

**MAY 3-6, 2020 • STATE COLLEGE, PA  
PENN STATER CONFERENCE CENTER HOTEL**



**THE 2020 JOINT  
TECHNICAL CONFERENCE & EXHIBITION OF THE**



**Technical Programs have been approved by the PA DEP for  
Drinking Water & Wastewater Contact Hours.**

**REGISTRATION PROGRAM**

# CONFERENCE AT A GLANCE

(as of January 27, 2020)

Visit [www.pwea.org](http://www.pwea.org) or [www.paawwa.org](http://www.paawwa.org) for the most current program schedule.

## Sunday, May 3

11:00am-3:00pm	Community Service Project, <i>organized by PWEA &amp; PA-AWWA Students &amp; Young Professionals Committees</i>
3:00pm-5:00pm	Registration Open

## Monday, May 4

7:00am-9:00am	PWEA Committee Breakfast Meetings
7:15am-5:00pm	Registration Open
7:45am-8:45am	Continental Breakfast
8:45am-10:15am	<b>Opening Session</b>
8:45am-11:45am	<b>Morning Technical Programs</b> <i>Biosolids</i> <i>Collection Systems</i> <i>Drinking Water Management</i> <i>Engineering</i> <i>Stormwater</i> <i>Utility Management</i> <i>Water Distribution Systems</i>
	<b>Workshops</b> <i>Maintenance Management Workshop for Water Treatment and Pumping Facilities</i> <i>Wastewater Exam Study Prep Course</i>
8:45am-4:30pm	
8:45am-4:30pm	
8:45am-5:30pm	Water For People Silent Auction
9:00am-11:00am	Plant Tour, <i>organized by PWEA &amp; PA-AWWA Students &amp; Young Professionals Committees</i>
9:00am-3:00pm	PWEA Operations Challenge
10:15am-10:45am	Morning Break
11:45am-1:00pm	Exhibit Hall Opens with Complimentary Lunch
11:45am-1:00pm	PA-AWWA Awards Ceremony and Business Luncheon
12:30pm-1:00pm	PWEA Annual Business Meeting with Dessert & Coffee
1:00pm-4:30pm	<b>Afternoon Technical Programs</b> <i>Biosolids</i> <i>Collection Systems</i> <i>Drinking Water Management</i> <i>Engineering</i> <i>Stormwater</i> <i>Utility Management</i> <i>Water Distribution Systems</i>
1:00pm-4:30pm	PA-AWWA Young Professionals Poster Contest
2:30pm-3:30pm	Afternoon Break in Exhibit Hall
3:30pm-4:30pm	Collection Systems Mobile Presentations in Exhibit Hall
3:30pm-4:30pm	PA-AWWA Partnership for Safe Water Awards & Social Mixer and Committee Open House
4:30pm-5:30pm	Meet and Greet Reception in Exhibit Hall
4:30pm-5:30pm	PA-AWWA Hydrant Hysteria Competition
5:45pm-7:00pm	PWEA Awards Ceremony and Reception
7:15pm-9:30pm	Tailgate Dinner and Cornhole Tournament, <i>organized by PWEA &amp; PA-AWWA Students &amp; Young Professionals Committees</i>

## Tuesday, May 5

7:00am-5:30pm	Registration Open
7:00am-9:00am	PWEA Committee Breakfast Meetings
7:30am-8:30am	Exhibit Hall Open with Continental Breakfast
8:00am-11:00am	Plant Tour, <i>organized by Design-Build Institute of American (DBIA) and PWEA Professional Wastewater Operations (PWO) Committee</i>
8:00am-11:30am	<b>Morning Technical Programs</b> <i>Collection Systems</i> <i>Drinking Water Management</i> <i>Drinking Water Quality/Treatment</i> <i>Engineering &amp; Construction</i> <i>Industrial Waste Pretreatment</i> <i>Stormwater</i> <i>Utility Management</i>
	<b>Workshops</b> <i>Personal Protective Equipment</i> <i>Wastewater Professionals Guide to Online Process Instrumentation for Biological Nutrient Removal Activated Sludge Monitoring</i> <i>Valve Workshop</i>
8:00am-11:30am	
8:00am-4:30pm	
1:00pm-4:30pm	
8:00am-5:30pm	Water for People Silent Auction
9:00am-11:30am	PA-AWWA Water Utility Council Meeting
9:30am-10:30am	Morning Break in Exhibit Hall
10:30am-11:30am	Collection Systems Mobile Presentations in Exhibit Hall
11:30am-1:00pm	Complimentary Lunch in Exhibit Hall
11:30am-1:00pm	Women's Initiative Summit and Luncheon
11:30am-1:00pm	PWEA Student Research Poster Presentations
1:00pm-4:30pm	<b>Afternoon Technical Programs</b> <i>Collection Systems</i> <i>Construction</i> <i>Drinking Water Quality/Treatment</i> <i>Industrial Waste Pretreatment</i> <i>Laboratory Practices</i> <i>Safety</i> <i>Student Research</i>
2:30pm-3:30pm	Afternoon Break in Exhibit Hall
4:30pm-5:30pm	Beer & Pretzels Reception in Exhibit Hall
4:30pm-5:30pm	Operator Olympics, <i>organized by PWEA PWO Committee</i>
7:00pm-10:00pm	DBIA Networking Event

## Wednesday, May 6

7:00am-8:30am	Continental Breakfast
7:00am-12:00pm	Registration Open
8:30am-3:00pm	PWEA/PA-AWWA Golf Outing
8:00am-11:00am	<b>Morning Technical Programs</b> <i>Drinking Water Quality/Treatment</i> <i>Professional Wastewater Operations</i>
	<b>Workshop</b> <i>Laboratory Ethics</i>
8:00am-11:30am	
8:00am-11:30am	<b>DBIA Program</b>
9:30am-10:00am	Morning Break
11:30am	Conference Concludes

The Joint Conference Planning Committee invites you to join us at the Joint Technical Conference & Exhibition of the Pennsylvania Water Environment Association (PWEA) and the PA Section of the American Water Works Association (PA-AWWA). The Keystone Water Conference H<sub>2</sub>O20 will be held at the Penn Stater Conference Center Hotel in State College, PA, on May 3-6, 2020.

Each association has hosted their own Conference for many years, and each has enjoyed robust attendance. We anticipate the combined effort of both associations will provide added benefit for everyone involved. The Conference Program includes a wide range of topics related to water quality, including drinking water, wastewater and stormwater topics. In addition to the technical sessions, workshops which have been approved by the PA DEP for additional contact hours for water and/or wastewater licenses will be presented. By attending these workshops, Operators could earn **up to 15.0 DEP Contact Hours**; and Engineers and other professionals could earn **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 insights into new and innovative solutions and discover new products, equipment and services that will help you do your jobs 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 networking opportunities for you to meet and interact with your colleagues. The PWEA and PA-AWWA Students & Young Professionals Committees are organizing a **Community Service Project** on Sunday. We hope you will consider volunteering. The **Meet & Greet Reception** will be in the Exhibit Hall on Monday afternoon and the **Beer & Pretzels Reception** will be on Tuesday afternoon. The **Tailgate Dinner and Cornhole Tournament** will be held on Monday evening. **Operator Olympics** on Tuesday afternoon is a fun and competitive event which is open to all Conference attendees. And the **DBIA Networking Event** will be held on Tuesday evening.

The **PA-AWWA Awards Ceremony and Business Luncheon** will be on Monday, beginning at 11:45am; and the **PWEA Awards Ceremony and Reception** will be on Monday, beginning at 5:45pm. The **Women's Initiative Summit and Luncheon** will be on Tuesday, beginning at 11:30am.

**PWEA's Operations Challenge** and **PA-AWWA's Hydrant Hysteria** competitions will both be held on Monday. Be sure to watch and cheer on this year's teams as they compete for the opportunity to go on to their respective national competitions held at WEFTEC and at ACE.

We believe the Keystone Water Conference H<sub>2</sub>O20 will provide everything you need under one roof—education, vendor contacts, and networking. We look forward to seeing you there!



**Craig Palmer**  
PA-AWWA  
Conference Co-Chair



**David Brown**  
PWEA  
Conference Co-Chair

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# GENERAL INFORMATION

## Conference Registration

Registration is available for the full Conference or at the daily rate. **See the chart below for a list of what is included with your registration fee.** Access to the Exhibit Hall is included for the day(s) covered by your registration. You must be a member of PWEA, PA-AWWA, or DBIA to qualify for Member rates. Go to page 28 for the registration form.

## Registration Confirmation

Confirmations will be sent by email. Please be sure to include your email address on your registration form.

## Online Registration

To register online, go to [www.pwea.org](http://www.pwea.org), click Event Registration under the Calendar tab, then click the Register link to go to our secure website.

## Young Professionals

A Young Professional (YP) is age 35 years or younger. A special registration category is available for YPs who wish to attend the Conference on Monday or Tuesday. The discounted YP fee includes access to the Exhibit Hall and regular educational Conference sessions, plus continental breakfast, breaks and lunch. This registration also includes an optional ticket for the SYP Plant Tour on Monday or an optional ticket for the DBIA/PWO Plant Tour on Tuesday. Driver's license ID is required when checking in on-site.

## College Students

Full-time college students may register at discounted rates if the registration form is submitted with a photocopy of current student identification. Ticketed events and workshops are not included.

## Spouse/Life Partner

With each FULL Conference registration, a spouse/life partner may be registered at no charge. Daily and discounted registrations do not qualify for this registration category. Training sessions, workshops, and ticketed events are not included.

## Mobile Numbers

Mobile numbers are requested during registration, in case it is necessary to reach you during the Conference.

## Badges

Upon arrival at the Conference, visit the Conference Registration Desk to pick up your badge/lanyard and other Conference materials. Everyone must have a badge to enter the Exhibit Hall, conference sessions, workshops, and food areas. **Badges will be checked, so please wear your badge in a visible area at all times.**

## Cancellation/Substitution Policy

No refunds granted after April 3rd. A \$100 cancellation fee will be assessed on all refund requests received by April 3rd. All refunds must be requested in writing. Substitutions may be made until April 15th and must be made in writing, accompanied by a new registration form. Substitutions may not be made on-site.

## Conference App

This year a Conference App will be available to attendees. The App will allow smartphone users to: view a calendar of conference events; receive push notifications of special announcements, such as raffle drawings. Instructions on how to load the App will be provided to all registered attendees.

## Wireless Internet Service

Wireless internet service will be available at no charge in the Exhibit Hall.

## Consent for Use of Photographic Images

Registration and attendance at, or participation in, the Keystone Water Conference & Exhibition and related activities constitutes an agreement by the registrant to permit 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.

# WHAT'S INCLUDED IN YOUR CONFERENCE REGISTRATION

	Technical Program Sessions	Workshops	Monday Exhibit Hall; Continental Breakfast; Breaks; Lunch; Reception	Tuesday Exhibit Hall; Continental Breakfast; Breaks; Lunch; Reception	Wednesday Continental Breakfast; Break
Full Conference	Yes	Yes	Yes	Yes	Yes
Monday only	Yes	No	Yes	No	No
Monday only, YPs	Yes	No	Yes	No	No
Tuesday only	Yes	No	No	Yes	No
Tuesday only, YPs	Yes	No	No	Yes	No
Wednesday only	Yes	No	No	No	Yes
Spouse/Life Partner Registration	No	No	Yes	Yes	Yes

## Early Registration Discount

Register by March 2nd and save on your Conference registration fee.  
In order to qualify, payment must be made by March 2nd.  
(Discounted fees are noted on registration form.)



## ■ EXHIBIT HALL

The Exhibit Hall is a very important part of the Conference. The exhibits will open on Monday at 11:45am and will close on Tuesday at 5:30pm. Visiting the vendors will be informational, educational, and it will also be fun!

### Exhibit Hall Bingo

The 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 a designated individual or booth just before the last 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 last Exhibit Hall break on Monday and on Tuesday.

### Conference Raffle Prizes

Prizes will be raffled at different times throughout the Conference. Attendees registered for the conference will receive raffle tickets with their name badge, 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. Raffle tickets will be drawn in the Exhibit Hall at various times during the conference. You must be present to win. Exhibitor representatives are not eligible for these drawings.

### Exhibit Hall Food Functions

Lunch, afternoon break, and the Meet & Greet Reception will be in the Exhibit Hall on Monday. Continental breakfast, morning & afternoon breaks, lunch, and the Beer & Pretzels Reception will be in the Exhibit Hall on Tuesday.

## ■ HOTEL ACCOMMODATIONS

**Penn Stater Conference Center Hotel**  
**215 Innovation Blvd • State College, PA 16803**

**Nittany Lion Inn**  
**200 West Park Ave • State College, PA 16803**

A block of rooms has been reserved at the Penn Stater Hotel and at the Nittany Lion Inn. Reservations must be made by April 1, 2020. Rooms may not be available after this date. The discounted room rate at both hotels is **\$139.00 per Room/per Night/Single or Double Occupancy**

This rate includes overnight accommodations only. All rooms are non-smoking. Both hotels offer complimentary shuttle service and ample free parking.

Room blocks will open on January 30th . Call Reservations at 1-800-233-7505, or reserve online at [www.pennstatehotels.com](http://www.pennstatehotels.com), and use the Reservation ID **PENN20A for the Penn Stater** or **PENN20B for the Inn**.



# COMMUNITY SERVICE PROJECT

## Sunday, 11:00am-3:00pm

We hope you will consider joining the PWEA and PA-AWWA Student & Young Professionals Committees (SYP) to help with the Community Service Project in State College, PA.

PWEA and PA-AWWA volunteers will achieve land and water stewardship and ensure successful habitat restoration by caring for tree plantings on stream buffer plantings maintained by the ClearWater Conservancy.

ClearWater Conservancy is a land and water conservancy in State College, PA. Their mission is to conserve and restore the natural resources through land conservation, water resource stewardship and environmental outreach across central Pennsylvania. Many of their successes are due to volunteers who help monitor conservation easements, take care of tree plantings to build forests, and help with outdoor education.

Conservation and restoration of natural resources requires long-term stewardship. Planting trees alone does not ensure those trees survive. What they are really accomplishing is growing forests. Young tree plantings require long-term care to establish mature forest ecosystems. Volunteers are crucial to the success of building future forests that keep the air and water clean and provide critical wildlife habitat.

### Some of the tasks may include:

Check each planted tree for survival (most sites are 10 acres with 200 trees per acre). Remove dead leaves, weeds and/or mice nests from inside shelters. Straighten tree shelters. Seat tree shelters 1-2 inches into the ground. Replace stakes and shelters when needed. Replant trees and shrubs when needed. Remove shelters from larger trees if needed. Install "buck rub" protectors on trees. Pull, dig and cut invasive plants out. Replace or remove bird nets on tree shelters. Carry tool buckets and supplies (trees, stakes, shelters) into habitat restoration sites. Carry used trees shelters and stakes out of the site.

### Site Conditions/Dress:

Habitat restoration sites are natural, not mowed, and beautiful. Lots of wildflowers, tall grasses, and butterflies to walk through. Dress for off trail walking & sun/tick safety. Volunteers are asked to wear long pants, closed-toe shoes, and to dress appropriately for the weather. This event will be held rain or shine. All participants will receive a free T-shirt and bagged lunch. Water and other beverages will be available. Equipment and safety items will be provided.

Come help promote environmental stewardship and leave a positive imprint on this year's host city. To participate, check the box on the Conference Registration Form. More details about the project will be provided by email and posted on the Conference page of the PWEA and PA-AWWA websites as they become available.

**If your company would be interested in becoming a sponsor, contact Cindy Rock, PWEA Conference Manager, at [cindyrock@pwea.org](mailto:cindyrock@pwea.org) or 570-549-2204. Sponsorships will be used to purchase equipment, trees/plants, and/or other items needed for the project.**





### **PWEA & PA-AWWA SYP Plant Tour** **Penn State's Living Filter** Monday, 8:30-11:30am

During the early 1960s, PSU researched land application of wastewater. The Living Filter is a full-scale version of that research. Treated effluent from Penn State's wastewater treatment plant (WWTP) has been land-applied year-round at sprayfields since 1983, rather than stream-discharged. An estimated 90% of the irrigated water recharges the region's water table—about 1.7 MGD, over 500 million gallons per year. The land application of treated wastewater helps to maintain base flows in streams such as Spring Creek and reduces the impacts of drought conditions. Penn State's WWTP has not discharged to Thompson Run since 1983, and is thought to be one of the many reasons that the water quality of Spring Creek is considered to be better now than any time in the last 100 years. Oversight of the sprayfields operation is managed by the Waste Water Management Committee, a multi-disciplined committee made up of researchers from across the University.

Be sure to register in advance in order to reserve your seat on the bus. A limited number of tickets may be available on-site. The cost is \$20 per person. Bus will begin boarding at 8:30am and will depart at 8:45am.



### **DBIA/PWO Plant Tour** **University Park WWTP** **State College, PA** Tuesday, 8:30-11:30am

We will be touring the University Park WWTP on the Campus of Penn State University. The University Park WWTP has been producing reuse-quality water for land application of effluent at the Living Filter for decades. Since the early 2000s, Penn State has planned to improve the quality of the WWTP effluent for more varied uses on the University Park campus. The 2016 Water Reuse Study Update identified specific reclaimed water demands through focused interviews with potential campus users. The Study identified necessary improvements in the reclaimed water distribution system through hydraulic modeling, as well as the reclaimed water standards required to meet the anticipated campus demands.

Due to limited parking all tour attendees are required to use the bus transportation. Safety equipment will be required on site, and can be provided if needed.

Thanks to **Stone Hill Contracting Co., Inc.**, for sponsoring the cost of bus transportation—there is no charge to attend. However pre-registration is required. Be sure to register in advance to reserve your seat on the bus. A limited number of tickets may be available on-site. Bus will begin boarding at 8:15am and will depart at 8:30am.

## **PWEA OPERATIONS CHALLENGE**

**Monday, 9:00am-3:30pm**

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 the Operations Challenge.

This year's event prepares the team to represent PWEA at WEFTEC.20. 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.

## **PA-AWWA HYDRANT HYSTERIA**

**Monday, 4:30pm-5:30pm**

Hydrant Hysteria is a fast-paced competition where three-member teams assemble a specified hydrant as quickly as they can. Each team will be required to completely assemble a hydrant commonly utilized by a utility. The competition is a measure of the team's skill at assembling a hydrant quickly, totally and accurately. All parts will be assembled in the proper manner and the reassembled hydrant shall be tested by the judges for its ability to operate correctly.

Come cheer on the teams at PA-AWWA's Third Annual Hydrant Hysteria competition, with four Pennsylvania utilities competing for the fastest time. Lehigh County Authority (reigning champions), Aqua PA, Brodhead Creek, and Pittsburgh Water and Sewer Authority will be participating. The winning team will represent PA-AWWA at AWWA ACE20.



# NETWORKING EVENTS

## OPENING SESSION

**Monday, 8:45-10:15am**

Presentations will be made by Aurel Arndt, AWWA Treasurer; Rajendra P. Bhattarai, WEF Board of Trustees; and a Keynote Speaker (to be announced). Two prestigious AWWA awards will be presented after the opening remarks.

## PA-AWWA AWARDS CEREMONY & BUSINESS LUNCHEON

**Monday, 11:45am-1:00pm**

The Official Business Meeting and election of new Section leaders will be held at the Annual Business Luncheon. Please join us for a delicious lunch and help celebrate the outstanding Sections' members who will receive various awards.

**Pre-registration is required. Tickets are \$40 per person.**

## PWEA ANNUAL BUSINESS MEETING

**Monday, 12:30-1:00pm**

Conference attendees are invited to attend and participate in the Annual Business Meeting. The Board of Directors welcomes input from everyone.

**Coffee and dessert will be available.**

## PA-AWWA YOUNG PROFESSIONALS POSTER CONTEST

**Monday, 1:00-4:30pm**

College students from all over the Commonwealth will present their posters to attendees and judges. Please stop by to visit the poster presenters and future up-and-coming stars of the water community. Winners will be announced at the Meet & Greet Reception.

## PA-AWWA & DEP PARTNERSHIP FOR SAFE WATER - AWARDS & SOCIAL MIXER AND COMMITTEE OPEN HOUSE

**Monday, 3:30-4:30pm**

The Partnership for Safe Water program continues to grow in both membership and accomplishments. Pennsylvania accounts for almost 30% of the Nation's total Partnership membership and our Partnership filter plants now serve almost 5.8 Million residents in Pennsylvania. Representatives from the PA DEP and PA Section Officers will acknowledge accomplishments of the past year in striving to produce the best water quality possible. Several utilities will be receiving 5-year, 10-year and 15-year Director awards certificates. Also, be sure to stop by and visit the various volunteer committee members that support PA-AWWA. Several committees will be there to showcase current projects as well as what their future goals and activities are.

**Snacks and beverages will be available.**

## MEET & GREET RECEPTION

**Monday, 4:30-5:30pm**

Be sure to attend the President's Reception! Enjoy **FREE BEER** and snacks while you network with your colleagues and the vendors.

**There is no charge for this event.**

## PWEA ANNUAL AWARDS CEREMONY & RECEPTION

**Monday, 5:45-7:00pm**

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

**Pre-registration is required. There is no charge to attend.**

## TAILGATE DINNER & CORNHOLE TOURNAMENT

**Monday, 7:15-9:30pm**

The PWEA and PA-AWWA Students & Young Professionals Committees 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.

**Pre-registration is required. Tickets are \$25 per person. Dinner and two drink tickets are included.**



## ■ ■ NETWORKING EVENTS

### WOMEN'S INITIATIVE SUMMIT & LUNCHEON

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

Join your fellow colleagues for a Women in Water 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 is required. There is no charge to attend.**

### 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 Technical Program.

### BEER & PRETZELS RECEPTION

**Tuesday, 4:30-5:30pm**

We will be serving **FREE BEER** and soft pretzels! Come to the Hall to relax and visit with the vendors.

**There is no charge for this event.**

### OPERATOR OLYMPICS

**Tuesday, 4:30-5:30pm**

This is a fun activity based on some real Olympic events, but with a water twist. 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.**

### DBIA NETWORKING EVENT

**Tuesday, 7:00-10:00pm**

The Design-Build Institute of America Liberty Region invites attendees to join them at a networking event on Tuesday, 7:00-10:00pm at Champs Sports Grill, 1611 N. Atherton St., State College, PA 16803.

**There is no charge for this event, however pre-registration is requested. Wristbands are required for admission and will be available at the DBIA Booth. There is a limit of 125 people who may attend. Food and drink will be provided. Two drink tickets will be provided to each attendee. Additional drinks can be purchased at attendee's cost. Attendees will be required to provide their own transportation.**

### PWEA & PA-AWWA GOLF OUTING

**Wednesday, Shotgun start at 8:30am**

Join your colleagues for a friendly game of golf! The Outing will be Team Best-Ball format. It will be held at the Penn State Blue Golf Course, about 15 minutes from the hotel. Refreshments and prizes will be provided.

To qualify for the special foursome rate, all four names must be included on one registration form and accompanied by full payment. You may not register at the foursome rate using individual registration forms.

**Cost is \$90 per person (or \$340 per foursome), and includes greens fee, golf cart, lunch and refreshments. Pre-registration is required. You must register by April 15th; on-site registration is not available for this event. Appropriate golf attire is required.**

### WATER FOR PEOPLE SILENT AUCTION

**Monday, 8:45am - Tuesday, 3:30pm**

The Pennsylvania American Water Works Association (PA-AWWA) will be sponsoring a Silent Auction to benefit Water For People (WFP). This is a private, non-profit charitable organization established by the North American drinking water community to help the most impoverished people worldwide to improve the quality of life by supporting sustainable drinking water, sanitation, and personal hygiene projects. The WFP vision is of a world where people have access to safe drinking water, adequate sanitation, and basic health services. Right now, the tragic reality is that every day about 6,000 people, mostly children, die from diseases directly related to contaminated drinking water.

The Auction typically has items such as: gift cards, tickets to sporting events, electronics, golf items (foursomes to golf clubs, golf balls, miniature golf, etc.), movie tickets, baseball cards, gift baskets, plus many more possibilities. Items will be displayed in the Courtyard Lounge, near the Conference Registration Desk.

**The Water For People Silent Auction will begin on May 4th at 8:45am and you will have until 3:30pm on May 5th to place your final bid. Cash, Credit Card, and/or Check accepted for payment.**

# ■ TECHNICAL PROGRAM DETAILS

## MONDAY MORNING

### BIOSOLIDS PROGRAM

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

#### **8:45-9:15am - Biosolids to Biochar Technology: The Future of Biosolids Management That is All About Sustainability, Energy Recovery and Pathogen Removal**

Speaker: Valentino Villa, BioForceTech Corporation

BioForceTech is in the business of providing Biosolids solutions using two efficient and high-value processes, the BioDryer and the "P series" Pyrolysis Units. While the equipment can be used independently, the BioDryer and Pyrolysis units are most effective when configured together as an integrated system.

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

Speaker: Patrick Dube, 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. This presentation will present the findings from this meeting and outline the path forward for biosolids.

#### **9:45-10:15am - A Sustainable Pathway to Class A/Exceptional Quality Biosolids**

Speaker: Renato Contipelli, quasar energy group

The Hermitage Municipal Authority's Waste-to-Energy Facility converts significant quantities of municipal sludge and hauled-in food wastes to renewable energy and exceptional quality biosolids. This presentation quantifies the facility's impact on reducing greenhouse gas emissions since project completion in 2014.

#### **10:45-11:15am - New Directions for Sidestream Nutrient Recovery at Municipal Water Resource Recovery Facilities**

Speaker: Camilla Kuo-Dabab, Brown and Caldwell

New and emerging innovative technologies designed to specifically treat sidestream loads with N are evaluated and discussed in this paper. These technologies include, a mix of nitrification/denitrification, nitrification/denitrification, and deammonification processes. Research trends and needs for sidestream N removal are highlighted.

#### **11:15-11:45am - Rapid Start-Up of an ANITA Mox Deammonification System Downstream of Phosphorus Recovery and Anaerobic Digesters**

Speaker: Mitch Johnson, Veolia Water Technologies

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.

### COLLECTION SYSTEMS PROGRAM

Moderators: Kate Mechler, Mott MacDonald, and  
Chris Patackis, Brown and Caldwell

#### **8:45-9:15am - 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.

#### **9:15-9:45am - Non-Destructive Investigation and Pro-Active Hydrogen Sulfide Corrosion Rehabilitation of Severely Corroded Wastewater Collection System Infrastructure - Uxbridge, MA Case Study**

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.

#### **9:45-10:15am - Implementation of Scranton Wastewater Long Term Control Plan - Prescott Avenue CSO# 30 Design and Construction Challenges**

Speaker: Michael R. Filmyer, PE, BCM Engineers

This presentation will discuss challenges associated with a 1.34 MG prestressed-post tensioned storage tank designed to reduce Combined Sewer Overflows in accordance with an EPA approved Long Term Control Plan. The tank, built under tennis courts allowed the property owner to retain the current use of the site.

#### **10:45-11:15am - Applying Asset Management Data to Combined Sewer System Initiatives**

Speaker: Daniel Rickard, PE, Pennsylvania American Water Company

A serious capacity issue existed between the headworks pumping station and wastewater treatment plant in Solomons Island, Maryland. The existing 4.75-mile force main became the chief suspect and a good cleaning was in order. This presentation will describe the analysis of cleaning methods and implementation of ice pigging.

#### **11:15-11:45am - Small System CSO Compliance**

Speaker: Hyon Duk Shin, PE, Gannett Fleming

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. The presentation discusses the consent order decree, Long Term Control Plans, funding, capital projects, modeling, and maintenance programs.

# ■ TECHNICAL PROGRAM DETAILS

## DRINKING WATER MANAGEMENT PROGRAM

*Moderator: Christine Gunsaulus, Entech Engineering*

### **8:45-9:15am - A Comprehensive Approach for Water Quality Management in Premise Plumbing**

*Speaker: Dr. Rajveer Singh, Drexel University*

This work provides a comprehensive approach for water quality management in premise plumbing via integrating existing guidelines/technical literature and practitioners' (subject matter experts and facility managers) views with data from lab experiments.

### **9:15-9:45am - Simpler is Better: An Asset Management Program People Will Use**

*Speaker: Bryon Killian, PE, Entech Engineering, Inc.*

One of a utility's biggest struggles is how to manage information, in particular, relevant information regarding components of their infrastructure. Oftentimes, costly programs or complex systems are implemented but ultimately abandoned in frustration. Entech has developed a much simpler user interface now in place at a number of wastewater systems.

### **9:45-10:15am - How to Make Your Presentations More Effective**

*Speaker: Tony Bellitto, North Penn Water Authority*

If you do public speaking, there are definite techniques you can utilize to help get your message across to your audience more effectively. Come learn some of the "do's" and "don'ts" of making successful business presentations that people will regard favorably and will have a positive impact on your listeners.

### **10:45-11:15am - NFPA 70E and You: An Operators Guide to Electrical Safety in the Workplace**

*Speaker: Adam C. Menko, PE, CEMCP, 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.

### **11:15-11:45am - Emerging Regulations Impact Chemical Bulk Storage Tank Condition Assessment**

*Speaker: Gary L. Arthur, Fiberglass Reinforced Plastics Institute, Inc.*

Industry is at risk of inadequately performing condition assessment of fiberglass above ground chemical bulk storage tanks. Regulations have been emerging since the 1990's, with current focus on tanks storing hazardous substances. No fiberglass tank inspection practices have existed, undermining good asset management decisions. New inspection standard optimizes cost and risk.

## ENGINEERING PROGRAM

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

### **8:45-9:15am - Root Cause Analysis of Influent Sludge Pump Failure**

*Speaker: Patrick Mulligan, ProPump Services*

Failure analysis of Archimedes screw type pump. In this study, we cover the causes of the failure, as well as some vital information pertaining to predictive and preventative measures that can be taken for pumps of this style.

### **9:15-9:45am - National Green Infrastructure Certification Program: Raising the Bar in the Green Infrastructure Construction and Maintenance Industry**

*Speaker: Adriana Caldarelli, The Stormwater Institute-Water Environment Federation*

To address the existing void in available training for individuals who construct and maintain green infrastructure (GI) facilities, the Water Environment Federation (WEF), established the National Green Infrastructure Certification Program (NGICP) Certification Program in 2016 to provide the base-level skill set for the proper inspection, construction and maintenance of GI.

### **9:45-10:15am - 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.

### **10:45-11:15am - CSO Preliminary Treatment**

*Speaker: John D. (Dale) Emerson, PE, Whitman, Requardt & Associates, LLP*

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.

### **11:15-11:45am - City of Philadelphia Northeast WPCP - Maintaining Permit Limits During the Rehabilitation of the RAS Pumping Station**

*Speaker: David Nixon, Whitman, Requardt & Associates, LLP*

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.

# ■ TECHNICAL PROGRAM DETAILS

## STORMWATER PROGRAM

Moderators: Nathan Walker, Gannett Fleming and  
Suzanne Ciaavola, Mott MacDonald

### 8:45-9:15am - The City Beautiful H<sub>2</sub>O Program Plan: Integrated Watershed Planning and Adaptive Management in Progress

Speaker: Matthew Vanaskie, CDM Smith

Capital Region Water's City Beautiful H<sub>2</sub>O Program Plan provides a strategy of infrastructure renewal and decentralized, neighborhood-centric green-gray infrastructure enhancements that enhance multi-objective health and welfare objectives of its rate payers. Descriptions and analyses of hydrologic/hydraulic assessments of system rehabilitation efforts and planned system improvements will be presented, along with early-action adaptive management project example(s).

### 9:15-9:45am - Lancaster's Integrated Green Infrastructure Plan: Reviewing a Decade of Implementation and Planning for the Next

Speakers: Susan Beck, Jacobs, and Ruth Ayn Hocker, PE, 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.

### 9:45-10:15am - How the Pittsburgh Water and Sewer Authority is Achieving Affordable Water Quality through Integrated Watershed Management

Speaker: Ana Flores, Pittsburgh Water and Sewer Authority

Since 2015, Saw Mill Run's Integrated Watershed Management Plan brought together 12 municipalities, including the City of Pittsburgh, to systematically evaluate sources of stream impairment and projects to address pollution. This presentation will highlight the selection of optimal green, gray and watershed wide solutions in this highly urbanized watershed.

### 10:45-11:15am - Agricultural Best Management Practices / Offset Partnerships

Speaker: Peter Hughes, Red Barn Consulting

Agricultural Best Management Practices can be deployed on farms to limit the amount of nitrogen, phosphorus, and sediment that reach our local waters. Offset partnerships have been developed between agricultural operations and municipalities so that MS4 requirements can be met with more cost-effective non-point source best management practices.

### 11:15-11:45am - 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.

## UTILITY MANAGEMENT PROGRAM

Moderator: Mike Kyle, Lancaster Area Sewer Authority

### 8:45-9:15am - Department of Homeland Security and Other Assessment Services for Consideration

Speaker: Bob Winters, US Department of Homeland Security

Department of Homeland Security water and wastewater physical security assessment services are our topic. 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.

### 9:15-9:45am - Top 5 Things to Know about Cybersecurity and IoT in Utility Management

Speaker: Lisa McFadden, Water Environment Federation

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.

### 9:45-10:15am - Complying with Regulatory Requirements

Speaker: Rulison Evans, GHD

America's Water Infrastructure Act of 2018 requires all community water systems serving a population greater than 3,300 persons to conduct a risk and resilience assessment and prepare or revise an emergency response plan. This presentation will address the requirements, schedule, methodologies and the benefits of developing and maintaining an RRA/ERP.

### 10:45-11:15am - An Innovative Method for H&H Model Application of Global Climate Model Precipitation Projections

Speaker: Dr. Mark Maimone, CDM Smith

Global Climate Model precipitation output temporal resolution is too low for direct use in model-based urban stormwater applications and does not accurately represent storm intensity. An innovative approach to transform GCM output for urban stormwater planning and design including hydrologic and hydraulic modeling and intensity-duration-frequency curve development is presented.

### 11:15-11:45am - Preparing for the Silver Tsunami: A Place in the Water Workforce for GED to PhD

Speaker: Morgan Brown, Water Environment Federation

With over 200 different occupations in the water sector, there is a place for everyone of all educational backgrounds to join the career path to a water quality professional. This presentation will showcase different initiatives aiming to recruit and retain students and young professionals into the water quality workforce.



# ■ TECHNICAL PROGRAM DETAILS

## WATER DISTRIBUTION SYSTEMS PROGRAM

Moderator: Erin Threet, Herbert, Rowland & Grubic

### 8:45-9:15am - P-CAT - Non-Invasive Pipeline Condition Assessment for Water and Sewer Force Mains Using Inverse Transient Pressure Wave Analysis

Speaker: Mike Funk, Hydromax USA

Assessing the remaining life of aging water and sewer pipeline systems is key to developing plans for pipeline maintenance and renewal/replacement programs. The most cost-effective method on the market today is to use p-CAT, which identifies key locations of potential failure, saving the cost of replacing whole pipelines.

### 9:15-9:45am - Reduce Your Valve Vault Footprint

Speaker: Chris Sundberg, Victaulic

Valve vaults are a key component and represent a significant cost of conveyance systems and value engineering indicates that the size of valve vaults is proportional to cost and efforts should be made to minimize cost. Efficient thrust restraint of piping is key to reducing valve vault size and cost.

### 9:45-10:15am - A New KPI for Valve Operability Optimization

Speaker: Dave Lewis, Wachs Water Services, a Xylem Brand

This presentation will review the advanced approach taken by the City of Baltimore in prioritization and control of their water distribution system.

### 10:45-11:15am - Rehabilitation of an 1880's Water Main

Speaker: Matthew D. Cichy, PE, Herbert, Rowland & Grubic, Inc.

Learn how a water system addressed repeated water main breaks and rehabilitated an 1880s-era water main using AWWA Class IV structural CIPP lining. This innovative solution minimized traffic disruption and pavement repair costs along a 5-lane concrete state road. Case study describes the design and construction challenges.

### 11:15-11:45am - Water Distribution Flushing

Speaker: Reed Tomlinson, Pollard Water

This presentation will discuss best practices for flushing a water distribution system, along with reviewing current available tools and techniques. Both unidirectional flushing programs as well as flushing in response to customer complaints will be discussed, from a water quality and system maintenance perspective. We will also touch on flow testing and proper record keeping.

## MONDAY AFTERNOON

### BIOSOLIDS PROGRAM

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

### 1:00-1:30pm - 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; also, ways the Authority worked around problems, how the pieces work together, and what problems continue.

### 1:30-2:00pm - Advanced Drying Technology - An Economical Path to Class A

Speaker: Tid Griffin, Gryphon Environmental, LLC

Attention continues to grow on the challenges associated with land application and landfill of municipal biosolids. Solutions to these management challenges may involve the conversion of the dewatered solids to Class A biosolids and/or volume reduction for reduced disposal fees. Gryphon presents a case study on both large and small installed drying technologies.

### 2:00-2:30pm - Energy Efficiency and Nutrient Reduction Through Process Optimization in the Aerobic Digester

Speaker: Alex Krapas, 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.

### 3:30-4:00pm - Double Your Cake Solids with Elode Technology

Speaker: Christopher Boyd, Charter Machine Co.

This presentation will look at using electricity to double cake solids content coming off dewatering equipment in order to cut 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, allowing water to drain off and make the dewatered cake solids much drier.

### 4:00-4:30pm - Pumping Sludge and Residuals: Non-Newtonian Fluid Dynamics Fundamentals with Real World Applications

Speaker: Charles J. Winslow, GHD

This presentation examines strategies for understanding the conveyance design of non-Newtonian fluids encountered at water/wastewater treatment plants. The basis for theoretical calculations is presented along with empirical equations and proven rules of thumb. Pump and mixer types are reviewed, and selecting the appropriate equipment for high solids applications is discussed.

# ■ TECHNICAL PROGRAM DETAILS

## COLLECTION SYSTEMS PROGRAM

*Moderators: Duk Shin, Gannett Fleming, and  
Matt Cichy, Herbert, Rowland & Grubic*

### **1:00-1:30pm - Condition Assessment Through Asset Management**

*Speaker: Scott Armbrust, Pennsylvania American Water Company*

Condition assessment was performed for all Pennsylvania American Water Company wastewater collection systems to assist in the development of a 5-Year Capital Improvement Plan for replacement/rehabilitation of collection system facilities. Hydraulic models were also developed to evaluate the hydraulic conveyance capacity of the sewer systems.

### **1:30-2:00pm - Using Automated Numerical and Computing Methods to Analyze Large Volumes of Sanitary Sewer Evaluation Survey Data**

*Speakers: Michael E. Bisignani, GHD, and Josh Shoff, Aqua PA*

Have you ever spent countless hours collecting and analyzing terabytes of SSES data? This presentation will discuss an extremely efficient tool developed by GHD which allows for multiple simulations of data analysis to be completed in a matter of hours rather than days.

### **2:00-2:30pm - 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, funding, and selected solution.

### **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 Keystone Water 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. Topics will be announced in the Conference Program.

## DRINKING WATER MANAGEMENT PROGRAM

*Moderators: Curt Fontaine, Municipal Authority of Westmoreland County, and  
Peter Lusardi, GHD*

### **1:00-1:30pm - Lead in School Drinking Water: Regulatory Review & Lessons Learned from the Programs at Over 10 School Districts**

*Speaker: Joe Luchette, Terraphase Engineering Inc.*

Terraphase has been providing lead in school drinking water program testing services to public school districts, private schools and daycare/child centers nationwide. This work has involved the collection of thousands of samples at several hundreds of school facilities and has led to established program containing these key components: Communications, planning and data management.

### **1:30-2:00pm - Getting the Lead Out in Trenton: A Multi-Phase Approach to Achieving LCR Compliance**

*Speaker: Brian Lubenow, CDM Smith*

After Trenton Water Works exceeded the Lead Action Level set by the Lead and Copper Rule during two routine monitoring periods, they initiated multi-phase lead service line replacement and corrosion control treatment programs to reduce lead levels. We'll review the multi-faceted approach to improve water quality and restore compliance.

### **2:00-2:30pm - The LCR Revisions - A Case Study in How PWSA's LSLR Program is Achieving Compliance Today and Tips for Others**

*Speaker: Daniel T. Duffy, East Woods Consultants, LLC*

The US EPA recently published proposed revisions to the Lead and Copper Rule. This presentation will detail Pittsburgh Water's current LSLR Program and describe how many of the current program details will meet future LCR requirements. PWSA will describe measures that other PA water suppliers can take to achieve compliance.

### **3:30-4:00pm - Practical Use of Multiple Corrosion testing Methods to Reduce Lead - A Case Study of PWSA Testing Program**

*Speaker: Kemal Niksic, PE, Mott MacDonald*

The Pittsburgh Water and Sewer Authority (PWSA) has engaged in an intensive investigation to reduce lead at the point of use after a lead action level exceedance in 2016. The objective of the corrosion testing program was to determine the optimum treatment strategy for reducing lead release to achieve compliance with the lead action level and not adversely impact water quality in the distribution system.

### **4:00-4:30pm - We're in Compliance... So What? Buffalo's Journey for Lead-Safe Drinking Water**

*Speaker: Lisa J. Derrigan, PE, GHD Consulting Services, Inc.*

The City of Buffalo has consistently maintained compliance with the Lead and Copper Rule, yet in the aftermath of the events in Flint, Michigan, Buffalo decided to make lead in drinking water a top priority. This presentation provides an overview of Buffalo's proactive approach to addressing lead in drinking water.

# ■ TECHNICAL PROGRAM DETAILS

## ENGINEERING PROGRAM

Moderator: Robert Dengler, Gannett Fleming

### 1:00-1:30pm - AWWA Standards - 100 Years and Counting

Speaker: R. Scott Hughes, Gannett Fleming

The AWWA Standards Council was formed in 1920 to oversee standards development for the water industry; its first chair was George Warren Fuller. Learn about Council committees and activities, the standards development process and the benefits of standards use as the Council celebrates its 100th Anniversary.

### 1:30-2:00pm - Case Study: Aqua Pennsylvania's Eagle Rock Booster Station and Tank

Speaker: Jonathan W. Morris, PE, GHD

The presentation will provide an overview of Aqua Pennsylvania's Eagle Rock Booster Station and Tank project from conception throughout final construction and operation. An overview of the project planning and engineering design will be presented to the audience. The presentation will include discussion of the transient modeling, pump selection and performance, and construction management.

### 2:00-2:30pm - Ain't No Mountain High Enough - Going Deep with HDD for a 42-inch Transmission Main

Speakers: Paul Mourt, Mott MacDonald, and Dan Rickard, PAWC

The Scranton Area WTP provides potable water to 50,000+ connections in the greater Scranton area. The 33 MGD WTP originally fed the Scranton Service Area via a 48-inch transmission main. This project constructed a 42-inch parallel transmission main via open cut (~2,250 LF) and HDD (~5,000 LF) to provide redundancy.

### 3:30-4:00pm - Innovative Strategies for Maximizing Total Phosphorus Reduction

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

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

### 4:00-4:30pm - 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. This presentation will highlight the operation of the Northern Lebanon County Authority SBR System. Process description and operation under different conditions will be presented.

## STORMWATER PROGRAM

Moderators: Suzanne Ciavola, Mott MacDonald, and Cindy Zawrotuk, GHD

### 1:00-1:30pm - WEF Stormwater Institute Update - The National MS4 Needs Assessment Survey

Speaker: Rebecca Arvin-Colon, Water Environment Federation

WEF's Stormwater Institute completed a first-of-its-kind national MS4 needs assessment survey in 2018 to better understand both the challenges and possibilities to which the regulated sector is subject. The presenter will explain some of the highlights of the national survey results, as well as next steps.

### 1:30-2:00pm - Infiltration Testing - Dos, Don'ts, and Lessons Learned

Speaker: Sal Monteverde, ms consultants, inc

Infiltration testing is typically required and is an integral part of the design of infiltration stormwater BMPs. However, inaccurate testing, data misinterpretation, and careless construction practices can lead to BMPs not infiltrating or performing as designed. This presentation gives insight on infiltration testing, and why it should never be overlooked.

### 2:00-2:30pm - Using Public Funds to Install Green Infrastructure on Private Property

Speakers: Nathan Walker, Gannett Fleming, and Anthony Dill, Arcadis

Has your municipality/authority ever needed access to private property to repair failing infrastructure? Are there private properties that are well-suited for new stormwater management features (regional retention, bioswales) that could serve the community? Learn your options for partnering with private property owners on stormwater infrastructure projects to achieve common goals.

### 3:30-4:00pm - Understanding the Time and Paperwork Commitments Associated with Maintaining BMP Compliance as Part of PRP and/or TMDL Plan Implementation

Speaker: Mark Harman, PG, 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 an 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.

### 4:00-4:30pm - Navigating the Complex World of Forebay and Micropool Design

Speaker: Ifeanyi Odigboh, ms consultants, inc

Forebays and micropools are depressed areas that offer pretreatment of sediment laden stormwater prior to entering a retention, detention, or infiltration basin. Poorly designed forebays and micropools have led to prolonged standing water and nuisance flooding. This presentation will review design standards, address common misconceptions, and present lessons learned.

# ■ TECHNICAL PROGRAM DETAILS

## UTILITY MANAGEMENT PROGRAM

*Moderator: Mark Pickering, GHD*

### **1:00-1:30pm - The Sustainable Development Goals (SDG): What's in it for me?**

*Speaker: Barry Liner, Water Environment Federation*

Understanding the SDGs recognizes the value, locally and globally, that the work water professionals already do. The framework enables utilities to increase legitimacy in their relations with customers, provides a sense of pride to water professionals, and encourages using the global perspective on water resources to facilitate watershed-based solutions.

### **1:30-2:00pm - Be Prepared: Incorporating Climate Resilience and Mitigation Planning Into Asset Management for a Water and Wastewater Utility**

*Speaker: Lee Tharps, PE, Jacobs Engineering*

Washington Suburban Sanitary Commission, a water and wastewater utility located in suburban Maryland outside Washington, D.C., is currently conducting a long-term planning project to prepare for future climate change. This case study will present the methodology and results of the vulnerability assessment and flood adaptation analysis for Washington Suburban Sanitary Commission facilities.

### **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 - 2020 Legal Update for Water Professionals in Pennsylvania**

*Speaker: Steven A. Hann, Esq, Hamburg, Rubin, Mullin, Maxwell & Lupin, PC*

This session will provide an update on significant legal issues impacting professionals in drinking water, wastewater and stormwater-related fields. The specific legal 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 - DEP Regulatory Update**

Representatives from the Pennsylvania Department of Environmental Protection (DEP) will discuss new and emerging regulatory requirements affecting water, wastewater, and stormwater and will answer questions from the audience.

## WATER DISTRIBUTION SYSTEMS PROGRAM

*Moderator: Mike Shea, North Penn Water Authority*

### **1:00-1:30pm - Water or Wastewater System Modeling - Benefits and Applications**

*Speaker: John Wendelbo, FLOW-3D*

Participants in this session will learn about the high-level considerations, results, and case validations of three drop structure projects that incorporated CFD modeling, to see a broad picture of what can be achieved today with the CFD modeling tools and computing hardware currently available to the water engineering practice.

### **1:30-2:00pm - Physical Hydraulic Modeling - Optimizing Pumping System Design**

*Speaker: Paul Moulton, AECOM*

Not every pumping station can comply exactly with ANSI/HI 9.8 Standard Rotodynamic Pumps for Pump Intake Design. When there is a deviation from the standard, the risk must be properly assessed. An engineer should consider utilizing physical hydraulic modeling to assess this risk.

### **2:00-2:30pm - Evaluation of Transient Mitigation Using Post-Construction Field Testing**

*Speaker: Christopher Patackis, Brown and Caldwell*

Historical piping failures on transmission mains were believed to have been attributed to pressure surges caused by power outages at the Pickering WTP. Consequently, a hydropneumatic surge control system was installed for transient mitigation. Results of post-construction field testing performed provided model validation and confirmed the system reduces transient conditions.

### **3:30-4:00pm - All Mixed Up? A Case Study for Mixing Your Water Tank**

*Speaker: Christine Gunsaulus, Entech Engineering, Inc.*

The Ephrata Area Joint Authority has four water tanks: two with mixers with questionable effectiveness, and two without mixers. Ephrata needed real data to determine if new mixers were needed. Ephrata, Entech, and the Bureau of Safe Drinking Water teamed to obtain and analyze data, and understand how to proceed.

### **4:00-4:30pm - Using Transient Analysis for In-Plant Water Supply - A Case Study of TBSA's Non-Potable Water System**

*Speaker: Youssef Al Fahham, Mott MacDonald*

After a piping failure of the non-potable water system at the Two Bridges Sewerage Authority (TBSA) Wastewater Treatment Plant, TBSA embarked on an intensive investigation to analyze the potential for pressure surges. A detailed transient analysis was conducted using Bentley HAMMER software, which was used to propose surge protection measures.



# ■ TECHNICAL PROGRAM DETAILS

## TUESDAY MORNING

### COLLECTION SYSTEMS PROGRAM

Moderators: Liz Cheeseman, Mr. Rehab, and Tony Dill, Arcadis

#### **8:00-8:30am - Alternative Project Delivery for Sewer Collections Systems - Developing and Implementing the Sullivan's Island Turnkey Sewer Rehab Construction Program**

Speaker: Emily Sadowsky, Arcadis

The turnkey engineering and construction program in Sullivan's Island was developed to reduce inflow/infiltration into the sewer system. This presentation will discuss details of implementation, benefits of inflow/infiltration reduction, rehabilitation technology implementation improvements, and construction management lessons learned.

#### **8:30-9:00am - Going Deep to Avoid Conflict - Microtunneling for Utility Construction**

Speaker: Dennis R. Funk, PE, Gannett Fleming

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 paper reviews the equipment and requirements for microtunneling and presents considerations for evaluating the suitability of a project for microtunnel construction.

#### **9:00-9:30am - Manhole Corrosion Variance Analysis Project Results Using 3D Scanning**

Speaker: Pierre Mikhail, CUES, Inc.

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

#### **10:30-11:30am - Mobile Sessions in 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 Keystone Water 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. Topics will be announced in the Conference Program.

### DRINKING WATER MANAGEMENT PROGRAM

Moderator: George Hart, Bankson Engineers

#### **8:00-8:30am - Challenge Accepted - New Water Plant Overcomes Multiple Obstacles**

Speaker: Daniel Cargnel, PE, Buchart Horn, Inc.

Numerous challenges were overcome during design, permitting and construction of Pennsylvania American Water's new 8 MGD Ellwood City Water Treatment Plant. Because of the age and condition of an existing facility, PAW decided to build an entirely new water treatment plant at a new location with two new water sources.

#### **8:30-9:00am - Utilizing a Water Safety Plan Approach to Guide Resource Allocation**

Speaker: Frank Sidari III, PE, BCEE, Arcadis

Water systems face a range of issues to provide a safe and reliable water supply to their customers, while operating with constrained labor and financial resources. A water safety plan approach for water systems can provide a roadmap for managing water quality, while identifying where resources need to be allocated.

#### **9:00-9:30am - How Smart Do We Really Want Our Water to Be?**

Speaker: Jessica Hou, Gannett Fleming

This vision for the future will inform water quality professionals about how we can determine our role in comprehensive and coordinated data sharing networks, so we may truly find value in artificial intelligence and the Fourth Industrial Revolution.

#### **10:30-11:00am - Driving Performance Improvement in Buried Infrastructure**

Speaker: David Smith, Xylem Inc.

This presentation will focus on best practices that employ technology and analytical tools which enable better system performance through condition assessment, monitoring, and diagnostics. The intelligence provided by this approach allows for better system-level choices today that will improve future operations, maintenance, and capital planning.

#### **11:00-11:30am - Full-Scale Capacity Testing to Further Philadelphia Water Department's Water Master Plan Implementation**

Speaker: Jeff Jackson, Brown and Caldwell

The Philadelphia Water Department (PWD) recently completed its first water master plan in order to identify critical capital projects and sequencing to provide reliable and clean drinking water to the City of Philadelphia. The purpose of this paper is to present full-scale capacity testing results conducted at PWD's Belmont WTP.

# TECHNICAL PROGRAM DETAILS

## DRINKING WATER QUALITY/TREATMENT PROGRAM

Moderator: Jonathan Reuther, Mott MacDonald

### 8:00-8:30am - Mg(OH)<sub>2</sub> for pH/Alkalinity Control and Enhanced Flocculation in Drinking Water Treatment

Speaker: Alan R. Bowers, Associate Professor, Vanderbilt University, Dept. of Civil & Environmental Engineering

pH/Alkalinity control is important in drinking water treatment. Nutri-Mg++ is the first commercial blend of Mg(OH)<sub>2</sub> approved for drinking water (< 300 mg/L). Product trials have shown this to be a safer alternative for NaOH, providing supplemental Mg, enhanced flocculation, and improved TOC removal in Biofilters.

### 8:30-9:00am - Improving Distribution System Water Quality

Speaker: Michael Sedon, Cranberry Township

Microtunneling is a useful but less common trenchless alternative for larger pipeline construction to avoid. Cranberry Township is located 20 miles north of Pittsburgh, PA. The Township is a consecutive water system that purchases all water from a parent utility. This presentation will discuss methods that operations staff utilized to improve water quality and reduce water age in its distribution system.

### 9:00-9:30am - Distribution Network THM Mitigation in Consecutive and Wholesale Water Systems

Speaker: Tom Caulfield, UGSI Solutions

Elevated trihalomethane (THM) levels are among the most common violations of the Stage 2 DBP Rule in the United States. Systems that employ raw water with high levels of organics, utilize free-chlorine as a network residual and endure warm water temperatures will typically experience difficulties with THMs.

### 10:30-11:00am - Small Systems: Incorporating Water Age into Hydraulic Model Analysis

Speaker: Laura Siemers-Kennedy, Barton and Loguidice, DPC

Even with limited data, a water age analysis can be performed to add value to hydraulic analysis and planning decisions. This presentation will provide an overview of water age and water quality modeling for water distribution systems and a case study of a small community in Pennsylvania.

### 11:00-11:30am - In-line Aeration/Oxygenation - Groundwater and Wastewater Treatment

Speaker: Mike Spillner, Mazzei Injector Co, LLC

In-line oxygenation is the dissolution of oxygen from either atmospheric air or concentrated oxygen into a water mainline without the need for basins or tanks. Primarily, two case studies will be discussed: San Angelo pre-filter iron oxidation in a pressurized mainline; Hagerstown post treatment re-oxygenation in a gravity flow line.

## ENGINEERING & CONSTRUCTION PROGRAM

Moderator: Scott Armbrust, Pennsylvania-America Water

### 8:00-8:30am - 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.

### 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 - Granulation of Activated Sludge: Full-Scale Evaluation at the City of Penticton WWTP

Speaker: Gregory Bowden, AECOM

Formation of granular sludge was examined in the full-scale continuous flow activated sludge wastewater treatment plant in Penticton, British Columbia. Project details, successes and failures, lessons learned, and future work will be summarized. Aerobic granulation was demonstrated feasible, but work remains to understand operational limits and optimize performance.

### 10:30-11:00am - 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.

### 11:00-11:30am - Designed. Bid. Built: Considerations from the Contractor and Consultant on the Clinton Zone Transmission Main

Speaker: Nick Lewis, PE, Gannett Fleming

WSSC's Clinton Transmission Main, is a 5-mile long piece of critical water infrastructure. Completed in early 2019, the contractor and engineer will discuss how the contractor's approach to the project compared to the design intent in an effort to help facilitate the constructability of future designs, and lower project costs.

# TECHNICAL PROGRAM DETAILS

## INDUSTRIAL WASTE PRETREATMENT PROGRAM

*Moderator: Stephanie Clay, PE, ARRO Consulting*

### 8:00-8:30am - Small Footprint for Big Impact: How a Small Ski Town Optimized Their Plant Using Primary Treatment

*Speaker: Todd Latchaw, Nexom*

There are multiple drivers for rethinking capacity expansion including footprint, level of treatment, and power demand for operations. Real estate can often make or break the feasibility of an effective and economical wastewater system upgrade, and many plant expansions are slowed or come with astronomical costs due to lack of space. But what if there was a way to reduce loading to the plant instead?

### 8:30-9:00am - Local Limits Re-Evaluations Lessons Learned

*Speaker: Nicholas Sahd, Gannett Fleming*

Municipalities and Authorities with USEPA-approved Industrial Pretreatment Programs are required to impose discharge limits, known as Local Limits, on the industrial wastewater discharged by permitted industrial users within their service area. Based on over two (2) dozen recent local limit re-evaluations, a summary of “lessons learned” will be presented.

### 9:00-9:30am - eXeno™: New Operational Strategy of MBBR for Removal of Pharmaceuticals and Other Micropollutants from Municipal Wastewater Effluent—Results from Pilot Operation

*Speaker: Elena Torresi, Veolia Water Technologies*

The presence of emerging contaminants in effluent wastewater can compromise the reliability of reused water. Based on a new operational strategy of Moving Bed Biofilm Reactors (MBBR), eXeno™ can achieve up to 80% of degradation of specific pharmaceuticals from wastewater, decreasing costs related to the use of advanced chemical treatment.

### 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 Daniel M. Schlott, Jr., PE, both with ARRO Consulting, Inc.*

The presentation will highlight aspects of upgrading the existing wastewater pretreatment plant of a food processing facility located in Lancaster County. The upgrade will allow for additional capacity to treat process wastewater due to increased production while keeping the plant in operation during construction.

## STORMWATER PROGRAM

*Moderators: Nathan Walker, Gannett Fleming, and Cindy Zawrotuk, GHD*

### 8:00-8:30am - 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.

### 8:30-9:00am - Regional Flooding Challenges and Approaches: Huntington, WV Flood Mitigation Study

*Speaker: Ifeanyi Odigboh, ms consultants, inc*

Huntington, WV has long-standing problems with stormwater drainage and CSO flooding. Dual drainage modeling is used to simulate flow transfers between surface and subsurface drainage systems. Conveyance, storage enhancements, sewer separation, and green infrastructure, are used to meet the level of service objectives for flood mitigation and improve water quality.

### 9:00-9:30am - A Modern Approach to Watershed Hydrology for Stormwater Management

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

The availability of high-resolution geospatial data (terrain, land cover) to the public enables development of hydrologic models to measure the impact of increasingly frequent, severe storms. This presentation will show how an open-source peak flow calculator can use this data to estimate flow at any point within a watershed.

### 10:30-11:00am - Innovative Green Street Designs in Philadelphia

*Speaker: Daniel Wible, Jacobs*

This presentation will discuss lessons from implementing innovative green stormwater infrastructure (GSI) in the Cedarbrook neighborhood of Philadelphia as part of the City's Green City Clean Waters Program. Special attention will be given to the GSI at SEPTA's Sedgwick station, considered a “signature” GSI design by the Philadelphia Water Department.

### 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 (County) 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.

# ■ TECHNICAL PROGRAM DETAILS

## UTILITY MANAGEMENT PROGRAM

Moderator: Jack Rae, Gannett Fleming

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

Speaker: Tesra Schlupp, PENNVEST

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

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

Speaker: Rocky Craley, Raftelis

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.

### 9:00-9:30am - Alternative Procurement Leads to Energy Enhancements at the Derry Township Municipal Authority

Speaker: Colin O'Brien, Brown and Caldwell

Through the Commonwealth's cooperative purchasing program, COSTARS, 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.

### 10:30-11:00am - The Economic Advantage of Critical Valve Assessment and Rehabilitation

Speaker: Dave Lewis, Wachs Water Services, a Xylem Brand

This presentation compares two approaches that utilities can take – one being replacing assets at great cost and the other; rehabilitation of assets at significantly lower cost and why rehabilitating valves vs. replacing is a no-brainer when you look at the cost, plus time and operational capabilities.

### 11:00-11:30am - GIS on a Budget - Complying with Environmental Regulations

Speaker: Julia Wolanski, Pennoni

Working with municipal clients across the Mid-Atlantic region, Pennoni has been implementing GIS-based asset management platforms. This session will explore use-cases for these platforms and how they can be best implemented for a variety of municipal clients and additional clients. Additionally, basic asset management practices will be discussed and outlined.

## TUESDAY AFTERNOON

## COLLECTION SYSTEMS PROGRAM

Moderators: Bruce Hulshizer, Herbert, Rowland & Grubic, and Roger Lehman, Weston Solutions

### 1:00-1:30pm - Benefits of Hydraulic Modeling for Tracking System Capacity and Development Planning

Speaker: Mitchell Collins, GHD

The Hatfield Township Municipal Authority (HTMA) is impacted by inflow/infiltration (I/I) during wet weather events. The HTMA has taken a proactive approach to reduce I/I by developing an I/I Mitigation Plan which outlines actions to address existing capacity issues, procedures to monitor future growth, and tools to address potential issues.

### 1:30-2:00pm - Commitment Meets Flexibility: How MCES Is Successfully Achieving I/I Reduction Through Clear Goals and Regional Partnerships

Speaker: Andy Lukas, Brown and Caldwell

Numerous regional systems have attempted to establish wet weather flow reduction programs, aimed at sewer system rehabilitation, to avoid making expensive downstream capacity investments. One way to approach flow reduction programs is to establish peak flow limits for systems contributing flows to the regional system.

### 2:00-2:30pm - "Wet Weather, No Problem!" - The Brandywine Hundred Story

Speaker: Tony Dill, Arcadis

Wet conditions of 2018/19 stressed the capacity of wastewater collection systems. This presentation will discuss how New Castle County's focused, holistic sewer rehabilitation program reduced wet-weather flows and achieved compliance with a State-ordered sewer rehabilitation program ahead of schedule and under budget.

### 3:30-4:00pm - Where to Build? An Interceptor Augmentation Project in a Limited Corridor

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

After construction of the new Donaldson's Crossroad WPCP, the Peters Township Sanitary Authority had to address the two undersized interceptors that conveyed wastewater to the facility. This presentation will discuss the challenges of augmenting these interceptors after decades of residential construction encroached on the easements within the drainage basins.

### 4:00-4:30pm - 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.



# ■ TECHNICAL PROGRAM DETAILS

## CONSTRUCTION PROGRAM

Moderator: Richard Heinick, Gannett Fleming

### 1:00-1:30pm - North Jersey District Water Supply Commission Clarification Upgrade Project

Speaker: Robert K. McIntyre, DBIA, Stone Hill Contracting Co., Inc.

When North Jersey District Water Supply Commission (NJDWSC) decided it was time to upgrade/repair their clarification basins, they opted for a design-build approach, so they could team with the contractor and design professional. Working together as a team, the stakeholders solved the problems at hand and had a successful project that has met and/or exceeded expectations.

### 1:30-2:00pm - Successful I&I Reduction using Design-Build - Developing and Implementing the River Valley Highlands Design-Build Sewer Rehabilitation Project

Speaker: Jim Shelton, Arcadis

A developer installed sewer was causing repeated unexplained basement backups during heavy rains 1-3 times per year within five years of installation. A turnkey sewer rehabilitation project using Progressive Design-Build to provide continuous highly collaborative interaction between the Owner, Engineer, Construction Manager, and Subcontractors was used to solve this problem.

### 2:00-2:30pm - Third-Party Services Add Value to the PSU WRF Upgrade

Speaker: Mark Pickering, GHD

Successful Design-Build projects with high cost and complexity that pose a significant risk to the owner benefit from an experienced third-party technical team to serve as advisor to the owner. This case study of the PSU WRF project will show how third-party services benefited both PSU and the Design-Build team during project planning, design, and trade selection phases.

### 3:30-4:00pm - Conquering Front Street: The Strategic Use of Emergency and Maintenance Contracts in Harrisburg

Speaker: Caleb J. Krauter, Herbert, Rowland & Grubic, Inc.

Emergency & Maintenance Contract procedures helped Capital Region Water rehabilitate its Front Street sewer interceptor in under eight weeks, 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.

### 4:00-4:30pm - The Solicitor and the Salesman - Two Perspectives on Guaranteed Energy Savings Agreements from Opposite Sides of the Negotiating Table

Speaker: Dennis Clough, Energy Systems Group

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.

## DRINKING WATER QUALITY/TREATMENT PROGRAM

Moderators: Eloise Gibby, Greeley and Hansen, and  
Caitlin Cavanaugh, AECOM

### 1:00-1:30pm - Nautilus System - Innovative, Efficient and Cost-Effective Solution for Leak and Gas Pocket Detection in Large Diameter Pressure Pipelines

Speaker: Mike Funk, Hydromax USA

Historically large diameter pipeline leak detection has been challenging and cost prohibitive - until now. Nautilus™ is an innovative, efficient, and cost-effective solution for inline leak and gas pocket detection in large diameter pressure pipelines and can be used in all types of materials and in pipelines at any depth.

### 1:30-2:00pm - Better Than It Looks: Assessment of Concrete Deterioration at Hoopes Dam

Speaker: Scott Jones, PE, PhD, AECOM

Hoopes Dam is an 845-foot long mass concrete gravity dam owned and operated by Wilmington, Delaware. Following recommendations for significant costly rehabilitation to address suspected AAR, AECOM offered the City a phased approach of monitoring, additional testing and petrographic examination resulting in less extensive repairs and minimized cost.

### 2:00-2:30pm - Monitoring Basic Parameters Used to Diagnose Packaged Treatment Unit

Speaker: Richard Ross, WesTech Engineering Inc.

At a WTP site with multiple treatment units, one unit was not performing the same as the other two. Monitoring the basic parameters and percentage of solids removed indicated one unit was not retaining the solids as well as the others. Further investigation determined the depth of the clarifier media was not correct. Basic measurements quickly identified operational issues.

### 3:30-4:00pm - Mount Joy Borough Authority - Integrated Groundwater Treatment Case Study for Nitrates and Hardness

Speaker: Gregory C. Gilles, AdEdge Water Technologies

The Mount Joy Borough has implemented a 1 MGD packaged treatment system for hardness and nitrate reduction utilizing Ion Exchange technology with UF pretreatment. These automated packaged systems provide for total treatment of target drinking water parameters of concern. This presentation will discuss the methodology, design considerations, treatment performance, lessons learned, and operating costs.

### 4:00-4:30pm - A PA Community Replaces Their Antiquated Lime Softening Plant: System Design Considerations and Lessons Learned

Speaker: Peter Buss, PE, Gibson-Thomas Engineering Company, Inc.

Ford City, PA manually operated an old, leaking lime softening plant to reduce hardness from ground water. In 2016, they embarked on a journey to it with an ion-exchange softener and an RO system, reducing both hardness and TDS. This presentation will highlight the lessons learned during construction and start-up.

# ■ TECHNICAL PROGRAM DETAILS

## INDUSTRIAL WASTE PRETREATMENT PROGRAM

*Moderator: Stephanie Clay, ARRO Consulting*

### **1:00-1:30pm - Evaluation, Treatment and Source Protection - Lessons from the Epicenter of PFAS in Southeastern PA**

*Speaker: Toby Kessler, Gilmore & Associates, Inc.*

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.

### **1:30-2:00pm - A Guide for POTWs to Manage Risk Associated with PFAS Contamination**

*Speaker: Tom Rhoads, PE, Retired Commissioner, Onondaga County Dept Water Env Protection*

PFAS are an increasing concern in our environment, drinking water and wastewater. Most attention has focused on drinking water contamination and, to a lesser extent, biosolids land applications. Wastewater treatment facilities need to anticipate sampling and testing requirements will be a part of upcoming discharge permit renewals and begin development of action plans; and additional consideration should be given to biosolids management.

### **2:00-2:30pm - Pilot Test of Filtration Systems for the Removal of Copper, Aluminum and Nonconventional Pollutants**

*Speaker: Micah Fish-Gertz, BCM Engineers*

Several filtration technologies were pilot tested to remove TSS at a 10-mgd activated sludge WWTP, and to remove TSS, phosphorus, aluminum and copper at a 1.8-mgd attached growth WWTP. This presentation discusses the performance of pilot tests, testing criteria/protocols, correlation between primary and index parameters, and filtration technologies.

### **3:30-4:00pm - PFAS: Developing a Treatment Approach**

*Speaker: Lori L. Kappen, Gannett Fleming*

We will review recent regulatory action for PFAS and present current information on common treatment alternatives. In the context of three case studies, we will cover topics including testing and selection of an absorbent media, water quality impacts, backwash and waste handling, site constraints, media life, EBCT, and cost impacts.

### **4:00-4:30pm - Removal of Emerging Contaminants through Ozone-BAC: Influence of Activated Carbon Properties**

*Speaker: Adam Redding, PhD, Calgon Carbon Corporation*

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

## LABORATORY PRACTICES PROGRAM

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

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

*Speaker: Pam Moss, Hach*

Water & 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 - What's Bugging Your Water? - The Application of Advanced Microbial Testing to Improve Plant and Distribution System Water Quality**

*Speaker: John Civardi, Mott MacDonald*

This presentation will cover newly developed methods of analysis for microbiological growth and how this data has been used to assess source and distribution water quality, microbial induced corrosion, and improved disinfection in different water systems.

### **3:30-4:00pm - PT Tips**

*Speaker: Larissa Hoover, Cranberry Township*

In this session, you will learn how to run your annual required laboratory proficiency tests. Get information on ordering, diluting, analyzing and reporting these samples. Never fail a PT test again!

### **4:00-4:30pm - Fisher Scientific Capabilities Partnered with Lab Water Equipment Demo**

*Speaker: Steve Krynak, Thermo Fisher Scientific*

Thermo Scientific Orion Star T900 Series Laboratory Titrators are potentiometric titrators for performing automated pH, redox, or ion titrations. We will cover best practices using automated titrators to achieve speed and accuracy in your lab and will also perform an automatic titration for total alkalinity in water.

# ■ TECHNICAL PROGRAM DETAILS

## SAFETY PROGRAM

Moderator: Lisa Cortazzo, ALCOSAN

### 1:00-2:30pm - What Makes an Effective Safety Program

Speaker: Kelly Kramer, RETTEW Associates

This training is intended to improve your organizations 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.

### 3:30-4:30pm - Effective Safety Inspections

Speaker: Lisa Cortazzo, ALCOSAN

Learn what Safety Inspections are necessary to keep your facility and employees safe. These inspections can be conducted by Management Employees, Union Members or Safety Committees. Be aware of safety items that are all around your facility and how to check them periodically to ensure they are in proper working order and available for use, especially in emergency situations.

## STUDENT RESEARCH PROGRAM

Moderator: Holly Frederick, PhD, Wilkes University

### 1:00-4:30pm

This 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 five for oral presentation and to receive the Student Research Awards.

## WEDNESDAY MORNING

### DRINKING WATER QUALITY/TREATMENT PROGRAM

Moderator: To be announced

### 8:00-8:30am - A Colorado Utilities Journey in Navigating PFAS Detection and Treatment in Their Drinking Water

Speaker: Jeff Jackson, Brown and Caldwell

This presentation discusses the two-year journey of navigating the challenges associated with this project, including the initial reaction and steps taken to reduce PFAS in the treated water, notification of customers, identification of a plan to address, determination of treatment objectives and testing to support a long-term plan that utilized existing infrastructure.

### 8:30-9:00am - Emerging Approaches to PFAS Management in the Overall Water Cycle

Speaker: Christopher Curran, AECOM

PFAS concerns are on the rise due to uncertainties of the extent of contamination to our water resources and regulations that are being promulgated. A review of emerging, innovative approaches to addressing PFAS will be discussed along with the fate of the compounds through the water cycle and solids pathways.

### 9:00-9:30am - The Media You Use for Arsenic Treatment Will Be Discontinued: A NJ Community Rapidly Responds to Install New Treatment, But Also Finds PFAS

Speaker: Tyler Butel, AdEdge Water Technologies

In 2018, Ramsey, NJ learned their arsenic media would no longer be manufactured, so they designed alternative treatment for installation at six sites within 18 months. They also discovered PFOA in two wells and added ion exchange for treatment. This presentation will discuss the unique design considerations and permitting processes.

### 10:00-10:30am - Crisis to Success: Lessons for Utilities from the Tucson Water Turnaround

Speaker: Michael J. McGuire, MJM, Inc.

Twenty years before the tragedy in Flint, MI, Tucson, AZ, delivered treated surface water from the Colorado River resulting in red, orange, yellow and brown water flowing from customer taps. The presentation chronicles how Tucson Water changed its management practices, solved the corrosion problem and restored its lost credibility.

### 10:30-11:00am - Biological Treatment of Nitrate from Drinking Water: From Pilot to Full Scale

Speaker: Martin Lawrence, AdEdge Water Technologies

Traditional technologies for nitrate treatment from drinking water generate high strength waste containing concentrated levels of nitrate. An alternative is a fixed-bed biological denitrification process that destroys nitrate instead. This presentation will discuss system performance and lessons learned from pilot to full-scale treatment of this biological process in Taylorsville, IL.

# TECHNICAL PROGRAM DETAILS

## PROFESSIONAL WASTEWATER OPERATIONS PROGRAM

*Moderator: Autumn Heckathorn, Western Butler County Authority*

### 8:00-8:30am - 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.

### 8:30-9:00am - BioVAR: A New High Loading Sequential Batch Reactor (SBR) Technology

*Speaker: Timothy D. Brett, PE, Xylem, Inc.*

BioVAR is a new technology based on activated sludge that uses a novel selection mechanism to select biomass which settles very effectively compared to conventional processes. These sludge settling properties allows a bioreactor to achieve high nutrient removal on both nitrogen and phosphorus in a low footprint and avoiding washout at low HRTs.

### 9:00-9:30am - Naturally Non-Restrictive Filtering Activated Sludge Process-NYNfas

*Speaker: Timothy D. Brett, PE, Xylem, Inc.*

Treatment plants are facing many new challenges, such as needing to use smaller aeration basins to treat more wastewater to reduce footprint and capital expenditure, to remove nitrogen and phosphorus to extremely low levels. Most importantly, the goal is to provide good enough water quality for direct and indirect water reuse.

### 10:00-10:30am - Effective Monitoring of Sludge Inventory to Optimize Sludge Concentration

*Speaker: Benjamin Barker, YSI Inc, a Xylem brand*

Maintaining and monitoring solids inventory is important to achieving the treatment required within activated sludge and producing quality sludge after settling. Several automated control strategies are used to optimize sludge removal and achieve the desired sludge characteristics. Online instrumentation has improved drastically to help automate these processes.

### 10:30-11:00am - Optimizing Polymer Mixing and Activation: Following the Science

*Speaker: Gary Schaeffer, UGSI Solutions*

Despite the wide-spread use of polymers in water and wastewater treatment and their associated high recurring expense, understanding exactly how to optimize polymer use in water and wastewater treatment is not well understood.

## DBIA PROGRAM



*Moderator: Robert McIntyre, Stone Hill Contracting Co., Inc.*

### 8:00-9:00am - Intro to Design Build and DBIA

*Speaker: Steve Ruether, President, The Bell Company and President, DBIA Liberty Northeast Region*

This session will focus on the basics of Design Build Construction and how it differs from conventional Design-Bid-Build. Throughout the session information will be provided as to the role of Design Build Institute of America and their regions, and chapters that can be used to better facilitate and educate people in Design Build Done Right.

### 9:00-10:00am - Update on DB Legislation in Region

*Speaker: Richard Thomas, Director, State/Local Legislative Affairs for DBIA National*

This session will bring an update to the changes in legislation in the region regarding alternative procurement methods, as well as what is seen for the near future. Reviewing legislative efforts in PA, NJ, NY and DE, but focusing largely on PA.

### 10:30-11:30am - Pennsylvania State University uses Progressive Design-Build for Wastewater Treatment Plant Project

*Speakers: Mark Strahota, PE, Hazen and Sawyer; David Swisher, PE, Penn State University; and Jeremy Holsinger, Haskell*

The University Park WWTP has been producing reuse-quality water for land application of effluent at the Living Filter for decades. Since the early 2000s, Penn State has planned to improve the quality of the WWTP effluent for more varied uses on the University Park campus. The 2016 Water Reuse Study Update identified specific reclaimed water demands through focused interviews with potential campus users. The Study identified necessary improvements in the reclaimed water distribution system through hydraulic modeling, as well as the reclaimed water standards required to meet the anticipated campus demands. The first part of the presentation will discuss the background of the project and the selection of the Progressive Design-Build Delivery Method. In 2017, Penn State elected to use Progressive Design-Build to implement improvements at the University Park WWTP, including the use of PA DEP Class A Reuse technologies. The second part of the presentation will focus on delivery and success of this project, including the learning opportunities that were encountered.



# CERTIFICATION

## PA DEP Operator Certification

The PA Department of Environmental Protection (PA DEP) has approved continuing education status for the Keystone Water 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 **drinking water & wastewater operators**. The PWEA is a PA DEP accredited sponsor and training provider, 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, PWEA and PA-AWWA 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 Conference registration staff during posted registration hours. You must provide a photo ID when turning in your tracking sheet. Transcripts will be processed and emailed approximately one month after the Conference.

In addition to the Conference contact hours, six workshops have been approved by the PA DEP for additional credit. Go to page 26 for more information. 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

Conference technical sessions are not pre-approved by the State Registration Board. Therefore, it is not possible to guarantee their acceptance for certification purposes. Transcripts will be issued 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, continuing education certification cannot be provided for anyone other than PA DEP water and wastewater operators. However, Transcripts can be prepared and provided upon request. It is your responsibility to check with your certification board to determine whether this type of certificate is acceptable.

# MEMBERSHIP



## Water Quality, Sustainability, Training/PDHs, Awareness

The Pennsylvania Water Environment Association (PWEA) exists to enhance the knowledge and abilities of Pennsylvania's water quality professionals, promote sound sustainable water policies, and promote public awareness of the need to protect water resources. We accomplish this through: continuing education, annual technical conference, quarterly technical publication, monthly eNewsletter.

PWEA membership provides many benefits and opportunities for water quality professionals. Do you want to help enhance your knowledge and abilities, while promoting sound sustainable water policies and public awareness of the need to protect water resources?

**BECOME A MEMBER TODAY! Apply online at [www.pwea.org](http://www.pwea.org).**



## Keystone of the Drinking Water Community

The PA Section of the American Water Works Association (PA-AWWA) is dedicated to providing leadership and resources to the full spectrum of the Pennsylvania water community to provide safe, affordable, and sufficient water. PA-AWWA advances technology, education, science, management, and governmental policies. PA-AWWA continues to be the authoritative resource on safe water in Pennsylvania.

AWWA offers individual membership and organizational membership options. Membership in the PA Section AWWA provides many opportunities for everyone involved with water supply in Pennsylvania, including those who are simply consumers.

**BECOME A MEMBER TODAY! Apply online at [www.paawwa.org](http://www.paawwa.org).**

## WORKSHOP DETAILS

The following PA DEP-approved workshops are being offered during the Keystone Water Conference on May 4-6 at the Penn Stater Conference Center Hotel in State College, PA.

You may add these workshops to your Conference registration, or you may register for individual workshop(s) separately. You must register in advance. All workshops are limited to 40 attendees, unless otherwise noted. End times for each workshop may be slightly different, depending on the length of time instructors give for breaks.

### Monday, 8:45am-4:30pm

#### Maintenance Management Workshop for Water Treatment and Pumping Facilities

This course is PA DEP approved for **6.0 Drinking Water & Wastewater Contact Hours**. Course ID 64.

*Instructor: Ray Delo, Retired from PA American Water*

The following topics will be discussed during this course: define maintenance management and mission; discuss benefits of maintenance management; rate individual's maintenance efforts; develop strategic plans for maintenance; understand different equipment failure patterns; reactive, preventive and predictive maintenance; define operator performance maintenance; define total production maintenance; reliability-centered maintenance methods.

### Monday, 8:45am-4:30pm

#### Wastewater Exam Study Prep Course

This class consists of two courses PA DEP approved for a total of **6.0 Wastewater Hours**. You must attend both parts to receive full credit.

Wastewater General and Activated Sludge Exam Prep – Course ID 7995; and Wastewater Exam Math Prep – Course ID 8377.

*Instructor: Walter Higgins, US EPA*

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.

### Tuesday, 8:00-11:00am

#### Personal Protective Equipment

This course is PA DEP approved for **2.0 Drinking Water & Wastewater Contact Hours**. Course ID 6179.

*Instructor: Kelly Kramer, RETTEW Associates*

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

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

#### Wastewater Professionals Guide to Online Process Instrumentation for Biological Nutrient Removal Activated Sludge Monitoring

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

*Instructors: Benjamin Barker and David Fraley, both with YSI, a Xylem Brand*

Nutrient removal and sustainability are two of the biggest drivers in the wastewater industry today. Both 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 workshop 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.

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

#### Valve Workshop

This course is PA DEP approved for **3.0 Drinking Water & Wastewater Contact Hours**. Course ID 5348.

*Instructor: Tim Trout, Ferguson Waterworks*

Valves are used by the water and wastewater communities. The purpose of this course is to educate the importance of proper valve function, maintenance and repair for water and wastewater operators. The proper application, performance and technical specifications for gate, butterfly and check valves will be discussed.

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

#### 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.

# WORKSHOP REGISTRATION FORM



**PLEASE PRINT**

Registrant Name: \_\_\_\_\_ Nickname (for badge): \_\_\_\_\_

Organization: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Mobile Phone: \_\_\_\_\_

Email: \_\_\_\_\_

\*PWEA / AWWA / DBIA Member #: \_\_\_\_\_ PA DEP Client #: \_\_\_\_\_ PE License #: \_\_\_\_\_

☐ Check here if you are a Young Professional. (Age 35 or younger; Driver's License ID required.)

**Community Service Project (Sunday, 11am-3pm):** ☐ I want to volunteer! Send me more info when it is available.

	NO FEE WITH FULL CONFERENCE REGISTRATION**		BY APRIL 15 FEE FOR WORKSHOP ONLY	ONSITE
<b>Monday, 8:45am-4:30pm</b> <b>Maintenance Management Workshop for Water Treatment and Pumping Facilities</b> PA DEP approved for <b>6.0 drinking water &amp; wastewater contact hours</b>	<input type="checkbox"/> \$0	Member Non-Member	<input type="checkbox"/> \$110 <input type="checkbox"/> \$165	<input type="checkbox"/> \$130 <input type="checkbox"/> \$185
<b>Monday, 8:45am-4:30pm</b> <b>Wastewater Exam Study Prep Course</b> PA DEP approved for <b>6.0 wastewater contact hours</b>	<input type="checkbox"/> \$0	Member Non-Member	<input type="checkbox"/> \$110 <input type="checkbox"/> \$165	<input type="checkbox"/> \$130 <input type="checkbox"/> \$185
<b>Tuesday, 8:00-11:00am</b> <b>Personal Protective Equipment</b> A DEP approved for <b>2.0 drinking water &amp; wastewater contact hours</b>	<input type="checkbox"/> \$0	Member Non-Member	<input type="checkbox"/> \$50 <input type="checkbox"/> \$105	<input type="checkbox"/> \$70 <input type="checkbox"/> \$125
<b>Tuesday, 8:00am-4:30pm</b> <b>Wastewater Professionals Guide to Online Process Instrumentation for Biological Nutrient Removal Activated Sludge Monitoring</b> PA DEP approved for <b>6.0 wastewater contact hours</b>	<input type="checkbox"/> \$0	Member Non-Member	<input type="checkbox"/> \$110 <input type="checkbox"/> \$165	<input type="checkbox"/> \$130 <input type="checkbox"/> \$185
<b>Tuesday, 1:00-4:30pm</b> <b>Valve Workshop</b> PA DEP approved for <b>3.0 drinking water &amp; wastewater contact hours</b>	<input type="checkbox"/> \$0	Member Non-Member	<input type="checkbox"/> \$75 <input type="checkbox"/> \$130	<input type="checkbox"/> \$95 <input type="checkbox"/> \$150
<b>Wednesday, 8:00-11:30am</b> <b>Laboratory Ethics</b> PA DEP approved for <b>3.0 drinking water &amp; wastewater contact hours</b>	<input type="checkbox"/> \$0	Member Non-Member	<input type="checkbox"/> \$75 <input type="checkbox"/> \$130	<input type="checkbox"/> \$95 <input type="checkbox"/> \$150

\* To qualify for the Member fees, you must be a current member of PWEA, AWWA, or DBIA

\*\* To qualify for complimentary workshop registration with your full Conference registration, attach this form to the completed registration form found on page 28.

## Method of Payment:

☐ Check (payable to PWEA)

Total Due: \$ \_\_\_\_\_

☐ Credit Card payments must be made online

Go to [www.pwea.org](http://www.pwea.org), click Calendar tab, select Event Registration from the dropdown menu, click Register button, and follow prompts to register and provide payment information.

## Cancellation/Substitution Policy

No refunds granted after April 3rd. A \$100 cancellation fee will be assessed on all refund requests received by April 3rd. All refunds must be requested in writing. Substitutions may be made until April 15th and must be made in writing, accompanied by a new registration form.

Please send completed registration form and full payment to:

PWEA • PO Box 61 • Blossburg, PA 16912  
 Fax: 570-549-2221 • Phone: 570-549-2204  
 Email: [cindyrock@pwea.org](mailto:cindyrock@pwea.org)

# CONFERENCE REGISTRATION FORM



**PLEASE PRINT**

Registrant Name: \_\_\_\_\_ Nickname (for badge): \_\_\_\_\_  
 Organization: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Work Phone: \_\_\_\_\_ Mobile Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_  
 \*PWEA / AWWA / DBIA Member #: \_\_\_\_\_ PA DEP Client #: \_\_\_\_\_ PE License #: \_\_\_\_\_

☐ Check here if you are a Young Professional. (Age 35 or younger; Driver's License ID required.)

**Community Service Project (Sunday, 11am-3pm):**

☐ I want to volunteer! Send me more info when it is available.

**Spouse/Life Partner Registration** – A spouse or life partner who **is not in the water or wastewater industry** may register at no charge with each **paid FULL Conference Registration**. This registration type does not include training sessions, workshops, or ticketed events.

Name: \_\_\_\_\_ Nickname (for badge): \_\_\_\_\_

**CONFERENCE REGISTRATION** (Check appropriate fee.)  
 Includes technical sessions, continental breakfast, lunch, receptions and access to the Exhibit Hall.

	By March 2	March 3-April 15	On-Site
<b>Full Conference</b>			
Member	<input type="checkbox"/> \$450	<input type="checkbox"/> \$490	<input type="checkbox"/> \$550
Non-Member	<input type="checkbox"/> \$525	<input type="checkbox"/> \$565	<input type="checkbox"/> \$625
<b>Monday Only</b>			
Member	<input type="checkbox"/> \$255	<input type="checkbox"/> \$300	<input type="checkbox"/> \$355
Non-Member	<input type="checkbox"/> \$310	<input type="checkbox"/> \$355	<input type="checkbox"/> \$410
<b>Tuesday Only</b>			
Member	<input type="checkbox"/> \$255	<input type="checkbox"/> \$300	<input type="checkbox"/> \$355
Non-Member	<input type="checkbox"/> \$310	<input type="checkbox"/> \$355	<input type="checkbox"/> \$410
<b>Wednesday Only</b>			
Member	<input type="checkbox"/> \$85	<input type="checkbox"/> \$100	<input type="checkbox"/> \$125
Non-Member	<input type="checkbox"/> \$100	<input type="checkbox"/> \$115	<input type="checkbox"/> \$140

**Monday Only Student & Young Professional (SYP) Registration**

SYP Member	<input type="checkbox"/> \$165	<input type="checkbox"/> \$210	<input type="checkbox"/> \$265
SYP Non-Member	<input type="checkbox"/> \$215	<input type="checkbox"/> \$260	<input type="checkbox"/> \$315

**Complimentary with SYP Registration – check if you will attend:**

☐ SYP Plant Tour (The Living Filter - PSU)

**Tuesday Only Student & Young Professional (SYP) Registration**

SYP Member	<input type="checkbox"/> \$165	<input type="checkbox"/> \$210	<input type="checkbox"/> \$265
SYP Non-Member	<input type="checkbox"/> \$215	<input type="checkbox"/> \$260	<input type="checkbox"/> \$315

**Complimentary with SYP Registration – check if you will attend:**

☐ DBIA/PWO Plant Tour (PSU Water Treatment Plant)

**College Students – full time students only; copy of student ID required**

Monday Only	<input type="checkbox"/> \$50	<input type="checkbox"/> \$50	<input type="checkbox"/> \$75
Tuesday Only	<input type="checkbox"/> \$50	<input type="checkbox"/> \$50	<input type="checkbox"/> \$75
Full Conference	<input type="checkbox"/> \$75	<input type="checkbox"/> \$75	<input type="checkbox"/> \$100

(social events & workshops not included)

## NETWORKING EVENTS

(Indicate all events you plan to attend.)

	Quantity	Cost	Total Due
<b>Monday</b>			
SYP Plant Tour	_____	\$20 per person	\$ _____
PA-AWWA Awards Luncheon	_____	\$40 per person	\$ _____
Meet & Greet Reception	_____	no charge	\$0
PWEA Awards Reception	_____	no charge	\$0
Tailgating/Cornhole Event	_____	\$25 per person	\$ _____
<b>Tuesday</b>			
DBIA/PWO Plant Tour	_____	no charge	\$0
Women's Initiative Summit	_____	no charge	\$0
Beer & Pretzels Reception	_____	no charge	\$0
DBIA Networking Event	_____	no charge	\$0
<b>Wednesday</b>			
Golf Tournament			
Single Golfer	_____	\$90 per person	\$ _____
Foursome discount *	_____	\$340 per foursome	\$ _____

\* To qualify for the foursome discount, full payment must accompany this form. Provide names, if known.

1. \_\_\_\_\_ 3. \_\_\_\_\_  
 2. \_\_\_\_\_ 4. \_\_\_\_\_

**\* To qualify for the member fees, you must be a current member of PWEA, AWWA, or DBIA**

## Method of Payment

To qualify for the early registration discount, payment must be made by March 2nd.

☐ Check (payable to PWEA)

☐ **Credit Card payments must be made online**

Go to [www.pwea.org](http://www.pwea.org), click Calendar tab, select Event Registration from the dropdown menu, click Register button, and follow prompts to register and provide payment information.

Total Registration Fees: \$ \_\_\_\_\_

Total Ticketed Events Fees: \$ \_\_\_\_\_

**Total Due:** \$ \_\_\_\_\_

## Cancellation/Substitution Policy

No refunds granted after April 3rd. A \$100 cancellation fee will be assessed on all refund requests received by April 3rd. All refunds must be requested in writing. Substitutions may be made until April 15th and must be made in writing, accompanied by a new registration form.

Please send completed registration form and full payment to:

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