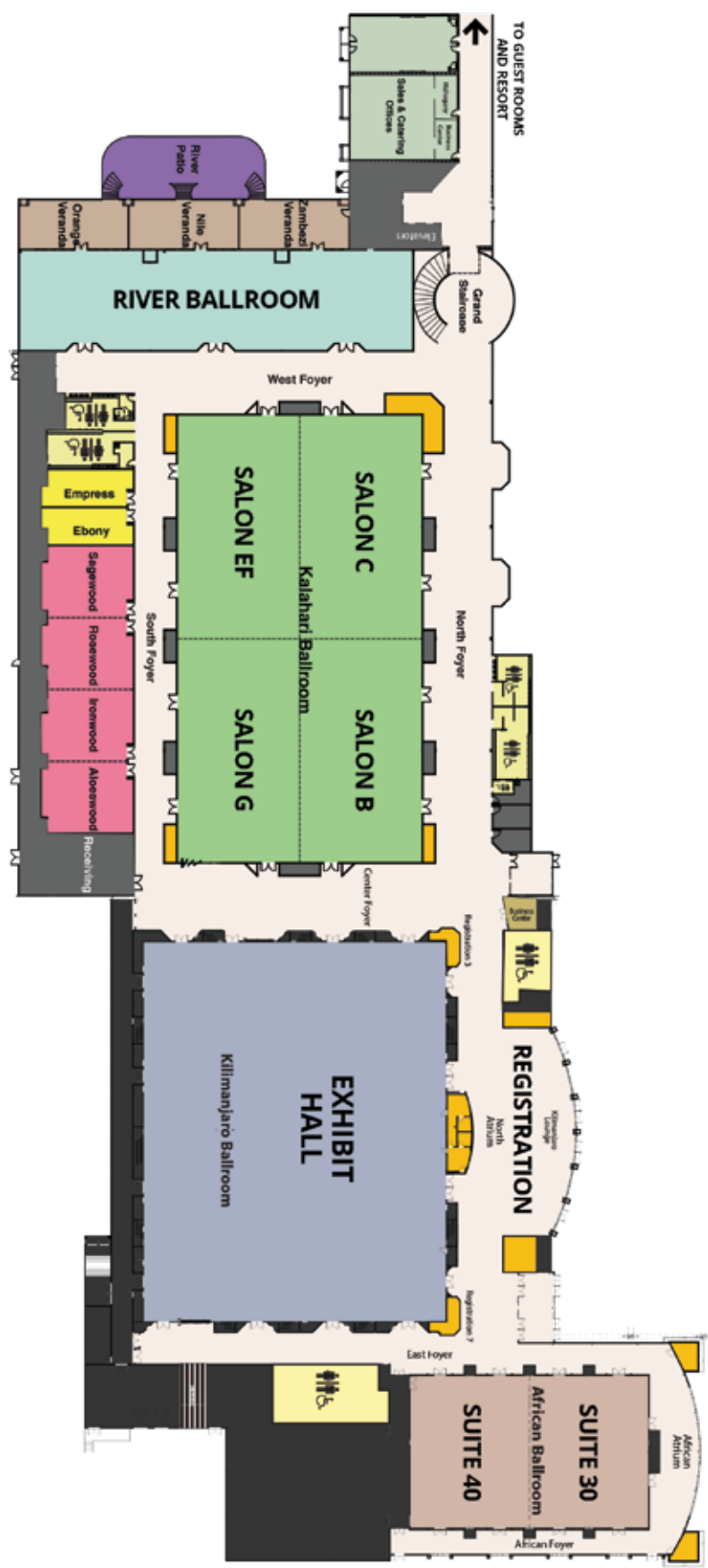
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# CONVENTION CENTER LAYOUT



## ■ WORKSHOP DETAILS

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check at the PWEA Registration Desk for seat availability.**

### **Monday, 8:45am-12:00pm - Rosewood Room**

#### **A Laboratory Practices Committee Workshop**

##### **Tips for PT Success**

This course is PA DEP approved for **3.0 drinking water & wastewater contact hours**. Course ID 8021.

*Instructor: Larissa Hoover, Cranberry Township*

This course focuses on yearly Proficiency Testing (PT) requirements. Every year, all accredited labs are required to run a PT study and report the results. Are you struggling with your PT testing? Maybe you just want some tips to make the whole process simpler. No matter if you've run PTs for twenty years or just one year, there is something for everyone to learn! *Includes breaks, lunch and student workbooks.*

### **Monday, 8:45am-4:00pm - Aloeswood Room**

#### **A Professional Operators Committee Workshop**

##### **Securing Drinking Water and Wastewater Treatment Facilities**

This course is PA DEP approved for **5.0 drinking water & wastewater contact hours**. Course ID 2952.

*Instructor: Dennis Mike, Butler Area Sewer Authority*

The Water and Wastewater Systems Operators' Certification Regulation mandates that all certified operators complete the DEP's system security course. This requirement encompasses all classifications of operators, including those with a "grandfathered" certificate and newly licensed operators. The course must be completed by the end of the operator's first full cycle. Failure to complete the course will result in the loss of license. The course only needs to be taken once. The student will be able to recognize methods for developing and increasing security awareness as it applies to water and wastewater treatment facility operations. *Includes breaks, lunch and student workbooks.*

### **Monday, 8:45am-4:30pm - Ironwood Room**

#### **A Professional Operators Committee Workshop**

##### **Wastewater Exam Study Prep Course**

This class consists of two courses PA DEP approved for a total of **6.0 wastewater contact hours**. You must attend both parts to receive full credit: Wastewater General & Activated Sludge Exam Prep – Course ID 7995; and Wastewater Exam Math Prep – Course ID 8377

*Instructors: Walter Higgins and Joseph Schulingkamp, both with US EPA; and Marc Neville, PA DEP*

This course was developed to assist individuals who are taking the wastewater exams. The first part is a brief overview. Students who have been studying for the exams will use this course as a refresher. Students who have not been preparing for an exam can use this course to give them an idea of what they know and what they need to study. The second part will cover math. At the end of this course, students will be able to: choose the correct formula to be used for each type of math problem; recognize and differentiate the data types or units in each problem (i.e. lbs vs ft<sup>3</sup>); use the taught problem-solving procedure to answer the problems by following a 6-step process; solve rate, loading, F/M, and volume problems. *Includes breaks and lunch.*

### **Monday, 1:00pm-5:00pm - Rosewood Room**

#### **A Professional Operators Committee Workshop**

##### **Fundamentals of Wastewater Treatment**

This course is PA DEP approved for **3.5 wastewater contact hours**. Course ID 7681.

*Instructor: Michael Sedon, Cranberry Township*

The purpose of this course is to provide students with necessary knowledge to prepare for the certification exam and to enhance an operator's skills and knowledge if already employed at a wastewater treatment facility. This course is intended to assist the student in preparing for the certification exam and for enhancing the skills and knowledge of operators already employed at a wastewater treatment facility. The course will include discussions about: screening; grit removal; comminution and pre-aeration; principles of operation; trickling filters; activated sludge; and waste treatment ponds. *Includes breaks, lunch and student workbooks.*

### **Tuesday, 8:00am-11:00am - Aloeswood Room**

#### **A Safety Committee Workshop**

##### **Personal Protective Equipment**

This course is PA DEP approved for **2.0 drinking water & wastewater contact hours**. Course ID 6179.

*Instructor: Kelly Kramer, RETTEW*

This class is applicable to any employee or employer who may be required to work in environments with hazards that can only be mitigated through the use of Personal Protective Equipment (PPE). An overview of the role of PPE in the workplace and the various requirements that govern its use and applicability will be discussed. Common PPE usage and limitations thereof are addressed. Topics include: hazard control methods; hazard assessment; PPE selection and limitations; welding PPE; face shields; clothing requirements; hazard avoidance; respiratory protective equipment; selection; assigned protection factors; medical evaluations; usage limitations; maintenance; breathing air; training/program evaluation; fall protection; personal fall arrest systems; variants; harness/lanyard requirements; storage; gloves; chemical exposure potential; chemical protection; training; paying for PPE; and employer vs. employee responsibility. *Includes breaks, lunch and student workbooks.*



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## ■ WORKSHOP DETAILS

### Tuesday, 8:00am-4:00pm - Ironwood Room

#### A Professional Operators Committee Workshop

##### Distribution Systems

This course is PA DEP approved for **5.5 drinking water contact hours**. Course ID 6562.

*Instructor: Michael Sedon, Cranberry Township*

There are various components and considerations which must be addressed in a distribution system. The goal of this course is to supply students with the necessary knowledge to prepare for the distribution system certification examination. Content will include: distribution operator certification; distribution network components; distribution storage; and water quality and monitoring. This course is intended to help participants prepare for the Class E certification examination. Therefore, the target audience is those who wish to take the exam. It will also be beneficial to those who wish to gain a better understanding of distribution system networks, storage, and monitoring. *Includes breaks, lunch and student workbooks.*

### Tuesday, 8:00am-4:30pm - Rosewood Room

#### A Professional Operators Committee Workshop

##### Wastewater Professionals Guide to Online Process Instrumentation for BNR Activated Sludge Monitoring

This course is PA DEP approved for **6.0 wastewater contact hours**. Course ID 6423

*Instructors: Benjamin Barker, and Justin King, both with YSI, a Xylem Brand*

Nutrient removal and sustainability are two of the biggest drivers in the wastewater industry today. Both issues demand increased automation of the activated sludge process implemented using feedback from online sensors in order to be achieved. Technology has stepped up to fill the need with a new generation of online sensors capable of monitoring at a frequency, accuracy, and reliability suitable for feedback control. However, even the best designed sensor cannot fulfill its full capabilities without proper training of the end user. Unfortunately, Operators are often left on their own to figure out how to operate and maintain these highly technical devices after the salesman or the Contractor leaves causing reduced performance and lifetime. This course provides participants essential information on the selection and care of online instrumentation for monitoring and control of biological nutrient removal (BNR) activated sludge. The main objective is to teach participants good practices that are essential to successful process monitoring. *Includes breaks, lunch and student workbooks.*

### Wednesday, 8:00am-11:30am - Rosewood Room

#### A Professional Operators Committee Workshop

##### Fats, Oils and Grease

This course is PA DEP approved for **3.0 wastewater contact hours**. Course ID 6659.

*Instructor: Dennis Mike, Butler Area Sewer Authority*

This course is designed for the operator with known Fats, Oils and Grease (FOG) problems. It will address the problem, first at the source by discussing grease traps and interceptors and then address the issue of how to develop a grease hauling and treatment program. The course will outline ways to prevent FOG from entering the wastewater collection and conveyance system; how FOG is treated at treatment facilities; and how successful FOG programs are being administered and enforced. It will include case studies on how both small and large communities developed a FOG Management Program. *Includes breaks and student workbooks.*

### Wednesday, 8:00am-11:30am - Ironwood Room

#### A Laboratory Practices Committee Workshop

##### Laboratory Ethics

This course is PA DEP approved for **3.0 drinking water & wastewater contact hours**. Course ID 7364.

*Instructor: Larissa Hoover, Cranberry Township*

This course provides detailed information for laboratory technicians and supervisors on the topic of lab ethics, based on Chapter 252. This course is for employees who need ethics refresher training for the laboratory every 14 months. The course discusses common definitions, state requirements, consequences, and prevention of unethical behavior, conflict of interest, ethics policies and agreements, data control, and legal defensibility, as well as red flags and data reporting. *Includes breaks and student workbooks.*



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# Schedule for Conference Raffle Held in the Exhibit Hall



*You must be present to win*

*Images are for illustration, and may not reflect the actual model provided.*

## Monday

**11:45 AM - 1:00 PM**



**2:30 PM - 3:30 PM**



**4:30 PM - 5:30 PM**



## Tuesday

**9:30 AM - 10:30 AM**



**11:30 AM - 1:00 PM**



**2:30 PM - 3:30 PM**



**4:30 PM - 5:30 PM**



*Guests and exhibitor representatives are not eligible for the raffle drawings.*



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# ■ TECHNICAL PROGRAM DETAILS

## MONDAY MORNING

### BIOSOLIDS PROGRAM

#### Suite 40

*Moderators: Charles Winslow, GHD; and Richard Valiga, Tully Environmental*

#### **8:45-9:15am - Understanding Current Biosolids Challenges and Leveraging Opportunities**

*Speaker: Barry Liner, PhD, PE, BCEE, Water Environment Federation*

In November 2019, WEF convened a national biosolids meeting to discuss how biosolids practitioners can prepare for the future, positioning their programs to address current and emerging challenges while also preparing to leverage opportunities. The findings from this meeting and outline on the path forward for biosolids will be discussed.

#### **9:15-9:45am - The Lancaster Area Sewer Authority Biosolids Upgrade Project from Start to Finish - Lessons Learned**

*Speaker: Michael Kyle, Lancaster Area Sewer Authority*

This presentation describes the Lancaster Area Sewer Authority Biosolids upgrade from start to finish – from the alternative analysis and selection process to problems encountered during construction. Ways the Authority worked around problems, how the pieces work together, and what problems continue will be discussed.

#### **9:45-10:15am - The Borough of Spring Grove's Rodney C. Abel Wastewater Treatment Facility: Aspects of Permitting, Design, Construction, & Review of Performance**

*Speaker: David M. Schlott, Jr., PE, ARRO Consulting, Inc.*

Planning for the Borough of Spring Grove's Wastewater Treatment Plant upgrade and expansion was initiated in 2014 with construction completed in 2017. The presentation will highlight aspects of permitting, design, and construction, and a review of performance since 2017 (including compliance with Chesapeake Bay nutrient requirements and solids handling).

#### **10:45-11:15am - Development and Startup of a Large-Scale Class B Land Application Program at the M.C. Stiles Wastewater Treatment Plant in Memphis, Tennessee**

*Speaker: Wade Yankey, Material Matters, Inc.*

Until recently, the City of Memphis M.C. Stiles WWTP utilized an on-site surface disposal site for biosolids disposal. This presentation will detail the development of a new class B biosolids land application program for the plant including RFP development, current program status, and lessons learned.

#### **11:15-11:45am - Energy Efficiency and Nutrient Reduction Through Process Optimization in the Aerobic Digester**

*Speaker: Payal Shah, Xylem Inc. - Sanitaire*

Optimization of the aerobic digestion process can provide stable aerobic digestion up to 2% TS, decrease energy consumption up to 90%, reduce N and P return up to 90%, produce beneficial reuse of biosolids for agricultural purposes, and automatically adapt to dynamic conditions.

## COLLECTION SYSTEMS PROGRAM

### Salon B

#### CONSTRUCTION

*Moderators: Duk Shin, Gannett Fleming, and Jeff Cantwell, Flow Assessment*

#### **8:45-9:15am - Where to Build? An Interceptor Augmentation Project in a Limited Corridor**

*Speaker: Chad Hanley, PE, Herbert, Rowland & Grubic, Inc.*

The Peters Township Sanitary Authority had just completed construction of their new Donaldson's Crossroad WPCP; now it was time to address the two undersized interceptors that conveyed the wastewater. This presentation will discuss the challenges of augmenting these interceptors after decades of residential construction encroached on the easements within the drainage basins.

#### **9:15-9:45am - Collection System Rehabilitation Experiences**

*Speaker: Brooke Hamberger, PE, Nussbaumer & Clarke, Inc.*

An overview of the benefits of collection system rehabilitation and rehabilitation options, focusing on CIPP lining and cementitious manhole lining. We will discuss projects, challenges, and funding in four communities in Western New York: Town of Tonawanda, City of Lockport, Town of Cheektowaga, and Village of Kenmore.

#### **9:45-10:15am - A Solution for Failing On-Lot Septic Systems in an Older Small Rural Community**

*Speaker: Dick A. Decker PE, Potter Township Board of Supervisors*

The Village of Potters Mills had confirmed or suspected malfunctions in over 70% of septic systems. The nearest wastewater system was over 3.5 miles away and failing septic systems were contaminating water supplies and the adjacent trout stream. This presentation will review the problem, regulatory issues, project funding, and the selected solution.

#### **10:45-11:15am - Trenchless Rehabilitation of Large Diameter Combined Sewer**

*Speaker: Brian Shiels, PE, Mott MacDonald*

While trenchless rehabilitation is preferable in many respects, it is not without its challenges. The rehabilitation of a 96-inch riveted steel combined sewer pipe under the approach to the Holland Tunnel is no exception. This is the story of the 96-inch rehabilitation via a field wet-out CIPP lining installation.

#### **11:15-11:45am - Going Deep to Avoid Conflict - Microtunneling for Utility Construction**

*Speaker: Dennis R. Funk, PE, Gannett Fleming, Inc.*

Microtunneling is a useful but less common trenchless alternative for larger pipeline construction to avoid environmental impacts, utility dense areas, and other stakeholder concerns. This presentation reviews the equipment and requirements for microtunneling and presents considerations for evaluating the suitability of a project for microtunnel construction.

# ■ TECHNICAL PROGRAM DETAILS

## ENGINEERING & CONSTRUCTION PROGRAM

Suite 30

### ALTERNATE PROJECT DELIVERY APPROACHES & PERSPECTIVES

*Moderators: Richard Heinick and Rober Dengler, both with Gannett Fleming*

#### 8:45-9:15am - The Solicitor and the Salesman - Two Perspectives on Guaranteed Energy Savings Agreements from Opposite Sides of the Negotiating Table

*Speakers: Dennis Clough, Navitas; and E. Lee Stinnett, Salzmann Hughes PC*

Guaranteed Energy Savings Agreements are now being considered by utilities. How do they relate to the Separations Act and the typical municipal bidding process? The perspectives of the utility's solicitor and the energy service company's salesman will provide a well-rounded presentation of the benefits and challenges of this alternative project delivery method.

#### 9:15-9:45am - Conquering Front Street: The Strategic Use of Emergency and Maintenance Contracts in Harrisburg

*Speakers: Caleb Krauter, Herbert, Rowland & Grubic, Inc.; and Jeff Bowra, Capital Region Water*

Emergency & Maintenance Contract procedures helped Capital Region Water rehabilitate its Front Street sewer interceptor in under 8 weeks and within budget, despite significant utility conflicts and construction challenges. Learn more about the efficiencies created by EMC contract procedures and what types of projects are best suited for them.

#### 9:45-10:15am - Increasing Secondary Treatment Capacity of the Woods Run Wastewater Treatment Plant Using a Constructible Approach

*Speaker: Meredith J. Welle, HDR Engineering, Inc.*

The secondary treatment capacity of the ALCOSAN Woods Run WWTP will be increased to 295 mgd. Constructability and maintenance of plant operations challenges will be a focus of this presentation, and the subsequent design decisions that were made to mitigate risks and overcome the constructability challenges.

#### 10:45-11:15am - Alternative Procurement Leads to Energy Enhancements at the Derry Township Municipal Authority

*Speaker: William Rehkop, Derry Township Municipal Authority*

Through the Commonwealth's cooperative purchasing program, COSTARS is an alternate project delivery method for public utilities in Pennsylvania to achieve procurement savings and best value. This presentation will provide an in-depth review of Derry Township Municipal Authority's Energy Enhancements project using COSTARS for Combined Heat and Power equipment procurement.

#### 11:15-11:45am - To Be Announced

## STORMWATER PROGRAM

Salon G

### WETTER WEATHER AND GREEN INFRASTRUCTURE

*Moderator: Zarlasht Abubakr, Langan Engineering & Environmental Services*

#### 8:45-9:15am - Rainfall Analysis and Climate Change Projections for Municipal Infrastructure Planning

*Speaker: Emma Rakestraw, Jacobs*

Much of public discussion around climate change has focused on how temperatures will increase in the coming decades, but climate change is not limited to temperature alone. Precipitation changes will also have an impact on communities, particularly in urban areas, that are vulnerable to increased flooding and property damage.

#### 9:15-9:45am - A Modern Approach to Watershed Hydrology for Stormwater Management

*Speaker: Emily Mercurio, PhD, PG, CivicMappe*

The availability of high resolution and highly accurate public geospatial data enables the creation of detailed derivative data of terrain and land cover that can inform new hydrologic models for use in stormwater management. These derivative geospatial data products can serve as the basis for hydrologic characterizations of urban watersheds.

#### 9:45-10:15am - Herring Run Trail Emergency Stabilization - Saving the Trail

*Speaker: Jeffrey M Stamm, PE, Gannett Fleming*

Gannett Fleming provided design, permitting and construction services for emergency bank stabilization of a section of Herring Run where continuing erosion posed imminent danger to municipal road and utility infrastructure adjacent to the bank. Emergency stabilization was performed as a design-build project until permanent stream restoration improvements could be constructed.

#### 10:45-11:15am - Valuation of Urban Floodplain Reconnection for Nutrient and Sediment Reduction

*Speakers: Kevin Hoover and Ben Mikesell, both with Buchart Horn, Inc.*

The valuation of MS4 sediment reduction credits for an urban floodplain reconnection project is assessed for Protocol #3 of the Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects, with a finding that the Protocol likely understates actual removal rates by a considerable amount.

#### 11:15-11:45 - Lancaster's Integrated Green Infrastructure Plan: Reviewing a Decade of Implementation and Planning for the Next

*Speaker: Susan Beck, Jacobs; and Angela Brackbill, City of Lancaster*

The City of Lancaster has been implementing an integrated Green Infrastructure program that incorporates GI in a cost-effective, adaptive, and systematic manner into public projects and select private projects since 2011. This presentation will explore the City's efforts, including a number of detailed case studies which demonstrate various lessons learned and unique design solutions for successful GI implementation.




A close-up photograph of a membrane filtration system, showing multiple cylindrical modules with black piping and a 'MultiBo' label.

**Membrane Systems**

An aerial photograph of a wastewater treatment plant, showing various circular and rectangular tanks, buildings, and surrounding greenery.

**Biological Processes**

A photograph of a large circular aeration tank with a central vertical shaft and horizontal mixing arms, situated in an outdoor industrial setting.

**Aeration and Mixing**

## TOTAL WATER MANAGEMENT SOLUTIONS

An aerial photograph of a wastewater treatment facility featuring several large circular tanks with internal sludge granules, surrounded by greenery and infrastructure.

**Aerobic Granular Sludge**

A photograph of two red industrial ozone generators with black piping and electrical connections, mounted on a metal frame.

**Ozone Systems**

A photograph of a large-scale cloth media filtration system, showing multiple rows of green filter cloths hanging from a metal frame over a water tank.

**Cloth Media Filtration**

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# ■ TECHNICAL PROGRAM DETAILS

## UTILITY MANAGEMENT PROGRAM

Salon C

### SUSTAINABILITY, RESILIENCY, REGULATORY UPDATE

Moderator: Elizabeth Cheeseman, Dawood Engineering

#### 8:45-9:15am - Third-Party Services Add Value to the PSU WRF Upgrade

Speaker: Mark Pickering, GHD

Successful Design-Build projects with high cost and complexity benefit from an experienced third-party technical team to serve in an advisory role. This case study of the PSU WRF project will show how third-party services benefited both PSU and the Design-Build team during the planning, design, and trade selection phases.

#### 9:15-9:45am - Incident Response Management Systems (IRMS) Allow for Event Tracking, Simplified Reporting, and Resident Engagement through Completion

Speaker: Tim Haer, Daupler, Inc.

With the recent emergencies (pandemics and natural disasters), communities have been forced to reassess their priority response. With increased absenteeism due to school closures, travel restrictions and stay in place orders, municipalities have been forced to adjust work from home capabilities and remote access for employees.

#### 9:45-10:15am - Computer Maintenance Management Systems

Speaker: Matt Manchisi, PE, PMP, CRMP, Kimley Horn

This presentation provides an overview of CMMS systems as well as an example roadmap for system selection and implementation. The focus of this presentation will be on the planning (requirements gathering) and procurement phases of the system selection process.

#### 10:45-11:15 - Implementation of Computerized Maintenance Management Systems

Speaker: Jeff Bowra, Capital Region Water Authority

This presentation describes the implementation process used by Capital Region Water as they transitioned from a paper work order system to their CMMS. The topics include planning, training of CRW staff (drinking water, wastewater, and administrative), ongoing support, and a summary of the challenges and successes of the transition.

#### 11:15-11:45am - Using Best Technologies to Improve Utility Effectiveness and Efficiency

Speaker: Ohan Oumoudiam, GeoDecisions, a Division of Gannett Fleming

Explore examples of how utilities throughout Pennsylvania have deployed business solutions using ArcGIS Online and Enterprise, from start-up, to quick solutions that provide immediate return on investment, leading to more system integration that will enable enhanced workflow and reporting.

## MONDAY AFTERNOON

### BIOSOLIDS PROGRAM

Suite 40

Moderators: Charles Winslow, GHD; and Richard Valiga, Tully Environmental

#### 1:00-1:30pm - Biochar Production from Municipal Wastewater

##### Biosolids: The Future of Truly Sustainable Organics Management

Speaker: Valentino Villa, Bioforcetech Corporation

Biodrying coupled with pyrolysis is an autogenous, carbon-negative process that can generate clean, nutrient-rich biochar from municipal wastewater biosolids feedstock. Studies also show the process destroys PFAS compounds. This presentation explores the basics of this technology, demonstrating that "waste" does not need to be wasted by looking at real-world applications.

#### 1:30-2:00pm - Rapid Start-Up of an ANITA Mox Deammonification System Downstream of Phosphorus Recovery and Anaerobic Digesters

Speaker: Mitch Johnson, Veolia Water

Sidestream deammonification is a fast-growing field that allows for the management of concentrated waste streams and mitigates their impact on the mainstream nutrient removal process. The ANITA Mox process routinely achieves 80-85% ammonia removal with minimal nitrate production, low DO concentrations and no carbon addition for denitrification.

#### 2:00-2:30pm - Double Your Cake Solids with Elode Technology

Speaker: Christopher Boyd, Charter Machine Company

This presentation is about a new look at using electricity to double the cake solids content coming off of any dewatering equipment in order to cut the disposal costs in half. This technology does not use heat or any other fuel, just setting up a DC electric field to realign sludge particles.

#### 3:30-4:00pm - Polymer/Flocculants 101: Basic Chemistry, Handling/Storage, Activation, and Optimization

Speaker: Yong Kim, PhD, UGSI Solutions

This presentation illustrates how to optimize polymer performance by understanding many factors that affect the quality of polymer solution such as polymer chemistry, handling/storage, dilution water, mixing profile, and aging. Laboratory testing and field evaluations at municipal wastewater treatment plants confirmed that well-designed polymer systems could improve dewatering process significantly.

#### 4:00-4:30pm - Sustainable Nutrient Recovery While Meeting Water Quality Based Effluent Limits

Speaker: Ed Coggin, PE, Weston Solutions, Inc.

This presentation discusses how one Wisconsin community, the Village of Roberts, is implementing a wastewater treatment system upgrade to meet a WQBEL total phosphorus limit of 0.04 milligrams per liter (mg/L), one of the lowest discharge limits in the U.S.



# ■ TECHNICAL PROGRAM DETAILS

## COLLECTION SYSTEMS PROGRAM

### Salon B

#### WET WEATHER AND REGULATORY COMPLIANCE

Moderators: *Melissa Smith, GHD; and Matt Cichy, Herbert, Rowland & Grubic*

#### **1:00-1:30pm - Capital Grouting Replaces Maintenance Grouting - Why Packer Injection Grouting Has Displaced 90% of Our Cured-In-Place Lining**

Speaker: *Jim Shelton, Arcadis*

Significant advances in delivery systems and processes have increased the sewers that can be rehabilitated using grouting. These advances are paralleled by improved grout formulations and a delivery philosophy that has improved long-term water tightness of grouted sewers while maintaining a significant cost advantage over other techniques.

#### **1:30-2:00pm - Achieving Consent Order Compliance: Comprehensive Mini-Basin Planning and Rehabilitation to Eliminate Sanitary Sewer Overflows and Reduce Hydraulic Overload**

Speaker: *Joel Kostelac, GHD*

As a result of excessive sanitary sewer inflow and infiltration, Susquehanna Township Authority initiated a corrective action plan in the early 2000s to systematically rehabilitate high priority areas. Results of the recent rehabilitation project in mini-basins 32D/E will be discussed, in addition to future efforts to eliminate sanitary sewer overflows.

#### **2:00-2:30pm - The Lining was the Easy Part - Emergency Force Main Rehabilitation under a River for a Critical Healthcare Manufacturing Facility in the Midst of a Pandemic during the Holidays**

Speaker: *Jim Shelton, Arcadis*

This presentation reviews the evaluation of technologies, the sequence of operations and contractors required to complete the work, the unexpected as-built conditions, the difficulties descaling, sealing, and dewatering the pipe, the specialty cured in place lining, and the specialty end seals needed to rehabilitate a 60 psi industrial force main in 3 weeks.

#### **3:30-4:30pm - Mobile Sessions in the Exhibit Hall**

The PWEA Collection Systems Committee is bringing a successful concept from the Water Environment Federation (WEF) National Conference and the WEF National Collection Systems Specialty Conference to the PennTec Conference: Mobile Sessions in selected exhibit booths. Moderators will lead small groups to the presentations. Attendees receive the same credit as if they were attending a classroom presentation. Presentations are educational, not sales pitches.

**Meet near the PWEA Registration Desk at 3:15pm.**

##### **Quality Assurance Practices and Their Relationship to Field Measurements**

Presented by Flow Assessment Services

##### **Micro I&I Detection**

Presented by Duke's Root Control

##### **COVID 19 Sampling**

Presented by Hach

##### **Manhole Rehab Techniques**

Presented by Utility Services Group

##### **The Benefits of Multilayer Manhole Liners**

Presented by Advanced Rehabilitation Technologies

##### **Manhole Liner Materials and Substrate Preparation**

Presented by Epoxytec

##### **Level Versus Area-Velocity Flow Measurement**

Presented by Teledyne ISCO

## ENGINEERING & CONSTRUCTION PROGRAM

### Suite 30

#### **USE OF TECHNOLOGY IN ENGINEERING & CONSTRUCTION PROJECTS**

Moderator: *Richard Heinick and Robert Dengler, both with Gannett Fleming*

#### **1:00-1:30pm - Use of Modeling for Optimization of Activated Sludge Process Design**

Speakers: *John Scheri, PE; and Kelly Baxter, PE, both with Mott MacDonald*

This presentation details several case studies illustrating use of activated sludge simulation software in design, including: realistic representation of mixing and flow regime in activated sludge train; modeling of oxidation ditch performance; optimization of diffuser distribution between different zones of aeration tankage; and accounting for diurnal variations in oxygen demand determination and blower design.



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# **EnviroGo**

## ■ TECHNICAL PROGRAM DETAILS

### **1:30-2:00pm - Assessing Infrastructure Alternatives Using Catchment Modeling Software: An Approach to Wet Weather Planning and Decision Making**

*Speaker: Scott Krasner, Philadelphia Water Department*

Facing a wet weather-related regulatory deadline? This presentation will detail the development and application of a wastewater treatment plant hydraulic model using catchment modeling software to assess infrastructure for wet weather planning and decision-making. A case study of how this approach was employed at PWD will be presented.

### **2:00-2:30pm - Increasing Removal Efficiency of Primary Settling Through Influent Solids Characterization and CFD Modeling**

*Speakers: Jacob Metch, PhD, HDR*

Optimization of primary settling tanks can improve effluent quality, increase capacity, and possibly help avoid unnecessary capital and operating costs. The approach used at a Philadelphia water pollution control plant to assess primary performance and modeling efforts used to optimize settling with structural modifications like baffle systems will be discussed.

### **3:30-4:00pm - New Generation Automation Architecture - Hybrid DCS: Converging PLCs and SCADA for Water and Wastewater Plantwide Optimization**

*Speaker: Jose G. Piña, Schneider Electric*

Current methods of configuring SCADA systems and Logic Controllers or PLCs for water and wastewater plants limit their design, maintenance, optimization and expansion due to lack of connectivity, integration with electrical equipment and standardization. Hybrid DCS brings SCADAs, PLCs and electrical equipment together to enhance plant efficiency.

### **4:00-4:30pm - What's in Your Drawings - Uncovering Hazards in Your Drawings by Performing Hazard Operability (HAZOP) Reviews**

*Speaker: Milissa Hirst, Mott MacDonald*

Hazard Operability Reviews (HAZOP) is a formalized methodology of reviewing drawings during the design phase and is used to identify and mitigate the effects of abnormal operating conditions. This presentation will highlight the process and case study including the resulting design modifications to improve safety and operations.

#### **STORMWATER PROGRAM**

##### **Salon G**

#### **STORMWATER: EASIER WITH FRIENDS**

*Moderator: Nathan Walker, Gannett Fleming*

### **1:00-1:30pm - The World Outside: The Public's Attitude Toward You and Your Work**

*Speaker: Eric Eckl, Water Words That Work, LLC*

Ever wonder if you are communicating effectively with your constituents? Ever wonder if they understand your municipality's stormwater and wastewater projects and why they are important? This presentation will explore what polls, surveys, focus groups, and other research tools teach us about the public's attitudes towards you and your work.

### **1:30-2:30pm - MS4 Roundtable**

When managing stormwater, municipalities must balance routine storm sewer maintenance with flood mitigation projects, public education, and MS4 water quality mandates. At this session, ask representatives from PADEP, PennDOT, Conservation Districts, boroughs, and townships about the tools and cost-effective approaches that communities can use to address increasing stormwater demands.

### **3:30-4:00pm - How to Equitably Fund the Stormwater Challenge**

*Speaker: Edward Barca, Pittsburgh Water & Sewer Authority*

The City of Pittsburgh is a unique city known for its rivers, hills, and valleys. The significant increase in precipitation has posed significant challenges with stormwater. The dense urban landscape composed of 90 neighborhoods, aging and overwhelmed infrastructure, and threatened water quality demand innovative, efficient, and equitable solutions.

### **4:00-4:30pm - MS4 Collaboration - Regional Partnerships and the Path Forward**

*Speakers: Samantha Albert, PE, PMP, Borton-Lawson; and Jeff Colella, Wyoming Valley Sanitary Authority*

Wyoming Valley Sanitary Authority and Borton-Lawson, Program Manager of the MS4 Program, will share lessons learned, strategy implemented and executing on the state's second largest regional partnership for stormwater management and MS4 compliance. Learn how to maximize the benefits of collaboration, maintain public support and establish community partners to keep momentum towards compliance.

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# ■ TECHNICAL PROGRAM DETAILS

## UTILITY MANAGEMENT PROGRAM

Salon C

### SUSTAINABILITY, RESILIENCY, REGULATORY UPDATE

Moderator: Mark Pickering, GHD

#### 1:00-1:30pm - Department of Homeland Security and other Assessment Services for Consideration

Speakers: Bob Winters, Richard Jones, and David Wood, all with US Department of Homeland Security

Department of Homeland Security water and wastewater physical security assessment services will be discussed. Although most often focused on low-cost, no-cost options, protection and resilience feedback may also be used to validate needed plant enhancements. This is not an inspection and results are protected from disclosure by federal law.

#### 1:30-2:00pm - Advancements in GIS Based Field Inventory

Speakers: Daniel Hunter, Gannett Fleming, Inc.; and Amy Batdorf, Schuylkill County Municipal Authority

Gannett Fleming was tasked by Schuylkill County Municipal Authority to develop a solution for the inventory and assessment of their wastewater collection systems. With newly acquired systems and existing infrastructure a plan was developed encompassing hardware and software selection, database design, quality control and personnel training.

#### 2:00-2:30pm - Strategies to Assess and Manage Your Utility's PFAS-Related Risks

Speaker: Paul Calamita, AquaLaw, PLC

PFAS contamination challenges public utilities like no other issue. We can test for fewer than five percent of these chemicals and can't agree on "safe" levels for those handful. PFAS implicate public water supply, NPDES permittees, private industries, landfills, biosolids, fire-fighting, and countless household products. Learn utility PFAS coping strategies.

#### 3:30-4:00pm - 2021 Legal Update for Water Professionals in Pennsylvania

Speaker: Steven A. Hann, Esq, Hamburg, Rubin, Mullin, Maxwell & Lupin, P.C.

This session will provide an update on significant legal and regulatory issues impacting professionals in drinking water, wastewater and stormwater-related fields. The specific legal and regulatory issues will be selected closer to the conference, and will mirror technical topics discussed at the conference, such as PFOS/PFAS, stormwater authorities and the impact of recent legislative/regulatory initiatives.

#### 4:00-4:30pm - Top 5 Things to Know about Cybersecurity and IoT in Utility Management

Speaker: Barry Liner, PhD, PE, BCEE, Water Environment Association

Utilities are widely implementing innovations, including a significant amount of IoT and IIoT to improve efficiency and create more cost-effective solutions. These solutions, however, can pose complications. There are means to overcome obstacles that may pose disruptions and this presentation will provide a 2020 'Top Five' cybersecurity and privacy consideration knowledge exchange for utility managers.

## TUESDAY MORNING

### COLLECTION SYSTEMS

Salon B

### CONDITION ASSESSMENT

Moderators: Liz Cheeseman, Dawood Engineering, and Roger Lehman, Weston Solutions

#### 8:00-8:30am - Manhole Corrosion Variance Analysis Project Results Using 3D Scanning

Speaker: Pierre Mikhail, CUES Inc.

A case study detailing the results of onsite 3D scanning of large sewer system structures in the Boston area will be presented. Variance reporting details the impact of corrosion since new construction using CAD comparison of the as-built compared to the field scan.

#### 8:30-9:00am - Small System CSO Compliance

Speaker: Hyon Duk Shin, PE, Gannett Fleming, Inc.

A case study of the Borough of Bridgeport's efforts to maintain and improve their 91-year-old combined sewer system to meet current regulatory requirements will be discussed, along with the consent order decree, Long Term Control Plans, funding, capital projects, modeling, and maintenance programs.

#### 9:00-9:30am - Non-Destructive Investigation and Pro-Active Hydrogen Sulfide Corrosion Rehabilitation of Severely Corroded Wastewater Collection System Infrastructure

Speaker: Anastasia Rudenko, GHD

Through non-destructive investigations, the Town of Uxbridge, MA identified multiple defects in its collection system - including a partial collapse of the reinforced concrete pipe downstream of an interceptor manhole and reduced wall thickness of a ductile iron force main pipe. This presentation will discuss investigative methods, rehabilitation options and construction.

#### 10:30-11:00am - High Tech: Using Smart Sewers to Improve Collections & Optimize Maintenance

Speaker: Kevin Flis, Xylem

How smart sewer networks reduce overflows, optimize hydraulics, minimize the cost of capital required to deliver these objectives, and improve system maintenance by using a real time decision support system will be presented. Case studies where utilities avoided \$500M in capital costs and reduced operating costs by \$1.5M annually will be discussed.

#### 11:00-11:30am - Root Cause Analysis of Influent Sludge Pump Failure

Speaker: Kurt Schumann, ProPump Services

A Root Cause Analysis that was performed at one of the largest wastewater treatment facilities in the US will be discussed. The presentation will include the topics of inspection of the pump, repair considerations, re-installation of repaired pump, RCA, and recommendations.





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# ■ TECHNICAL PROGRAM DETAILS

## ENGINEERING & CONSTRUCTION PROGRAM

### Suite 30

#### BNR/ENR

*Moderator: Justin Mendinsky, Herbert, Rowland & Grubic*

#### **8:00-8:30am - Achieving Low Level Nutrient Removal in a True Batch Sequencing Batch Reactor in Pennsylvania**

*Speaker: Craig Zack, KPI Technology*

This presentation will focus on Biological Nutrient Removal and the flexibility that a True Batch SBR system provides to achieve these requirements; and will highlight the operation of the Northern Lebanon County Authority SBR System. Process description and operation under different conditions will be presented.

#### **8:30-9:00am - Cutting Edge Technology Delivers Robust Nutrient Removal Saving Millions**

*Speaker: Christopher Curran, AECOM*

CRW implemented an innovative approach of sidestream treatment to achieve nitrogen removal through bioaugmentation and two stages of mainstream anoxic treatment. This approach was not only more cost-effective than conventional nutrient removal, but also more readily implemented within the space constraints and has exceeded compliance with Chesapeake Bay Tributary Strategies.

#### **9:00-9:30am - Innovative Strategies for Maximizing Total Phosphorus Reduction**

*Speaker: Joshua Fox, PE, Herbert, Rowland & Grubic, Inc.*

This session includes an evaluation of treatment technologies to achieve varying level of total phosphorus reduction affecting utilities today. The presentation will review several technologies and help equip utility professionals to select which one is most appropriate for their specific application needs.

#### **10:30-11:00am - The Role of Glycerol on EBPR Process in Wastewater Treatment Plants with Short Anaerobic HRT**

*Speaker: Mahsa Mehrdad, Environmental Operating Solutions (EOSi)*

Glycerol as a supplemental carbon source for enhanced biological phosphorus removal (EBPR) promotes carbon uptake and phosphorous release rates in plants with short anaerobic HRT. This session will demonstrate the mechanism of glycerol-based EBPR, related stoichiometric ratios and microbial population dynamics.

#### **11:00-11:30am - A Review of the IFAS Technology: 10 Years' Experience in Pennsylvania**

*Speaker: Larry Li, Veolia Water Technologies*

This presentation will share the experience on how the IFAS technology with moving bed media has been helping three Pennsylvania facilities achieve their effluent limits in the past 10 years. One of the plants was a BNR retrofit with an effluent TN limit of 6 mg/L and a max design flow rate of 37 mgd.

## INDUSTRIAL WASTE PRETREATMENT PROGRAM

### Suite 40

*Moderator: Stephanie Clay, ARRO Consulting*

#### **8:00-8:30am - Removal of Emerging Contaminants through Ozone-BAC: Influence of Activated Carbon Properties**

*Speaker: Adam Redding, PhD, Calgon Carbon, a Kuraray Company*

This study evaluated the influence of activated carbon surface chemistry, porosity, and grain size on pilot-scale biologically-active carbon (BAC) columns for nutrient reduction, emerging contaminant removal, and backwashing frequency.

#### **8:30-9:00am - Effective Nutrient Removal Using Biological and Physical/Chemical Technologies (Phosphorus & Nitrogen Removal)**

*Speaker: Timur Dunaev, Veolia Water Technologies*

With stricter environmental regulations regarding nutrient discharge limits, organizations may need to integrate new treatment processes to ensure wastewater effluent is in compliance. There is a wide range of proven technologies designed to remove Nitrogen and Phosphorus. These systems can be installed or retrofitted to provide robust and economical wastewater treatment. This presentation will discuss the various strategies for nutrient removal and related case studies.

#### **9:00-9:30am - Treatment of Water Containing Per- and Polyfluoroalkyl Substances (PFAS) with OxPure CH1240 Activated Carbon**

*Speaker: Neal E. Megonnell, Puragen Activated Carbons*

Activated carbon has been utilized to remove PFAS compounds from water. With the emergence of additional PFAS and the very low concentration treatment objectives, OxPure CH 1240 was developed to remove these compounds from water, taking advantage of the high adsorption capacity and increased adsorption kinetics over current market products.

#### **10:30-11:00am - Elements of an EPA Industrial Pretreatment Program Inspection by the Municipal Pretreatment Coordinator**

*Speaker: Jenna Bishop, EIT, ARRO Consulting, Inc.*

An EPA industrial pretreatment inspection is an annual requirement for all POTW's who are operating under an EPA mandated industrial pretreatment program. This presentation will offer insight into how to prepare for an inspection and potential items the inspector will want to see while onsite.

#### **11:00-11:30am - Industrial Pretreatment Plant Upgrades**

*Speakers: Bryan T. Panther, PE, and David M. Schlott, Jr., PE, both with ARRO Consulting, Inc.*

The presentation will highlight aspects of the design of upgrades to an existing food processing wastewater pretreatment plant. Upgrades to pumping, equalization, and dissolved air floatation will provide additional capacity in order to address increased food production while keeping the plant in operation during construction.



# ■ TECHNICAL PROGRAM DETAILS

## STORMWATER PROGRAM

### Salon G

#### LIVING WITH YOUR STORMWATER PROGRAM

Moderator: Cindy Zawrotuk, GHD

#### 8:00-8:30am - Understanding the Time and Paperwork Commitments Associated with Maintaining BMP Compliance as Part of PRP and/or TMDL Plan Implementation

Speaker: Mark Harman, PG, MS4 SCP, ARRO Consulting, Inc.

This presentation outlines the required standard operating procedures (SOPs) and documentation that the DEP and/or EPA will expect to see for each BMP during a MS4 program review or audit. Documentation includes: detailed written access, operation/maintenance and repair/replacement SOPs, and verifications that those SOPs are being followed for each BMP.

#### 8:30-9:00am - Lancaster County Municipalities Implementing Stormwater BMPs for MS4 Compliance - Overcoming Funding, Performance, and Maintenance Challenges

Speaker: Kara Kalupson, RETTEW Associates, Inc

Because Lancaster County is Pennsylvania's biggest polluter to the Chesapeake Bay, government agencies are prioritizing grant funding to implement stormwater and water quality projects required by the MS4 permit and Chesapeake Bay TMDL. With grant awards and creative thinking, townships are constructing BMPs and learning how to maintain them.

#### 9:00-9:30am - Using Asset Management to Prioritize Investment

Speakers: Charlie Card and Todd Plank, both with GHD

This presentation will focus on exploring the US EPA's Five-Core Question Asset Management Framework, which is the most widely used framework among water, wastewater, and stormwater utilities for developing asset management plans.

#### 10:30-11:00am - Implementing Regional Stormwater Collaboration on a Small Scale

Speakers: Adrienne Vicari, PE, Herbert, Rowland & Grubic, Inc.; E. Lee Stinnett, Salzmann Hughes; and Olivia Lopatofsky, Lycoming County Water & Sewer Authority

This presentation will show how the benefits of regional stormwater collaboration can be achieved on a small scale through a case study of a partnership between two municipalities and an existing wastewater authority. It will also explore the expansion of wastewater authorities to include stormwater management.

#### 11:00-11:30am - Stormwater BMP Performance in Meeting Chesapeake Bay TMDL Goals in Prince George's County, MD

Speaker: Srikanth Gorugantula, PE, CFM, ENV SP, HDR Inc.

The Clean Water Partnership (CWP) program, a Community-Based Partnership between Prince George County, MD and Corvias (Manager) was developed as an approach to cost effectively implement and maintain stormwater Best Management Practice (BMP) infrastructure while enhancing the local business and resident participation and environmental literacy through the program.

## UTILITY MANAGEMENT PROGRAM

### Salon C

#### FINANCE AND ASSET MANAGEMENT

Moderator: Jack Rae, Gannett Fleming

#### 8:00-8:30am - PENNVEST Financing Water Quality Improvement Projects

Speaker: Tesra Schlupp, PENNVEST

PENNVEST offers funding options that are traditional, as well as new and innovative ways to fund projects. PENNVEST services the communities and citizens of Pennsylvania by funding sewer, stormwater, non-point source and drinking water improvement projects.

#### 8:30-9:00am - Tackling Affordability in the Steel City

Speakers: Rocky Craley, Raftelis, and Julie Quigley, Pittsburgh Water & Sewer Authority

Pittsburgh Water and Sewer Authority has committed to continuing the Affordability discussion by comprehensively evaluating affordability in its service area, convening a stakeholder advisory group, and considering options to enhance their customer assistance program.

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## ■ TECHNICAL PROGRAM DETAILS

### 9:00-9:30am - Strategic Financial Planning: The Doorway to Cost-Effective Maintenance While Ensuring User Rates and Capital Charges Remain Competitive and Stable

*Speakers: Mike Gossert, Keystone Business Connections; Peter Melan, PeterMelan.com; and Adrienne Vicari, PE, Herbert, Rowland & Grubic*

Proper planning provides a sound basis for utilities to cost-effectively maintain their facilities while ensuring user rates remain competitive and stable. The tendency to defer needed repairs results in emergency repairs and larger replacement projects. Strategic financial planning came to the forefront during 2021 budget preparation due to COVID-19.

### 10:30-11:00am - Compliance and Capital Solutions Through Regionalization

*Speakers: John Trant, Jr., City of Johnstown; Michael Kerry, Greater Johnstown Water Authority; and Kathy Pape, Saxton & Stump*

Trying to find solutions to constrained capital/operating budgets impacted by replacement of infrastructure and more stringent regulatory requirements? Join a discussion of regionalization--how the City of Johnstown and the Greater Johnstown Water Authority produced beneficial results through the sale of the City's sewer collection system to the Authority.

### 11:00-11:30am - Regionalization of Sewer Utilities - A Case History of How One Sewer Authority is "Growing on Purpose"

*Speaker: Michael Kyle, Lancaster Area Sewer Authority*

Sewer utilities have few choices other than increasing rates in order to repair or replace aging infrastructure and pay the increasing costs of operation. This session will show you step-by-step how to acquire or merge with other systems to offset those rate increases through economies of scale.

#### WOMEN'S INITIATIVE SUMMIT

##### River Ballroom

#### Tuesday, 11:30am-1:00pm

*Panelists: Christine Volkay-Hilditch, PE, BCEE, Deputy Director of Public Works-Utilities, City of Lancaster; Lisa Webb, Owner, Keystone Pump & Power, LLC; and Mary Roland, Principal, Mary Roland Water Consultant, LLC*

Join your colleagues for the Women's Initiative & Luncheon Networking Summit. This event will feature networking opportunities along with a panel discussion with prominent women in the water quality industry to share their personal and professional challenges and successes, work/life balance, and education experiences.

## TUESDAY AFTERNOON

### COLLECTION SYSTEMS

#### Salon B

#### PUMP STATIONS AND FLOW MANAGEMENT

*Moderators: Duk Shin, Gannett Fleming; and Melissa Smith, GHD*

#### 1:00-1:30pm - Pumping Sewage: A Modernized Approach to Wet Wells

*Speaker: Nicholas J. Sirolli, Robert Brown Associates Inc. / Industrial Flow Solutions*

Standard pumping of sewage in traditional wet wells can be nasty, dangerous and costly. New technology, developed in Europe, can replace wet well pumps with in-line pumping, directly lifting the effluent from the point of entry. This Direct In-line Pumping technology is now manufactured in the United States.

#### 1:30-2:00pm - The Parkesburg Pump Station Project: A Phased Infrastructure Approach to Accommodate Future Growth

*Speakers: Jason Marie, PE, Mott MacDonald; and Gerald DeBalko, PE, Pennsylvania American Water*

The phased infrastructure approach to construct 1600 LF of 24-inch trunk sewer; 9800 LF of 12-inch force main; a new diversion, comminutor, air release, and meter chambers; and the rehabilitation of an existing pump station allowed the capital expenditure to be spread over multiple years while accommodating future growth.

#### 2:00-2:30pm - The Lure of Depth-Only Meters to Determine I/I

*Speaker: Jay Boyd, ADS Environmental Services*

Area/velocity meters are flow measurement standard. Recently depth-only meters were promoted as a cost-effective alternative. They do not measure velocity. Instead, they calculate velocity using Manning's equation and are dependent on multiple variables. Four studies carefully examine depth meter accuracy and reveal wide variability in data quality.

#### 3:30-4:30pm - Mobile Sessions in the Exhibit Hall

The PWEA Collection Systems Committee is bringing a successful concept from the Water Environment Federation (WEF) National Conference and the WEF National Collection Systems Specialty Conference to the PennTec Conference: Mobile Sessions in selected exhibit booths. Moderators will lead small groups to the presentations. Attendees receive the same credit as if they were attending a classroom presentation. Presentations are educational, not sales pitches.

**Meet near the PWEA Registration Desk at 3:15pm.**

[See page 35 for list of sessions.](#)

### ENGINEERING & CONSTRUCTION PROGRAM

#### Suite 30

#### REHAB OR RECONSTRUCT - OR EVEN RE-USE

*Moderator: Justin Mendinsky, Herbert, Rowland & Grubic*

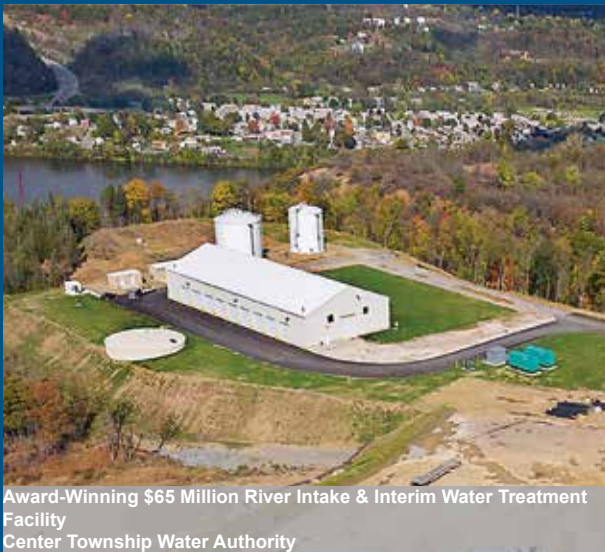
#### 1:00-1:30pm - Peeling Away: A Case Study on the City of Lancaster AWWTP Secondary Clarifier Coatings

*Speaker: Christine Volkay-Hilditch, PE, BCEE, City of Lancaster*

A capital project was commissioned to rehabilitate the Lancaster Advanced Wastewater Treatment Plant five secondary clarifiers. This included concrete coatings, new structural mechanicals, sludge withdrawal changes, and the installation of Stamford and McKinney baffles. This presentation reviews the project and the issues surrounding the failed concrete coatings.



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## ■ TECHNICAL PROGRAM DETAILS

### 1:30-2:00pm - City of Philadelphia Northeast WPCP - Maintaining Permit Limits During the Rehabilitation of the RAS Pumping Station

*Speaker: David Nixon, Whitman Requardt & Associates*

Maintaining wastewater treatment discharge permit limits during the construction of upgrades is a common challenge. Maintaining permit limits during the rehabilitation of a RAS pump station at a 210 MGD secondary treatment plant required detailed planning of the sequence of construction, and the complete design of a bypass pumping system.

### 2:00-2:30pm - COVID Pandemic Impacts on Materials Availability and Pricing

*Speakers: Art Auchenbach, Riordan Materials; and Justin Mendinsky, Herbert & Rowland & Grubic, Inc.*

The COVID pandemic has had a dramatic effect on the availability and cost of materials used in the construction industry. Owners, contractors, suppliers and engineers have all been impacted by these changes. This roundtable discussion will review current industry trends and encourages collaboration by attendees.

### 3:30-4:00pm - Jackson Pike WWTP Digester Rehabilitation - A Case Study

*Speaker: Adam Rector, PE, H. R. Gray, an Anser Advisory Company*

Replacement of anaerobic membrane digester covers and gas piping renovations can present construction and biogas management issues. This session looks at unanticipated contract coordination and management of biogas to 5% LEL (Lower Explosive Limit) using nitrogen purging.

### 4:00-4:30pm - Use it or Lose it: Biogas Storage and Use

*Speaker: Yasmine Boudhaouia-Meehan, WesTech Engineering, Inc.*

The potential uses of biogas and review of challenges associated with its use as an energy resource will be discussed. Using two projects, we will walk through design considerations, interfacing with other equipment, installation and start up. The presentation will lean on lessons learned during all phases of the project.

## INDUSTRIAL WASTE PRETREATMENT PROGRAM

### Suite 40

*Moderator: Stephanie Clay, ARRO Consulting*

### 1:00-1:30pm - Mitigating Risks Associated with Hauled-In Waste Programs

*Speaker: Trudy Johnston, Material Matters, Inc.*

A risk-based hauled waste program was developed and put in place at two utilities that had experienced high pollutant loadings from a rouge transporter. Methods to mitigate the potential for future discharges were incorporated into permits for both haulers and generators of certain types of waste.

### 1:30-2:00pm - Pilot-Scale Evaluation of GAC and Ion Exchange for Removal of PFAS from a Heavily Compromised Groundwater

*Speaker: Adam Redding, PhD, Calgon Carbon, a Kuraray Company*

A collaborative pilot-scale study of two granular activated carbons, reagglomerated bituminous and sub-bituminous, was conducted to compare GAC PFAS removal performance to two ion exchange medias, macro-type and gel-type. Pilot results were used to generate a cost comparison of medias to guide the future technology selection of the utility.

### 2:00-2:30pm - Evaluation, Treatment and Source Protection - Lessons from the Epicenter of PFAS in Southeastern PA

*Speakers: Toby Kessler and Theresa Funk, both with Gilmore & Associates*

The response actions to address PFAS by an affected municipal water supplier provide insight for the growing number of impacted sites throughout the Commonwealth. Protection from the risks associated with PFAS in drinking water include hydrogeologic evaluation and treatment in a dynamic regulatory environment.

### 3:30-4:00pm - PFAS - Bioforcetech Technology Shows Promise Through EPA Testing

*Speaker: Dario Presezzi, Bioforcetech Corporation*

Bioforcetech has been working to rethink biosolids treatment. This has culminated in a deeply sustainable system that harnesses the energy already available in biosolids to dry and carbonize it with little to no external energy; and to reduce material volume and weight by 90%, lock available carbon in place for centuries, destroy PFAS/PFOA and other CECs.

### 4:00-4:30pm - To Be Announced

## LABORATORY PRACTICES PROGRAM

### Salon C

*Moderator: Linda Leopold, Pittsburgh Water & Sewer Authority*

### 1:00-1:30pm - Going Paperless from Data Collection to Reporting

*Speaker: Pam Moss, Hach*

Water and wastewater systems make decisions based on data coming from many sources. How can systems streamline their critical information management process while maintaining compliance? What tools can help an operations team move from bench sheets and clipboards into a more paperless – and more accurate – data-driven level of productivity?

### 1:30-2:00pm - Determination of Readily Biodegradable COD

*Speaker: Radek Bolek, Alloway*

Organic characterization of wastewater is useful in modeling, process control and prediction of effluent quality. COD cannot differentiate between biodegradable and inert organic matter or between readily and slowly biodegradable fractions. Respirometry is a useful tool to assist in that differentiation process.

### 2:00-2:30pm - Fecal Coliform

*Speaker: Larissa Hoover, Cranberry Township*

In this session, you will learn about Fecal Coliform testing, Chapter 252 requirements, and method options, including some demonstrations of the newest accepted method by Idexx.

### 3:30-4:00pm - Audit Prep

*Speaker: Larissa Hoover, Cranberry Township; and Linda Leopold, Pittsburgh Water & Sewer Authority*

In this session, you will learn numerous tips to help your lab become better prepared and confident at your next laboratory audit. Get advice from Lab Supervisors who have been there before and are willing to share their experiences for a smooth auditing process. Every lab can have a successful audit—your preparation makes a difference!



## ■ TECHNICAL PROGRAM DETAILS

### 4:00-4:30pm - Tightening the Loop on Raw Water & Produced Drinking Water

*Speakers: Larissa Hoover, Cranberry Township; and Linda Leopold, Pittsburgh Water & Sewer Authority*

In this session, you will learn numerous tips to help your lab become better prepared and confident at your next laboratory audit. Get advice from Lab Supervisors who have been there before and are willing to share their experiences for a smooth auditing process. Every lab can have a successful audit—your preparation makes a difference!

#### SAFETY PROGRAM

##### Salon G

*Moderator: William Rehkop, Derry Township Municipal Authority*

### 1:00-1:30pm - NFPA 70E and You: An Operators Guide to Electrical Safety in the Workplace

*Speaker: Adam C. Menko, PE, CESP, Keystone Engineering Group, Inc.*

Water and wastewater operators face electrical hazards daily but there is limited guidance on safe working procedures. Arc flash is a hot topic in safety circles, and our intention is to increase everyone's awareness to the hazards. Electrical safety must be a top priority to ensure all employees are safe.

### 1:30-2:00pm - Using Your HVAC System to Fight COVID-19

*Speaker: Robert Weidner, Gannett Fleming*

Throughout the pandemic, essential water/wastewater operators work to maintain adequate staffing and laboratory capacity. But business as usual may come with employee anxieties while the coronavirus remains prevalent. Learn how bipolar ionization (BPI) fights COVID-19. Compare BPI to other air cleaning technologies. Understand the installation process, costs, and maintenance.

### 2:00-2:30pm - Treatment of Your Safety Risks

*Speaker: Milissa Hirst, Mott MacDonald*

This presentation will address the impact of Water Quality Regulations on safety in treatment. As more stringent regulations are promulgated, more advance treatment is required. These processes often result in new, unfamiliar technologies and/or increased reliance on chemical addition, with increased safety risks at facilities. Examples and ways to minimize the safety risks will be discussed.

#### STUDENT RESEARCH PROGRAM & POSTER CONTEST

##### Aloeswood Room

*Moderator: Holly Frederick, PhD, Wilkes University*

### Tuesday 1:00-4:30pm

The Research Program showcases the ongoing research activities of students (graduate and undergraduate) in the fields of wastewater, water quality, and environmental management relevant to Pennsylvania. Oral presentations and poster presentations will be made by the students. See page 49 for the list of presentations.

### 3:30-4:30pm - What Makes an Effective Safety Program

*Speaker: Kelly Kramer, RETTEW*

This session is intended to improve your organization's safety program. From our extensive experience, this presentation will improve your safety program by focusing on seven key elements that must be implemented for a safety program to be effective.

## WEDNESDAY MORNING

#### ENGINEERING & CONSTRUCTION PROGRAM

##### Suite 30

### HEY ENGINEERS & CONTRACTORS, I HAVE TO OPERATE THIS!

*Moderator: Peggy Miller, RETTEW*

### 8:00-8:30am - City of Philadelphia Northeast WPCP - Preliminary Treatment Facility to Handle Wet Weather Flows

*Speaker: Michael D. Olivier, PE, Whitman Requaardt & Associates*

The Philadelphia Northeast WPCP will add CSO capacity of 300 mgd, with a Preliminary Treatment Building housing 6- 60 mgd mechanically cleaned screens, grit washing equipment, conveyors and enclosed container area, Grit Facility including 6- 60 mgd vortex grit units and gallery, and bio-trickling scrubber/ carbon adsorption odor control facility.

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## ■ TECHNICAL PROGRAM DETAILS

### 8:30-9:00am - Membrane Thickening Aerobic Digestion for Class B Biosolids: A Better Mousetrap

*Speaker: Edward J. Pietroski, PE, LO, Entech Engineering, Inc.*

Biosolids is what we produce at a wastewater treatment facility. Clean water is just a pass thru. Many technologies exist to reduce the quantity and improve the quality of biosolids at a wastewater treatment facility. But Operators and Owners always wonder, which technology is best or right for my plant?

### 9:00-9:30am - A Mixed-Up Refresher: No Drinks, Just Sludge

*Speaker: Yasmine Boudhaouia-Meehan, WesTech Engineering, Inc.*

This presentation will use an objective and logical approach to compare and discuss the different mixing systems commonly in use today to get a better picture of the advantages and disadvantages of the options available.

### 10:00-10:30am - To Be Announced

### 10:30-11:00am - To Be Announced

#### PROFESSIONAL OPERATORS PROGRAM

Suite 40

BNR, MBR AND COVID

*Moderator: Autumn Crawford, Western Butler County Authority*

### 8:00-8:30am - Resilient Solution for Nutrient Removal with Significant

### Energy Savings - Membrane Aerated Biofilm Reactor (MABR) Technology

*Speaker: Amit Kaldate, PhD, Suez*

MABR is an innovative technology that facilitates process intensification by increasing capacity of existing plant infrastructure and for nutrients removal. MABR is also attractive for significantly reducing aeration energy and providing process resiliency of plant operation and performance.

### 8:30-9:00am - Installing New Attractions in the Magic Kingdom - MBR Process Upgrade

*Speaker: Michael Sedon, Cranberry Township*

Cranberry Township is located 20 miles north of Pittsburgh, PA. The wastewater treatment plant recently completed a major plant expansion project which included the installation of membrane bioreactors. This presentation will discuss engineering, construction and operational challenges that the staff experienced during the project.

### 9:00-9:30am - PA's Evolving Nutrient Credit Trading Program: Yesterday, Today, and Tomorrow

*Speaker: Lisa Challenger, Material Matters, Inc.*

Material Matters is deeply rooted in Pennsylvania's nutrient trading program, assisting with the purchase and sale of one million credits since the program's start-up. This presentation will discuss the multi-year trends of the program, including the significant credit deficiencies realized in recent years, which have driven pricing trends upward.

### 10:00-10:30am - Optimization of the Denitrification Process, Balancing Biological Treatment Systems and Competing Nutrients at the University Area Joint Authority

*Speaker: Michele Aukerman, PE, RETTEW Associates, Inc*

After many years of high costs of supplemental carbon to promote denitrification, and facing tightening regulatory standards for Total Nitrogen, the University Area Joint Authority implemented a significant WWTP upgrade to provide enhanced nutrient removal, followed by a period of process optimization to achieve the project's goals.

### 10:30-11:00am - COVID and Sanitary Sewers

*Speaker: Ralph E. Johnson, PE, Spotts, Stevens and McCoy*

A review of best practices and new approaches for the wastewater industry in the wake of COVID-19. The presentation will focus on best practice for Emergency Response Plan Updates, Critical Pandemic Preparedness Plan elements, exit and re-entry planning, critical positions, maintaining the facility.



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# STUDENT RESEARCH PRESENTATIONS

**Tuesday, 1:00-4:30pm - Aloeswood Room**

The Research Program showcases the ongoing research activities of students (graduate and undergraduate) in the fields of wastewater, water quality, and environmental management relevant to Pennsylvania. The PWEA Research Committee reviews student research abstract submissions from across the region and selects the top abstracts for oral presentation and to receive the Student Research Award. In addition, qualifying abstracts are invited to participate in a Poster Contest at the Conference. After judging by faculty and practicing engineers, the top poster presenters in both undergraduate and graduate categories will be selected. All posters will be available for viewing by Conference attendees. Awards will be presented during the Research Program.

## Student Podium & Poster Presentations

<b>Title:</b>	Wastewater Surveillance for SARS-CoV-2 in Bethlehem, PA
<b>Student:</b>	Nusaibah Algasawah
<b>Advisor:</b>	Lehigh University Dr. Kristen Jellison
<b>Title:</b>	Biofilm-Inspired Polydopamine Surface Functionalization for Capture and Retention of <i>Cryptosporidium Parvum</i> Oocysts
<b>Student:</b>	Elisa Mayerberger
<b>Advisor:</b>	Lehigh University Dr. Kristen Jellison
<b>Title:</b>	Pennsylvania Stormwater Utility Survey - Initial Data
<b>Student:</b>	Nicole Hart
<b>Advisor:</b>	Wilkes University Dr. Holly Frederick
<b>Co-Author:</b>	Scott Heffelfinger

## Student Poster Presentation

<b>Title:</b>	Stormwater Utility Survey-Detailed Discussion
<b>Student:</b>	Steffen Horwath
<b>Advisor:</b>	Wilkes University Dr. Holly Frederick



Not a member of PWEA? Go to [www.pwea.org](http://www.pwea.org) to join online or to download the membership application form. Members receive the PWEA member rate for the PennTec Conference and for other PWEA training events.

Member benefits include the *Keystone Water Quality Manager*, a quarterly technical publication containing legislative updates, design/process operations articles, problem-solving case histories, and advance notice of continuing education. This valuable magazine also highlights current technology trends and issues affecting water quality.

You will also receive the monthly PWEA e-Newsletter, keeping you up-to-date on the latest water quality news and PWEA events, which also includes a link to current employment opportunities.

**Questions? If you have questions about PWEA, please contact the PWEA Administrative Office at 717-642-9500 or by email at [pwea@pwea.org](mailto:pwea@pwea.org).**

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## ■ COMMITTEE MEETING SCHEDULE

*All meetings will be held in the River Ballroom, unless otherwise noted.*

### Monday, June 21

7:00am Laboratory Practices Committee  
7:00am Utility Management Committee  
7:15am Biosolids Committee  
7:15am Professional Operators Committee  
7:30am Exhibits & Sponsors Subcommittee

### Tuesday, June 22

6:30am Membership Committee  
6:30am Public Education Committee  
7:00am Collection Systems Committee  
7:00am Stormwater Committee

## 2021 PWEA Annual Business Meeting

Monday, 12:30-1:00pm - Salon EF

PWEA Members and Conference attendees are invited to attend the Annual Business Meeting of the Pennsylvania Water Environment Association.

**Coffee and dessert will be available during the Annual Business Meeting.**



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## CERTIFICATION

### PA DEP Operator Certification

The PA Department of Environmental Protection (PA DEP) has approved permanent continuing education status for the PWEA Annual Conference. The Conference is being planned in accordance to the requirements of House Bill 183 (Act 11) and application has been approved to provide five (5) contact hours to eligible **wastewater operators**. The PWEA is a PA DEP accredited sponsor and is permitted to issue continuing education credits to water and wastewater operators.

To ensure you meet continuing education requirements, please refer to the Operator Certification 3-Year Renewal Cycle Schedule.

**IMPORTANT: Contact hours received outside of your renewal cycle will not count toward your requirements.**

**To comply with accreditation sponsor requirements, the PWEA will require every attendee to check in and out of each half day timeslot by presenting the contact hour tracking sheet for stamping.**

Contact hour tracking sheets will be available at the Registration Area. Review this form very carefully so you are aware of all requirements. You must attend at least 2.5 hours in each half day in order to qualify for contact hours. Each half day session is worth 1.0 contact hour. Use the same contact hour tracking sheet for all Conference sessions.

Completed sheets must be turned in to the PWEA registration staff during posted registration hours. You must provide a photo ID when turning in your tracking sheet. Certificates will be processed and emailed approximately one month after the Annual Conference.

In addition to the Conference contact hours, workshops have been approved by the PA DEP for additional credit. These workshops will run concurrently with the Conference and may have extended hours. You will receive credit for either the workshop or the Conference session, depending on what you attend during each timeslot.

**Please note: You may only receive credit for attending a specific workshop once during your renewal cycle. DEP will not count the same workshop more than once within a cycle. Please check your records to be sure you have not previously attended one of these workshops within your current cycle.**

### Continuing Education for Professional Engineers

PWEA technical sessions are not pre-approved by the State Registration Board. Therefore, it is not possible to guarantee their acceptance for certification purposes. PWEA will issue an attendance certificate provided you submit a tracking sheet which will be available at the Registration Area. PE's, LS's and Geologists earn 3 Professional Development Hours (PDH) per half day session.

### Other Certification

At this time, the PWEA cannot provide continuing education certification for anyone other than PA DEP water and wastewater operators. However, Certificates of Attendance can be prepared and mailed upon request. It is your responsibility to check with your certification board to determine whether this type of certificate is acceptable.

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PWEA's Job Board connects candidates with employers seeking to fill open positions. Employment positions submitted to PWEA are viewable on the PWEA Website at any time. Visit [www.pwea.org](http://www.pwea.org) and click on the "News & Info" tab; then select "Job Board – Open Positions."

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Abstracts of 300 words or less, should describe the subject matter with enough detail to allow evaluation of the proposed topic. Session presentations will be in 30-minute blocks including time for questions.

Abstract submittals will only be accepted electronically in WORD format. **Submission details and the abstract submittal form will be posted on the PWEA website in July.** You will be asked to identify which of the 12 sessions would best fit your topic. Submissions should be emailed to: [abstracts@pwea.org](mailto:abstracts@pwea.org).

No travel or assistance funds are available for speakers. Speakers are responsible for all of their own transportation and lodging expenses. Discounted speaker registration fees will be offered for the day of the presentation or for the full conference.

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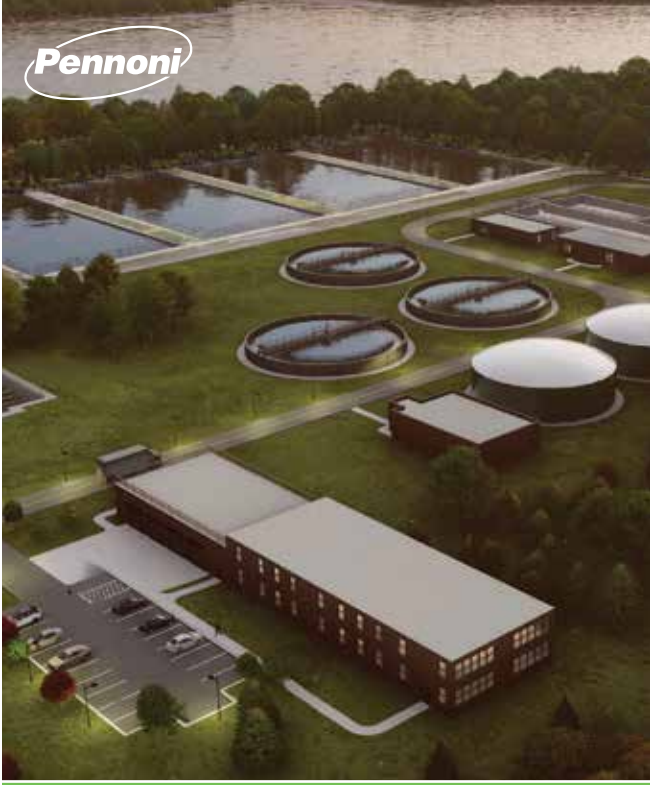
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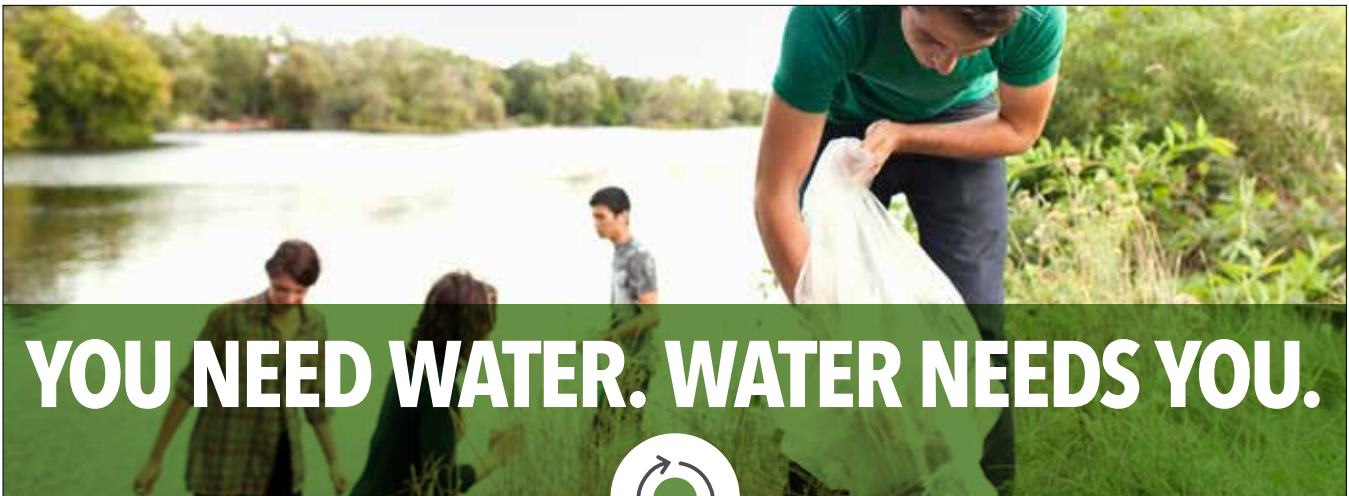
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**THANK YOU TO ALL OUR WATER &  
WASTEWATER OPERATORS &  
PLANT STAFF MEMBERS!**

**YOU LED THE LINES OF  
EMERGENCY PERSONNEL DURING  
THE COVID 19 PANDEMIC!**

**RIORDAN MATERIALS & PWEA  
MEMBERSHIP THANK YOU!**



## **Riordan Materials Corporation** Water & Wastewater Treatment Equipment

# **A to Z - Riordan has you covered!**

From Amwell to Zimpro, Riordan has over 100 years collective experience representing the industry leaders in water and wastewater equipment and technologies.

Our mission is to provide quality, cost effective solutions for our clients, while providing the best technical support services available before, during, and after installation. We are proud to represent the premiere line of products for water treatment, wastewater treatment, odor control, solids handling, pumping, and biosolids processes. Our history of consultative sales, combined with our outstanding platform of equipment, provide you the best alternatives available.

**At Riordan we're not just sales.....**

**.....we're solutions.**

### **Riordan Proudly Represents:**

AlgaeWheel hybrid attached growth treatment  
Amwell/E&I Corporation clarification & grit systems  
Amphidrome packaged BNR systems  
AquaTurbo aerators & mixers (fixed & floating)  
CBI Walker egg shaped anaerobic digestion systems  
Charter Machine dewatering equipment  
CST Storage (MASSI) bolted steel tanks  
DeLoach degasification, forced & induced draft aeration  
Dupont Memcor membrane filtration  
Elgin intake screens  
Environmental Dynamics Inc. diffused aeration systems  
Engineered Fluid, Inc. (EFI) packaged water stations  
Enviroquip of TX (Ovivo) process equipment  
Evoqua Water VAF, CoMag  
Evoqua Wastewater Biomag, Jettech, Davco, Zimpro  
Flottweg solids dewatering centrifuges  
Flygt (a xylem brand) submersible pumps, mixers  
Ford Hall launder brush systems  
Franklin Miller grinders and screens  
GNA CSO stormwater & CSO technologies  
Headworks automatic wastewater screens  
Headworks BIO IFAS & MBBR systems  
Inovair single stage turbo blowers  
Ishigaki, Inc. rotary screw presses  
Kaeser rotary lobe & screw PD blower systems  
KLA Systems jet aeration & mixing systems  
Kubota USA membrane bioreactors  
Merit Media Systems sludge drying beds  
Noreva nozzle check valves  
Primozone ozone generation systems  
Pulsed Hydraulics, Inc. big bubble mixing systems  
Pureflow drinking water treatment systems  
RedZone collection system inspection & mapping  
S&N Airoflo floating aerators & brush rotors  
Spirac screw conveyors & headworks equipment  
Tenco Hydro DAF systems  
TomCO2 carbon dioxide feed systems  
Trident Process multidisc dewatering press  
Wagner Fluid Systems package plants  
Walker Process clarifiers, digestion systems

### **Sales Staff**

Art Auchenbach  
Augie Koloras  
Mike Wilks  
Tom Rainier

### **Offices Locations**

Blue Bell, PA  
Reading, PA  
York, PA  
Baltimore, MD

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