**Sunday, June 3**
- 9:00am-1:00pm: Community Service Project
- 1:00-10:00pm: A Day at Hersheypark®
- 3:00-5:00pm: Registration Open

**Monday, June 4**
- 7:15am-5:00pm: Registration Open
- 7:45-8:45am: Continental Breakfast
- 8:45-11:45am: Morning Technical Programs
  - Biosolids
  - Collection Systems
  - Engineering
  - Laboratory Practices
  - Utility Management
- 8:45am-2:30pm: Disinfection and Chlorination
- 8:45am-4:30pm: Introduction to Pretreatment
- 1:00-4:30pm: Active Shooter Preparation and Response
- 10:15-10:45am: Morning Break
- 11:45am-1:00pm: Exhibit Hall Opens
- 12:30-1:00pm: Annual Business Meeting with Dessert & Coffee
- 1:00-3:30pm: Professional Wastewater Operations (PWO) Plant Tour
- 1:00-4:30pm: Afternoon Technical Programs
  - Biosolids
  - Collection Systems
  - Engineering
  - Laboratory Practices
  - Utility Management
- 2:30-3:30pm: Afternoon Break in Exhibit Hall
- 4:30-5:30pm: President’s Reception in Exhibit Hall
- 6:00-8:00pm: Annual PWEA Awards Ceremony and Reception

**Tuesday, June 5**
- 7:00am-5:30pm: Registration Open
- 7:30-8:30am: Continental Breakfast in Exhibit Hall
- 8:00-11:00am: Students & Young Professionals (SYP) Plant Tour
- 8:00-11:30am: Morning Technical Programs
  - Collection Systems
  - Engineering
  - Finance
  - Industrial Pretreatment
  - Stormwater
- 8:00-11:45am: Laboratory Ethics
- 8:00am-4:30pm: Introduction to Wastewater
- 9:00am-12:00pm: Operations Challenge
- 9:30-10:30am: Morning Break in Exhibit Hall
- 11:30am-1:00pm: Complimentary Lunch in Exhibit Hall
- 1:00-4:30pm: Professional Wastewater Operations (PWO) Plant Tour
- 1:00-3:30pm: Afternoon Technical Programs
  - Collection Systems
  - Construction
  - Industrial Pretreatment
  - Stormwater
  - Student Research Presentations
- 2:30-3:30pm: Afternoon Break in Exhibit Hall
- 4:30-5:30pm: Beer & Pretzels Reception in Exhibit Hall
- 6:00-9:00pm: YP Social Event - Wine Tasting/Food Pairing

**Wednesday, June 6**
- 7:00-8:30am: Continental Breakfast
- 7:00am-12:00pm: Registration Open
- 8:30am: Golf Tournament
- 8:00-11:00am: Morning Technical Programs
  - Professional Wastewater Operations
  - Water Sustainability & Reuse
- 8:00am-12:00pm: Responsibilities of Clean Water Professionals
- 9:30-10:00am: Morning Break
- 11:30am: Conference Concludes
On behalf of the PWEA Board of Directors and the 2018 Conference Committee, we invite you to attend PWEA's 90th Annual Technical Conference and Exhibition (PennTec 2018) on June 3-6 at the Hershey Lodge & Convention Center in Hershey, PA.

This year’s Conference Program includes a wide range of topics related to water quality. In addition to the Conference technical sessions, we are also presenting workshops which have been approved by the PA DEP for additional contact hours for water and/or wastewater operator licenses. By attending these workshops, you could earn up to 14.5 DEP contact hours, or up to 17.5 Professional Development Hours, in just a few days!

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

The Conference includes networking opportunities for you to meet and interact with your colleagues. The Students & Young Professionals Committee is organizing a Community Service Project on Sunday. We hope you will consider volunteering. See page 4 and future emails on this subject. On Sunday afternoon, you and your family can enjoy “A Day at Hersheypark”—see page 5. The President’s Reception will be in the Exhibit Hall on Monday afternoon. The Annual PWEA Awards Ceremony and Reception will be held on Monday evening. The Beer & Pretzels Reception and the “Raise Your Glass” Wine Tasting/Food Pairing Event are on Tuesday.

We believe the PennTec Conference will provide everything you need under one roof—education, vendor contacts, and networking. We look forward to seeing you there!

Kevin Shannon
Chair, PennTec 2018
Conference Committee

Michael Sedon
PWEA President

Jeff Cantwell
Chair, PennTec 2018
Program Subcommittee

A Message from the PWEA Leadership
New for 2018

Community Service Project

Sunday, June 3, 9:00am-1:00pm

This year marks the first PennTec Community Service Project. We hope you will consider joining the PWEA Students & Young Professionals Committee (SYP) to help with this project in Hershey.

PWEA has partnered with Derry Township Municipal Authority and Manada Conservancy to organize a green infrastructure maintenance project. Volunteers will install native plants and trees at selected stormwater controls. Urban stormwater is the number one source of surface water pollution in the United States. The newly vegetated areas will help slow stormwater runoff and filter pollutants that can enter nearby streams. Come help PWEA promote environmental stewardship and leave a positive imprint on this year’s host city.

Participation is open to anyone. Volunteers are asked to wear long pants, closed-toed shoes, and to dress for the weather. All plantings will be held rain or shine. All participants will receive a free T-shirt and bagged lunch for the event. Equipment and safety items will be provided.

If you would like 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 website as they become available.

If your company would be interested in becoming a sponsor, contact Cindy Rock, PWEA Conference Manager, at cindyrock@pwea.org or 570-549-2204. Sponsorships will be used to purchase equipment, trees/plants, and/or other items needed for the project.
If you’re coming to Hershey for the PennTec Conference, you don’t want to miss visiting Hersheypark®!

PWEA has made arrangements for a package deal that includes more than a 50% discount on Park admission tickets plus a picnic meal. The cost of the package is $50 per person and it is only good for Sunday, June 3rd. Tickets are required for ages 3 and older. Ages 2 and under are free.

Admission tickets include more than 70 family rides and attractions:

- 14 world-class roller coasters, from mild-to-wild
- More than 20 kiddie rides
- **Hershey Triple Tower** – the first choose-your-thrill Tower in the United States (added in 2017)
- **The Boardwalk at Hersheypark®**, with more than 16 water attractions, including a lazy river, wave pool, water slides
- **Breakers Edge Water Coaster** – smoothly rockets riders through splash-filled hills, tight turns, and sweet thrills (new for 2018)
- **Whitecap Racer** – the longest mat racing slide in the world (new for 2018)
- **ZooAmerica** – 11-acre home to 200 animals from the five regions of North America
- Award-winning live entertainment – more than 12 resident shows, concerts, and plenty of opportunities to meet your favorite Hershey’s Characters

The picnic dinner will be held in a private pavilion, with food served 4:30-6:30pm. You will be given a food ticket to access the picnic area. The meal will include the usual picnic fare, such as burgers, chicken, BBQ, salads, beans, chips, ice cream, soft drinks.

The package price does not include parking. If you are registered as an overnight guest at the Hershey Lodge, you can ride the shuttle to the Park at no charge. Those who are not overnight guests, and those who may choose to drive their own vehicles, will pay $15 to park.

So, plan to come a little early, bring your family, and spend the afternoon at Hersheypark®! Enjoy dinner with your colleagues, and then spend the rest of the evening at the Park until it closes at 10:00pm!

You may register for as many tickets as you’d like on the Conference Registration Form on page 23. Tickets must be picked up at the PWEA Registration Desk between 12:00-4:00pm on Sunday in the Great Lobby near the Convention Center Entrance at the Hershey Lodge.

Deadline to order tickets is May 15th. Tickets will not be available on-site.
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 or WEF/PWEA to qualify for Member rates. Go to page 23 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, click Event Registration under the Calendar tab, then click the Register link to go to our secure website.

Spouse/Life Partner Registration
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. Ticket(s) must be purchased if a spouse/life partner wishes to attend those events.

College Students
Full-time college students may register at no charge if the registration form is submitted with a photocopy of current student identification. Social events, ticketed events, and workshops are not included.

Cancellation/Substitution Policy
No refunds granted after April 30th. A $50 cancellation fee will be assessed on all refund requests received by April 30th. All refunds must be requested in writing. Substitutions are permitted with a $25 per person substitution fee. Substitutions may be made until May 15th and must be made in writing, accompanied by a new registration form. Substitutions may not be made on-site.

Badges
Upon arrival at the Conference, visit the PWEA 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.

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

WHAT'S INCLUDED IN YOUR CONFERENCE REGISTRATION

<table>
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<th>Regular Conference Sessions</th>
<th>Monday Exhibit Hall; Continental Breakfast; Breaks; Lunch; President's Reception</th>
<th>Monday PWO Plant Tour</th>
<th>Monday Annual Awards Reception</th>
<th>Tuesday Exhibit Hall; Continental Breakfast; Breaks; Lunch; Reception</th>
<th>Tuesday SYP Plant Tour</th>
<th>Tuesday YP Social Event</th>
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Early Registration Discount
Register by March 31st and save $50 on your Conference registration fee.
In order to qualify, payment must be postmarked by March 31st.
(Discounted fees are noted on registration form.)
**HOTEL ACCOMMODATIONS**

**Hershey Lodge and Convention Center**
325 University Drive, Hershey, PA 17033

A block of rooms has been reserved at the Hershey Lodge and Convention Center for PennTec 2018. **Reservations must be made by May 2, 2018.** Rooms may not be available after this date. The discounted room rate is:

$199.00 per Room (all rooms are non-smoking)

The room rate includes:
- Hershey’s Water Works and Arcade – 30,000 square foot indoor pool complex
- Outdoor pool
- Miniature Golf Course
- Fitness center
- Complimentary ticket to the Hershey Gardens
- Complimentary ticket to the Hershey Story Museum

Call 1-855-729-3108 and mention the PWEA PennTec Conference to make your reservation.

Overnight guests may purchase discounted Hersheypark® admission tickets at the hotel concierge desk if they want to visit the Park independent of PWEA’s event on Sunday. The hotel provides guests complimentary shuttle service to and from the Park.

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**EXHIBIT HALL**

The Exhibit Hall is a very important part of the PennTec 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!

**Raffle Prizes**

Prizes will be raffled at different times throughout the Conference. Attendees registered for the conference will be given raffle tickets, and there will be marked containers placed randomly throughout the Exhibit Hall—one for each prize. Attendees may put as many of their tickets as they’d like in each marked container. 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 Access**

The Exhibit Hall is open to all registered attendees and registered vendor representatives. **Exhibit Hall monitors will be checking to make sure everyone is wearing the correct 2018 Conference name badge and lanyard.**

**Exhibit Hall Biosolids Bingo**

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

**How it Works:**

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

Once the squares are stamped horizontally, vertically or on the diagonal, the attendee will then turn in the card to 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.
The Pennsylvania Water Environment Association would like to offer a special invitation to Students & Young Professionals (SYPs) thinking about coming to PennTec 2018. SYPs have been participating in a number of social and service events over the years and are aiming to continue building the program. The SYP Committee is looking forward to seeing you at PennTec.

A special registration category is available for Young Professionals (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 a ticket for the PWO Plant Tour on Monday or a ticket for the SYP Plant Tour on Tuesday. The chart on page 6 outlines everything included. The registration form is on page 23. Driver's license ID is required when you check in on-site.

Again this year - the SYP Committee will host a Career Fair. See below for details.

New this year - the SYP Committee is organizing a Community Service Project for Sunday morning. We hope you will join us. See details on page 4.

The YP Committee is planning the Tuesday Night Event and we invite you to stick around and join the Wine Tasting and Food Pairing Event. Hors d’oeuvres and beverages will be available. See details on page 22.

On the Conference registration form, there is a box that you can check indicating if you are age 35 or younger. You will be given a colored lanyard designating your YP status.

The SYP Committee has a number of events planned for 2018 and is looking forward to your participation.

Micah Blate
SYP Committee Co-Chair

Chris Henry
SYP Committee Co-Chair

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**SYP Career Fair**
*Tuesday, 12:45-2:45pm*

The SYP Committee will be hosting a Career Fair to provide an opportunity for young professionals to meet prospective employers in the water/wastewater sector. The event will kick off with a short presentation from a senior member of PWEA who will discuss the status of the industry and employment opportunities, followed by short presentations from employers in the various aspects of the industry, and open time for prospective employees to talk with employers in attendance.

Participating companies/organizations (engineering firms, consultants, wastewater reclamation facilities, Municipalities, Authorities, etc.) will have the opportunity to meet with students/job seekers and interested YPs. Flyers will be sent to Pennsylvania Universities and Colleges to provide information about the event. Students will be instructed to sign up prior to the event and to bring copies of their resume to the event. Companies interested in participating in the Career Fair can register online at www.pwea.org, or they can contact Chris Henry via email at christopher.henry@mottmac.com or Micah Blate via email at mblate@hazenandsawyer.com
PWO Plant Tour
Derry Township Municipal Authority
Clearwater Road Wastewater Treatment Facility
Hershey, PA
Monday, 1:00-3:30pm

The Clearwater Road Wastewater Treatment Facility, with a capacity of 5.02 million gallons per day, was placed into operation in 1977 and was expanded and upgraded in a project completed in 2005. This facility, which discharges high quality effluent to the Swatara Creek, typically produces a final effluent of 10 mg/l BOD, 10 mg/l TSS, 3 mg/l total nitrogen and total phosphorous to a level below 1 mg/l.

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 12:30pm and will depart at 12:45pm.

SYP Plant Tour
Hershey Chocolate Company
Industrial Pretreatment Facility (IPF)
Hershey, PA
Tuesday, 8:00-11:00am

The Hershey Company has been operating in central PA for over 100 years. The company's founder Milton Hershey was not only dedicated to making affordable chocolate but to the surrounding community, building civic centers, community facilities, and cultural institutions. The Town's original WWTP was built in the early 1900's to service both the residents and industry in the area. After residential growth, the municipality built a dedicated treatment plant in 1977.

To this day, The Hershey Company has maintained and upgraded components of the 100+ year old facility that operates as 0.8 MGD pretreatment plant with discharge to the Derry Township Municipal Authority. In 2016, the company began the design of a new 1 MGD treatment facility with planned commissioning in September of 2018. This tour will include a site visit to both the old and new wastewater treatment plant facilities.

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 8:00am and will depart at 8:10am.

Annual PWEA Golf Tournament
Wednesday, Shotgun start at 8:30am

Join your colleagues for a friendly game of golf! The tournament will be held at the Manada Golf Club, about 15 minutes from the hotel. Refreshments and prizes will be provided. Net proceeds from the golf tournament will benefit PWEA's Operations Challenge Program.

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 $70 per person (or $260 per foursome), and includes greens fee, golf cart, lunch and refreshments. Pre-registration is required. You must register by May 15th; on-site registration is not available for this event. Appropriate golf attire is required.
8:45-9:15am - Biosolids Compost Use in Green Infrastructure
Speaker: Ryan J. Cerrato, Denali Water Solutions (WeCare Organics Products)
An overview of how biosolids-based composts are being used in Green Infrastructure, with a focus on projects in Pennsylvania, will be discussed.

9:15-9:45am - After the Fire: Biosolids Planning for a Sustainable Future
Speaker: Micah Blate, Hazen and Sawyer
A fire at the Cape May County Municipal Utilities Authority's (CMMUA) existing sludge composting facility required the CMMUA to contract with third-parties for biosolids processing activities. This presentation focuses on the development of a Biosolids Master Plan focused on long-term sustainability, safe and reliable operation, public acceptable, economic feasibility, and recoverable/green energy.

9:45-10:15am - Biosolids Program Paradigm Shift at Camden County Municipal Utilities Authority (CMMUA)
Speaker: Lisa Challenger, Material Matters
CMMUA installed thermal dryers to fulfill its National Biosolids Partnership goal: end landfill disposal. Due to unforeseen product characteristics, the dried product was initially deemed incompatible with most beneficial use applications. This presentation will discuss CMMUA’s journey in overcoming obstacles to develop an innovative, successful beneficial use program.

10:45-11:15am - The Neighbor on Norchester
Speaker: Jessica M. W. Hou, PE, BCEE, Gannett Fleming, Inc.
This presentation will review best practices and lessons learned from a complex, multi-disciplinary pump station replacement project for Hampton Roads Sanitation District (HRSD), southeastern Virginia’s regional wastewater authority, covering Hydraulic Institute standards; self-cleaning trench-type wet well design; odor control; construction practices; temporary bypass; public relations; and architectural enhancement.

11:15-11:45am - Protect Your Pumps! Upgrading a Pump Station in a Combined Sewer System
Speakers: Jeffrey Bowra, PE, and Paul Deardorff, PE, both with Capital Region Water
The Front Street Sewage Pumping Station suffers from inadequate screening which contributes to maintenance nightmares. Facility upgrades will maximize pumping capacity during wet-weather events, improve screening, and replace outdated electrical equipment. Highlights include the use of 3-D modeling software, pre-selection of screening equipment, and addition of a green roof.

8:45-9:15am - Submersible Pumping Station Configuration Selection
Speaker: Michelle L. Gavan, EIT, Gannett Fleming, Inc.
Pumping stations are critical components of wastewater collection systems, responsible for conveying flow to treatment facilities. Selecting an appropriate configuration is essential for maximizing resiliency and design life. This presentation will discuss the selection process for submersible pumping station configurations, and provide case studies.

9:45-10:15am - It Doesn’t ALWAYS Flow Downhill - Why Some Hydraulics Issues Deserve a Physical Model
Speaker: Dave Werth, PhD, PE, Clemson Engineering Hydraulics, Inc.
Surprises lurk within our channels, tanks, and wetwells which can impact pumping systems. A physical model often reveals these troubles and aids in finding low-cost solutions. Model costs have fallen, so many situations that deserve a physical model can now afford it. This presentation offers both theory and project examples.

10:45-11:15am - Epoxy Lining Systems for Manhole Rehabs - Why They Work so Well!
Speaker: Tim Bauman, Sherwin Williams Protective & Marine Coating Group
There are many systems on the market used to rehab manholes. Some contend with excessive moisture that can affect adhesion of the coating and some work with the moisture to gain adhesion and provide a chemically resistant lining system with outstanding adhesion characteristics. This presentation discusses how these systems can work together with the ever-present moisture that is in all manholes.

9:15-9:45am - Filtration - To Upgrade or Rehabilitate: A Case Study of Two Utilities
Speaker: Brian Sibiga, PE, Wendel
Specific criteria evaluated by water utilities to decide between rehabilitating or upgrading aging filters typically include the condition and capability of the underdrain system, required future operating conditions, and construction sequencing constraints. Case studies for two utilities will be presented.
**9:45-10:15am - Concrete Water Storage Tanks - Rehabilitation and Replacement**  
*Speaker: Clayton Johnson, PE, Wendel*

Design and construction considerations associated with rehabilitating existing, and constructing new, prestressed concrete water storage tanks for two aging utilities' storage tanks will be presented. One utility elected tank replacement, while construction presented uninterrupted operational challenges. Another utility required rehabilitation including repairs of exterior wall, dome, prestress wire; new coatings; and replacement of tank appurtenances.

**10:45-11:15am - Upgrade Your Plant’s Electrical System to Bring It Into the 21st Century**  
*Speaker: Keith Knuppel, H.R. Gray*

Electrical systems are the backbone of the treatment process in water facilities. While construction projects help maintain the physical structure, electrical upgrades are often afterthoughts until a system fails. This presentation discusses best practices developed to implement, plan and manage electrical upgrades.

**11:15-11:45am - Ventilation for Wastewater Facilities and NFPA 820**  
*Speaker: William L. Bohner, Jr., PE, ARRO Consulting, Inc.*

This presentation is intended to provide a basic understanding of how the National Fire Protection Association (NFPA) Standard 820 impacts ventilation and electrical code requirements for wastewater collection, conveyance, and treatment facilities, with an emphasis on the ventilation needs of specific processes and what needs to be accomplished in order to establish the appropriate type of classification for electrical components and controls.

**9:45-10:15am - Comparison of the US EPA Method 1623 with Molecular Techniques for Assessing Water Quality Monitoring Program**  
*Speakers: Rajendra Kathavade, Bhavita Shah, and Ron Fazio, all with Eurofins QC, Inc.*

US EPA method 1623 provides quantitative enumeration of Cryptosporidium and Giardia from processes of water samples but it cannot determine viability in order to conduct a microbial risk assessment. This presentation will highlight limitations of US EPA method 1623 and provide insights on current tools and technology for determining host specificity (genotyping), viability and infectivity of Giardia cysts and Cryptosporidium oocysts.

**8:45-9:15am - How to Become (and Be Recognized as) a Water Utility of the Future Today - Case Study of the Lancaster Area Sewer Authority**  
*Speaker: Michael Kyle, Lancaster Area Sewer Authority*

This WEF/EPA program is a model on becoming more efficient and sustainable. This presentation will show you how to develop a program and will include a case study of the Lancaster Area Sewer Authority, recognized in 2017 for community partnerships.

**11:15-11:45am - High Purity Water for Critical Laboratory Applications**  
*Speaker: Rick Noone, Thermo Fisher Scientific*

This presentation will explain the standards of water purification, review impurities in water, review technologies to remove those impurities, and discuss the technologies utilized to produce different qualities of water.

**9:45-10:15am - Conducting a successful and implementable energy audit for the Harrisburg Capital Region Water**  
*Speaker: Rich Atoulikian, PMP, BCEE, PE, HDR Engineering, Inc.*

The process Capital Region Water used to move forward with an energy management approach started with identifying energy conservation measures, will be discussed.

**9:15-9:45am – one small utility’s Path to Climate Change Readiness**  
*Speaker: Rina Dalal, T&M Associates*

A utility responded to devastating storms by utilizing EPA’s Climate Readiness Evaluation and Awareness Tool (CREAT) to understand risk levels for climate related threats. CREAT results directed a utility-wide climate resiliency program that includes a storm resilient "Mobile Enclosure" pump station that is highly adaptable to water, wastewater and stormwater infrastructure.

**10:45-11:15am - High Purity Water for Critical Laboratory Applications**  
*Speaker: Rick Noone, Thermo Fisher Scientific*

This presentation will explain the standards of water purification, review impurities in water, review technologies to remove those impurities, and discuss the technologies utilized to produce different qualities of water.
MONDAY AFTERNOON

BIOSOLIDS PROGRAM

11:15-11:45am - Utility Manager Panel Discussion
A panel of three Wastewater Utility Managers talk about how they are handling current challenges and what they predict as future trends, focusing on community engagement, energy and resource recovery, and re-use.

Moderator: Charles Winslow, GHD

1:00-1:30pm - Innovative P3 Approach to Food Waste Processing at a Municipal WWTP
Speaker: William Rehkop, PE, Derry Township Municipal Authority
Utilizing municipal WWTPs for food waste co-digestion isn’t a new concept, but the public/private partnership (P3) approach to systematically manage the waste from the generator to the recycling outlet provides a sustainable solution. Derry Township Municipal Authority (DTMA) and Divert, Inc. have created a model to successfully acclimate food waste for co-digestion utilizing existing infrastructure.

1:30-2:00pm - Biologically Enhanced Primary Treatment: A Summary of Experience from Pilot, Demonstration, and Full-Scale Systems
Speaker: Jared Alder, Evoqua Water Technologies
This presentation will highlight the results from bench, pilot, and full-scale Biologically Enhanced Primary Treatment (BEPT) that has been conducted throughout the US. The session will cover a greenfield full-scale implementation of BEPT and how combining BEPT with design build saved the utility $75M over conventional technologies.

2:00-2:30pm - Reduce Sludge Viscosity, Improve Dewaterability, and Enhance Biogas Production by Implementing a PONDUS Thermochemical Hydrolysis Process (TCH)
Speaker: Sanjeev Verma, Centrisys
PONDUS, a TCH process, is simple to engineer and easy to retrofit in existing WWTP. This process at atmospheric pressures and temperatures of 150 degrees Fahrenheit can have an ROI in months. PONDUS helps operators augment Anaerobic Digester capacity, improve biogas output, reduce sludge viscosity and improve dewaterability.

3:00-3:30pm - What Stinks? Alternatives to Wet Scrubbers for Municipal Wastewater Treatment Plant Odor Control
Speaker: Michael J. Ryzczewski, Kleinfelder, Inc.
The Upper Moreland-Hatboro Joint Sewer Authority utilizes wet scrubber towers for odor control. The Authority sought to evaluate scrubber towers for odor control. The Authority sought to evaluate and existing clarifiers were stress-tested to determine the ultimate performance.

3:30-4:00pm - How’d you sewer that…Pressure sewer system Applications
Speakers: Matthew D. Cichy, PE, and Staci Hartz, PE, both with Herbert, Rowland & Grubic, Inc.
As the need for sewers in challenging areas continues to increase, alternative sewer systems provide a cost-effective means of providing sewer service. This presentation will provide examples of where pressure sewer systems can be used in challenging areas and other areas you might not expect.

4:00-4:30pm - Hidden Challenges of Wastewater Pump station Rehabilitation: Two Examples of Pump Station Rehabilitation: Pitfalls and Efforts to Make the Rehabilitation Project a Success
Speaker: Kemal Niksic, PE, Mott MacDonald
Many regional sewer systems were built over thirty years ago and include pumping facilities which are approaching the end of their useful life. This presentation will highlight two pump station rehabilitation projects, describing challenges to meet current codes and mistakes that could have been avoided through proper planning and execution.

ENGINEERING PROGRAM

1:00-1:30pm - “Tricking Out” a New Final Clarifier Mechanism to Improve Performance
Speaker: Charlie Hurst, DELCORA
This presentation showcases a comparison of full-scale, side-by-side performance data between existing and new 130-foot final clarifiers. The new clarifier includes an energy dissipating inlet, mid-radius baffle, Stamford baffles and an alternate weir arrangement. Both the new and existing clarifiers were stress-tested to determine the ultimate performance.
1:30-2:00pm - Upgrading from Conventional to Denitrification
Filter Capability: Pilot Testing to Confirm Design Criteria and Performance
Speaker: Elizabeth Helsel, RETTEW Associates, Inc.
The University Area Joint Authority is upgrading their current nutrient removal process to enhanced nutrient removal. As part of this upgrade, UAJA chose to upgrade their existing tertiary filters to denitrification filters. A pilot study was completed to ensure the proposed retrofit would meet the design criteria. The challenges and eventual outcomes of initial design and the pilot study will be discussed.

2:00-2:30pm - Strategies and Lessons Learned from Bench Testing and Full Scale Trials for Achieving Compliance with New Effluent Total Copper Limits at Two Trickling Filter Wastewater Treatment Plants
Speakers: Benjamin Burns and Edward Spayd, PE, both with Herbert, Rowland & Grubic, Inc.
A multi-faceted approach was used to identify and evaluate alternative strategies to achieve new total copper effluent limits at two Pennsylvania trickling filter wastewater treatment plants. Alternative strategies included regulatory options, drinking water plant improvements, and wastewater treatment plant improvements.

3:30-4:00pm - On-Site Hypochlorite Generation: A Safe and Reliable Disinfection Alternative
Speaker: Gary Schaeffer, UGSI Solutions, Inc.
Producing sodium hypochlorite on-site and on-demand offers improved safety, fewer deliveries, and reduced operational costs over purchasing commercial hypochlorite. The unique, vertical/multi cell configuration improves reliability and operator convenience over older technology systems. Standard units are available for greater than 2400 lbs/day of equivalent chlorine production.

4:00-4:30pm - Tyrone Wastewater Treatment Plant UV Disinfection Improvements
Speaker: Kevin J. Nester, PE, GHD
The Borough of Tyrone Wastewater Treatment Plant’s existing UV disinfection system was inefficient and obsolete. By replacing their existing UV disinfection system with a system employing non-contact UV disinfection technology they gained a more efficient, reliable and cost-effective operation.

LABORATORY PRACTICES PROGRAM
Speaker: Pam Moss, Hach, and Larissa Hoover, Cranberry Township

1:00-1:30pm - Integrated Capital and Energy Planning (ICE)
Speakers: Brian Sibiga, PE, and Andrew Casolini Dal Bo, PE, LEED AP, both with Wendel
Case study of Integrated Capital and Energy (ICE) plans for WWTP’s enhancing energy efficiency, asset renewal and treatment efficiency will be presented. Life cycle cost optimization and triple bottom line approach coupled with conventional capital planning to develop economically sustainable plans; and asset renewal integrated with energy efficiency brings economic, social and financial benefits while positioning for grants and incentives will be discussed.

1:30-2:00pm - Developing Planning-Level Costs: An Approach to Decision Making
Speaker: Samantha Burke, Philadelphia Water Department
But how much is it going to cost? This presentation will provide details for developing a defined approach for how to create cost curves as a tool for planning for both comparative and conceptual costs. A case study of PWD’s planning-level cost estimation strategies using cost curves will be presented.

2:00-2:30pm - Community Integrated Planning and Adaptive Management Implementation in Local Utility Compliance Programs
Speaker: Paul Calamita, AquaLaw, PLC
Unprecedented opportunities and public expectations for integrated environmental planning and adaptive management implementation for urban environmental compliance programs with case studies will be discussed.

3:30-4:00pm - DEP Regulatory Overview and Clean Water Program Updates
Speaker: Lee McDonnell, PA DEP
This presentation will cover current water program regulatory issues including reporting and permit requirements, Chesapeake Bay Phase 3 WIP and nutrient trading, and other issues.

4:00-4:30pm - DEP Regulatory Round Table
This round table provides the opportunity for participants to ask DEP staff questions about regulatory issues.

TUESDAY MORNING

COLLECTION SYSTEMS PROGRAM:
Speaker: Jim Shelton, Arcadis
Case study of the expedited design and construction of an 87” and 75” diameter brick interceptor using hard pipe segmental slip lining will be discussed. The interceptor paralleled the Little Cuyahoga River and included several tributary crossings. This presentation will focus on construction phase aspects of the project.
8:30-9:00am - Sandy Township (PA) Sanitary Sewer System Evaluation
Speaker: Steven Gibson, PE, Gwin, Dobson & Foreman, Inc.
This presentation summarizes a comprehensive sanitary sewer system evaluation performed in Sandy Township, PA which included flow monitoring, smoke testing, dye testing, CCTV mainline and lateral inspections, manhole inspections, and correction actions. The evaluation was used to identify ILI sources, remedy system deficiencies, and design critical collection system improvements.

9:00-9:30am - Philadelphia Finds a New Solution to Rehab Sewers Effciently
Speaker: Jeff Twardzik, Philadelphia Water Department
As an alternative to conventional bid packages, the City of Philadelphia developed a construction contract to identify sewers in need of rehabilitation through video inspection and perform routine or accelerated sewer rehabilitation. The contract is expected to include cured-in-place pipe lining of approximately 5 miles of 8" to 48" sewers.

10:30-11:00am - Selecting an Adequate Trenchless Rehabilitation Alternative for Sanitary Sewer Mains
Speakers: Cory Salmon, EIT, and Matthew Cichy, PE, both with Herbert, Rowland & Grubic, Inc.
Sanitary sewer rehabilitation is a necessary burden that municipalities face daily to ensure the longevity of collection systems. This presentation will explore trenchless sewer rehabilitation alternatives including some emerging technologies and variables to consider when selecting a trenchless rehabilitation alternative.

11:00-11:30am - Cost-Effective NPDES and CSO Compliance Using Modeling Tools
Speaker: Charles Wilson, Hazen and Sawyer
The Lackawanna River Basin Sewer Authority complied with one of their NPDES requirements through cost-effective flow monitoring and hydrologic/hydraulic modeling and received written approval from PADEP. Wet weather percent capture of more than 85% was demonstrated effectively by understanding the sewer collection system and developing an accurate predictive tool.

8:00-8:30am - Trihalomethane (THM) Mitigation in the Distribution System
Speaker: Tom Caulfield, UGSI Solutions, Inc.
THMs have become a water quality issue that utilities are grappling with across Pennsylvania and the United States. Most utilities have considered and implemented measures to reduce THM production in the production facility. How utilities can use the distribution tanks in their system to mitigate THMs in their water supply and aid in maintaining compliance and higher water quality will be discussed.

8:30-9:00am - Trihalomethane (THM) Removal in Finished Water Storage Tanks
Speaker: Dale H. Kopp, ARRO Consulting, Inc.
ARRO Consulting, Inc. has experience using air stripping within water systems to reduce trihalomethane (THMs). This presentation will discuss this system of reduction and management, having been installed in a 400,000-gallon elevated storage tank and can affect up to a 50% reduction in THMs.

9:00-9:30am - Reducing DBPs at WWTPs using Peracetic Acid: Benefits, Challenges, and Pilot Case Studies
Speakers: Scott B. Crosswell, PE, BCEE, and Mark Pickering, PE, both with GHD
Consideration of the use of Peracetic Acid (PAA) as a wide spectrum disinfectant in wastewater is increasingly common in areas where the permittee is required to reduce the Disinfection Byproducts (DBPs) prior to receiving water discharge. PAA characteristics, functionality, equipment applications, and pilot case studies at NY and PA facilities will be presented.

10:30-11:00am - Chlorine Dioxide - The Mighty Mouse of Disinfectants
Speaker: Gary M Lohse, PE, De Nora Water Technology
Chlorine Dioxide is one of the strongest oxidants available for disinfection of water and wastewater. It is widely used in water treatment plants to help prevent the formation of chlorine by-products and as a disinfectant for wastewater effluent reuse. A detailed look at the advantages and disadvantages of chlorine dioxide as a disinfectant in various applications will be presented.

11:00-11:30am - Making the Best of a Slippery Situation - Improving Grease Receiving and Processing Operations
Speaker: Craig Murray, D’Huy Engineering, Inc.
This presentation highlights the best practices for grease receiving and processing at a WWTP. These practices were identified through review and operation of an existing system, pilot testing of multiple new systems, and site visits and discussions with other grease operations.

8:00-8:30am - Why are Municipalities Considering the Sale of Their Public Water or Wastewater Systems?
Speaker: Adrienne Vicari, PE, Herbert, Rowland & Grubic
Learn why municipalities are increasingly considering the sale of their water and wastewater systems and how a sale is executed. See what you can do to guard against privatization, including improving your system's financial performance, cutting costs through partnerships, and offering annual rental payments to alleviate general revenue concerns.

8:30-9:00am - How Can Utility Managers Better Operate, Maintain and Improve Their System to Guard Against Sale?
Speaker: Kiana Tralongo, Herbert, Rowland & Grubic
Learn how to reduce costs and improve access to grant funding through full cost pricing, asset management and capital improvement planning. Hear how improving your system's financial performance can help you persuade municipal leaders to hold onto the assets rather than surrender their future revenue-earning capabilities.

9:00-9:30am - When Does Selling a Utility Make Sense and How Can Municipalities Make the Process Go More Smoothly?
Speaker: Tom Wyatt, Dilworth Paxson LLP
Learn how to compare the costs and benefits of selling a utility system to determine if it's the right decision for your community. Learn how to ensure your system is properly valued, and see a step-by-step overview of the sale execution process. (What is required? How long does it take?)
10:30-11:00am - When Maintaining Local Control of the System is Desired, How Can a Municipality Still Get Cash to Address Its General Fund Problems?

Speaker: Jens Damgaard, Rhodes & Sinon

Many municipal leaders believe the only way to earn a return on their utility assets is to sell them. This presentation will discuss how authorities can provide general revenue relief to their municipality without surrendering future revenue and control through a private sale.

11:00-11:30am - How Regionalization Can Provide the Cost Savings Needed to Maintain Public Ownership

Speaker: E. Lee Stinnett, IL, Salzmann Hughes

Learn how partnering with neighboring municipalities can make it more sustainable to maintain public ownership of utility assets. Obtain practical advice on negotiating partnerships to achieve economies of scale and streamline costs while protecting autonomy.

INDUSTRIAL PRETREATMENT PROGRAM

Moderators: Judy Musselman, GHD, and Randy Schaffer, Capital Region Water

8:00-8:30am - Industrial Pretreatment Facility for Meat Processing Waste

Speaker: Matthew Warfel, ARRO Consulting Inc.

This case study will outline the study, design and construction of an industrial pretreatment facility for John F. Martin & Sons. The facility treats wastewater from their bacon processing facility in Womelsdorf, PA. The presentation will focus on challenges overcome during the course of the project and current treatment performance.

8:30-9:00am - Pretreatment Improvements Yield Multiple Benefits at Frito Lay York

Speaker: Mark Pickering, GHD

Upgrades to Frito Lay's York, PA pretreatment facility have resulted in multiple benefits to both Frito Lay and West Manchester Township. This presentation will discuss the initial odor study performed by Frito Lay, identification of the sources, and the resolution of the problem through partnering and a design-build effort managed by Frito Lay to construct the pretreatment upgrades.

9:00-9:30am - Improved Process Control and Increased Nitrification Efficiency of Refinery Wastewater

Speaker: Jason Calhoun, NUVODA/RF Wastewater

Petroleum refinery wastewater is a complex mixture of hydrocarbons and inorganic compounds that are often found to be inhibitory to the activated sludge process, leading to unstable treatment performance, making operation problematic. This study evaluates the treatment efficacy of kenaf as a bio-media when added to an activated sludge system creating a hybrid granular process capable of increasing nitrification efficiency and overall treatment performance.

10:00-11:00am - Innovative Biosolids Conditioning at an Industrial Pretreatment Facility

Speaker: Lee Tharps, CH2M

This presentation focuses on a full-scale installation at the Lehigh County Authority (LCA) pretreatment plant of an innovative technology to condition liquid biosolids ahead of belt filter press dewatering using compressed air. The results offer a direct comparison of dewatering performance on identical presses running side by side on the same material, with and without conditioning.
TECHNICAL PROGRAM DETAILS

TUESDAY AFTERNOON

COLLECTION SYSTEMS PROGRAM:

INFLOW/INfiltrATION

Moderators: Anthony Dill, ARCADIS, and Melissa Smith, GHD

1:00-1:30pm - PADEP Overview of Private Property Inflow and Infiltration
Speaker: David Burke, PADEP Southeast Regional Office

This presentation will provide an overview of the regulatory basis for inflow and infiltration abatement, including a discussion of the consequences of having a hydraulic overload, and DEP’s perspective on the significance of private laterals in a corrective action program.

1:30-2:00pm - Understanding Flow Meter Data, and Using It to Quantify I/I and to Prioritize I/I Reduction Efforts
Speaker: David W Shirk, PE, Buchart Horn, Inc.

Every operating authority or municipality with sanitary sewer facilities is concerned about the expense of conveying and treating inflow and infiltration (I/I). Many agencies have flow metering programs which assess I/I quantities and prioritize I/I reduction efforts. This presentation will describe best practices for data management and identification of I/I.

2:00-2:30pm - Getting the Most Out of Flow Metering Site Selection
Speaker: Josiah Bair, EIT, GHD

Using lessons learned in Lancaster Area Sewer Authority’s (LASA) successful flow metering program, site selection is essential to an effective flow metering program – differentiating between good data and wasting valuable resources. A simple three-step process of office analysis, field assessment, and initial data assessment helps assure effective metering results.

3:30-4:00pm - Inflow and Infiltration Removal: Three Communities, Three Approaches. What Were the Results, What Did We Learn?
Speakers: Christopher Henry, PE, and Kemal Niksic, PE, both with Mott MacDonald

This presentation will highlight characteristics of inflow and infiltration removal programs developed by three neighboring municipal authorities in Pennsylvania. Each program included flow monitoring, CCTV inspections, and CIPP rehabilitation. Variations in implementing these programs has resulted in three unique approaches to inflow and infiltration removal with varying levels of success.

4:00-4:30pm - Key Elements of a Successful Inflow/Infiltration Program
Speaker: Mitchell Collins, EIT, GHD

Lower Paxton Township Authority has successfully implemented an I/I mitigation program demonstrating cost effective removal results. Key fundamentals to the program’s success: solid programmatic approach with full buy-in; continued evaluation of rehabilitation cost-effectiveness; utilization of hydraulic modeling to evaluate alternatives; and solid metering and GIS data to support decision confidence.

CONSTRUCTION PROGRAM

Moderator: Justin Mendinsky, Herbert, Rowland & Grubic

1:00-1:30pm - Use of Design-Build for Project Delivery - Overview of Several Public Projects in the Region, and Lessons Learned
Speaker: Isaac Katz, O’Brien & Gere

This presentation will dive into the details on several recent design-build projects. The design-build projects include a wastewater PS and FM, water distribution, and upgrades at WWTPs for municipal and federal owners. Each project brings its own twist to the table, with opportunities to take these lessons into the future.

1:30-2:00pm - Strasburg Water Resource Recovery Facility Yields Major Cost Savings
Speaker: Brian Sibiga, PE, both with Wendel

Progressive design build delivers a more economical project than the alternatives. Owners, contractors and engineers build in energy efficiency and collaborate bringing long-term operational savings. The Town of Strasburg WWTP succeeded and is meeting strict permit limits (.3P/3N). Learn how Progressive Design Build project saved the town $12 million.

2:00-2:30pm - Divide and Conquer: Breaking Up a Large Linear Project into Smaller Pieces to Achieve Goals
Speaker: John V. Stulken, GHD

Case study of a 5-mile, 24” High Density Polyethylene (HDPE) force main installed via Horizontal Directional Drilling (HDD) will be discussed. The overall project was divided into six contracts to be designed, bid, and constructed in parallel to save time and increase bidding competitiveness. Unique challenges included a river crossing and alignment through environmentally sensitive areas and commercial development.

3:30-4:00pm - Good Contractor Relations Equal Smooth Construction Projects
Speaker: Glenn DeHaven, CCM, T&M Associates

This presentation is designed to provide participants with tips and strategies to minimize Owner/Consultant/Contractor/Inspector conflicts on construction projects. Less conflict results in less project churn and fewer cost overruns and project delays. Participants will receive practical advice and tips from Owners, project management consultants and construction contractors on how to handle job site disagreements in professional, positive ways.

4:00-4:30pm - Claims 101: Simple Steps to Ward Off Lawsuits
Speaker: Kristen Braden, PE, Esq, H.R. Gray

Construction projects rarely progress as scheduled. Weather conditions, changes in plans and specifications, and unforeseen conditions can disrupt a project – leading to claims. In this session, participants will review the claims process including claims avoidance, mitigation, the importance of documentation and the role of a claims consultant in this process.

INDUSTRIAL PRETREATMENT PROGRAM

Moderators: Judy Musselman, GHD, and Randy Schaffer, Capital Region Water

1:00-1:30pm - Dynamic, Efficient and Cost-Effective Database and Statistics Tools for Coal Combustion Residuals Rule Groundwater Monitoring and Compliance
Speaker: N. Rao Sankarananch, PE, CDM Smith, Inc.

Extensive requirements for groundwater monitoring data collection, analysis, and reporting were imposed on companies with coal ash disposal facilities under the EPA’s Coal Combustion Residuals Rule. The specialized data management and statistics tools that were developed to assist one energy company in Pennsylvania with CCR Rule compliance will be discussed.

1:30-2:00pm - Strategies for Managing Highly Variable Loads at a Regional Industrial Pretreatment Plant
Speaker: Diana Heimbach, CH2M

The Lehigh County Pretreatment Plant is a robust and flexible facility that can treat highly variable wastewaters using conventional treatment trains and smart strategies to reduce the load on the Allentown Wastewater Treatment Plant.
TECHNICAL PROGRAM DETAILS

2:00-4:30pm - These sessions were still being planned as of the printing of this brochure.

STORMWATER PROGRAM

Moderators: Nathan Walker, Wood, and Beth Dutton, 3 Rivers Wet Weather

1:00-1:30pm - Updating Your PRP or TMDL Plan with New Projects
Speaker: Mark Harman, ARRO Consulting, Inc.

This presentation will show municipalities how to identify future land planning projects or funding sources; show how the 2018 MS4 operation and maintenance responsibilities for privately owned BMPs provide a means to facilitate partnerships with private entities; and explain the regulatory requirements for updating your PRP or TMDL plan to obtain the necessary approval from PaDEP.

1:30-2:00pm - Evaluating the Technical and Administrative Capacities of MS4 Municipalities to Implement a Regional Pollutant Reduction Plan
Speaker: Kara M. Kalupson, RETTEW Associates, Inc.

RETTEW Associates is evaluating the technical and administrative capacities of eight MS4 municipalities in the Cocalico Creek watershed to implement a regional pollutant reduction plan. Based on municipal interviews, key tasks will be assigned to the municipality most readily able to complete them in a timely and cost-effective manner.

2:00-2:30pm - Starting a Stormwater Utility - From Scratch
Speaker: William P. Gralski, PE, Hampden Township

The presentation will discuss some of the challenges faced during the first two years of the Hampden Township Sewer Authorities Stormwater Division. It will include a discussion about: MS4 program; budgeting; asset management; deferred maintenance; and initial phases of implementing a stormwater authority.

3:30-4:00pm - Not Your Father's Buick - Beyond Traditional Delivery of Stormwater
Speaker: Jill Marie and Ron Geiger, both with HDR Engineering, Inc.

Hear about trends seen across the country regarding alternative delivery of stormwater infrastructure, with a presentation on the latest strategies including integrated program management, Community-Based P3, and Design/Build/Operate, focusing on economic stimulus, faster procurement, financing options, shifting of risk, and adding value to the community.

4:00-4:30pm - The City Beautiful H2O Program Plan: Rehabilitating and Enhancing Infrastructure through an Integrated Wet Weather Plan for Harrisburg

Speakers: Matthew Vanaskie, CDM Smith; Claire Maulhardt, Capital Region Water; and John Aldrich CDM Smith

Capital Region Water has embodied the principles of the original City Beautiful plan of Harrisburg to rehabilitate, renew, and construct stormwater and sewer infrastructure to address water quality challenges through integrated wet weather planning analyses while improving the social and economic well-being of its citizens.

STUDENT RESEARCH PROGRAM & POSTER CONTEST

1:00-4:30pm

The Research Program showcases the ongoing research activities of students (graduate and undergraduate) in the fields of wastewater, water quality, and environmental management relevant to Pennsylvania. 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 Award. In addition, qualifying abstracts are invited to participate in a Poster Contest at the conference. After judging by faculty and practicing engineers, the top three poster presenters in both undergraduate and graduate categories will receive the Student Research Poster Award. All poster will be available for viewing by conference attendees, and awards will be presented during the Research Program.

WEDNESDAY MORNING

PROFESSIONAL WASTEWATER OPERATIONS PROGRAM

8:00-8:30am - Flood Recovery (Without an Ark) - Operational Lessons Learned
Speaker: Wayne A Schutz, Derry Township Municipal Authority

This presentation will discuss the 2011 TS Lee flood event at the DTMA Clearwater WWTP, its impact on the facility operation, and the subsequent recovery efforts to restore the plant facilities and WWTP operations to return the WWTP to full NPDES Permit compliance.

8:30-9:00am - Chemical Precipitation as Primary, Polishing or back-up Process for Phosphorus Removal
Speaker: Jurek Patoczka, Mott MacDonald

The presentation is an update on practices and considerations concerning chemical precipitation of phosphorus, based on recently published new edition of Water Environment Federation Manual of Practice No. 37 “Operation of Nutrient Removal Facilities.” The presenter was the lead author of Chapter on Chemical Precipitation of Phosphorus.

9:00-9:30am - The Conversion of a Package Plant to BNR Operation and Process Troubleshooting
Speaker: Tim Daily, Pennoni

A package plant was converted to the MLE process. Initially, the process would successfully reduce the effluent total nitrogen concentration. However, the treatment deteriorated and denitrification stopped occurring. The presentation will review the design, implementation, and the process control changes instituted to address the rise in effluent total nitrogen concentration.

10:00-10:30am - Ammonia Permits and Pennsylvania Lagoons: Regional Case Studies of Plants That Can Beat <1 mg/L in <34°F Water
Speaker: Todd Latchaw, Nexom

Ammonia limits are now commonplace in lagoon-based WWTP permits, leaving engineers to decide: can we save this existing infrastructure? A case study of Ellicotville, NY’s SAGR post-lagoon nitrification—which has been shown to consistently reduce ammonia to <1 mg/L in <34°F water—will be presented.
10:30-11:00am – Case Studies of Optimizing Nutrient Removal Capabilities of Existing Sewage Treatment Facilities

Speakers: Marc Neville, PA Department of Environmental Protection, and Walter Higgins, US Environmental Protection Agency

Presenters will discuss their approach to plant optimization with an emphasis on nutrient reduction. Two case studies will be presented where the Sewage Treatment Plant superintendents worked as a team with DEP and EPA technical assistance staff to reduce effluent total nitrogen with plants not designed to do so. Attendees will be able to gather techniques and information that will be useful to their plant.

WATER SUSTAINABILITY & REUSE PROGRAM

Moderators: Anthony Elberti, Gannett Fleming, and Edward Spayd, Herbert, Rowland & Grubic

8:00-8:30am – Beat Ultra-Low Phosphorus Targets with Reactive Filtration: How Citronelle, Alabama Consistently Hits 0.02 mg/L

Speaker: Todd Latchaw, Nexom

As Phosphorus-fed algae blooms continue to plague North American bodies of water, regulators are pressuring WWTPs to meet ever-lower Phosphorus limits down to micrograms per liter. Learn how Citronelle, AL’s Blue PRO® reactive filter produces <0.02 mg/L TP effluent with adsorption/reaction kinetics that improve on traditional particle coagulation and filtration.

8:30-9:00am – Application of Submerged Structured Sheet Media for Activated Sludge Plant Retrofit

Speaker: Julia Zhu, Brentwood Industries, Inc.

Wastewater treatment plants using activated sludge processes often face the challenges of treating a higher flow or meet more stringent ammonia discharge limit. A submerged structured sheet media system was developed and applied as a simple, economical retrofit to existing activated sludge plant to increase treatment capacity and improve nitrification.

9:00-9:30am – Pilot Study of Submerged Structured Sheet Media for Post Denitrification

Speaker: Julia Zhu, Brentwood Industries, Inc.

A submerged anoxic biofilm reactor to be integrated with existing trickling filters to achieve biological nitrogen removal is under development. The results of two pilot studies at two trickling filter plants will be presented. Both demonstrated the effectiveness in achieving high level denitrification.

10:00-10:30am – Case Study of Blending Blower Technologies for Optimum Efficiency

Speaker: Paul Petersen, Atlas Copco

This strategic design of aeration blower systems to decrease capital cost expenditures, increase overall aeration system efficiency, and provide superior turndown for improved DO control has been implemented in Letchworth, United Kingdom for several years. This innovative design is beginning to gain traction in the United States.

10:30-11:00am – Novel Use of HIX Nanotechnology Aided by CO2 for Simultaneous Phosphate Recovery and Desalination for Reuse of Municipal Wastewater

Speaker: Chelsey Shepsko, Lehigh University

A hybrid ion exchange process selectively removes phosphate from municipal wastewater streams with pure recovery after exhaustion. A weak acid cation exchanger in front of this process will increase phosphate uptake capacity while simultaneous desalination is performed. Regeneration with carbon dioxide is a more sustainable option that decreases regenerant waste.

Did You Know?

PWEA’s Job Board connects candidates with employers seeking to fill open positions. Employment positions submitted to PWEA are viewable on the PWEA Website at any time. Visit www.pwea.org and click on the “News & Info” tab; then select “Job Board – Open Positions.”
PA DEP Operator Certification

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

To ensure you meet continuing education requirements, please refer to the Operator Certification 3-Year Renewal Cycle Schedule. IMPORTANT: Contact hours received outside of your renewal cycle will not count toward your requirements.

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

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

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

In addition to the Conference contact hours, five workshops have been approved by the PA DEP for additional credit. Go to pages 20-21 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

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

Other Certification

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

Water should be clear, but not invisible.

Indispensable to jobs, the economy, our health, and our communities, water runs through our lives in many ways.

We all have something at stake when it comes to water. Each of us also has a valuable contribution to make.

WATER’S WORTH IT®

Be as good to water as water’s been to you. To learn more, visit www.WatersWorthIt.org.
Monday, 8:45am-2:30pm
A PWO Workshop

Disinfection and Chlorination
This course is PA DEP approved for 4.0 wastewater contact hours.
Course ID 7682.
Instructor: Dennis Duryea, PE, Kiski Valley Water Pollution Control Authority
This course will provide students with knowledge to prepare for the certification exam or to enhance operator’s skills and knowledge if they are already employed at a wastewater treatment facility. Course content will include: disinfection and chlorination principles; chlorination process control; chlorine safety and handling; chlorination equipment and maintenance; de-chlorination; and ultraviolet radiation.

Monday, 8:45am-4:30pm
An Industrial Pretreatment Committee Workshop
Moderator: Judy Musselman, GHD

Introduction to Pretreatment
This course is PA DEP approved for 6.0 wastewater contact hours.
Course ID 7613.
Instructors: Christine Volkay-Hilditch, City of Lancaster, and Judy Musselman, BCES QEP, GHD
POTWs with EPA-approved industrial program must perform a variety of tasks in the implementation and enforcement of the program. This workshop will review those steps and discuss the regulatory background of each. Course content will include: identification and classification of industrial users; preparing an enforceable IU permit; development of local discharge limits; implementing a self-monitoring program; conducting an IU inspection; and establishing a creditable enforcement program. Pretreatment coordinators, wastewater operators, consultants and others involved in the implementation and enforcement of industrial pretreatment programs would benefit from this course.

Monday, 1:00-4:30pm
A Safety Committee Workshop
Moderator: Joseph Rost, Butler Area Sewer Authority

Active Shooter Preparation and Response
This 2.5 hour course is not PA DEP approved.
The purpose of this course is to convey DHS best practices regarding Active Shooter Preparation and Response. The types of personalities that perpetrate these attacks will be discussed, with an eye toward avoiding them. The importance of individual and organizational planning, response options, recovery, and other resources available for reference and use will be presented.

Tuesday, 8:00-11:45am
A Laboratory Practices Committee Workshop
Moderator: Michael Henao, North Huntingdon Township

Laboratory Ethics
This course is PA DEP approved for 3.0 drinking water & wastewater contact hours. Course ID 7364.
Instructors: Larissa Hoover, Cranberry Township, and Michael Henao, North Huntingdon 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.

Tuesday, 8:00am-4:30pm
A Training Committee Workshop
Moderator: David Brown, ALCOSAN

Introduction to Wastewater
This course is PA DEP approved for 5.0 wastewater contact hours.
Course ID 6563.
Instructor: Curtis Miller, PE BCEE REM, KCI Technologies
The primary purpose of this course is to help participants gain an understanding of the duties and responsibilities of a treatment plant operator; wastewater characteristics; effects of wastewater discharges; wastewater treatment and their processes; and state and federal regulations.

Wednesday, 8:00am-12:00pm
A PWO Committee Workshop
Moderator: Thomas Brown, PA DEP

Responsibilities of Clean Water Professionals
This course is PA DEP approved for 3.5 wastewater contact hours.
Course ID 7122.
Instructors: Robert DiGilarmo, Thomas Brown, Anita Stabile, Robert Bauer and Thomas Magge, all with the PA DEP; and Walter Higgins, US EPA
This course will include an introduction to the Wastewater Operator Code of Ethics. Discussions will include protecting and maintaining the wastewater system; laws, rules and regulations that impact wastewater operators; and security and emergency planning for wastewater. Upon conclusion of this course, students will be able to describe the importance of good communication and establish a communication system with system owners, customers, and regulatory agencies and they will be ready to accept and carry out the responsibilities and rewards of being a Clean Water Professional.
### PLEASE PRINT

**Registrant Name:** ___________________________  **Nickname (for badge):** ___________________________

**Organization:** ___________________________

**Mailing Address:** ___________________________

**City:** ___________________________  **State:** ___________________________  **Zip:** ___________________________

**Phone:** ___________________________  **Email:** ___________________________

**PWEA Member #:** ___________________________  **PA DEP Client #:** ___________________________  **PE License #:** ___________________________

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

*Note: a copy of your PA DEP Client ID Card (or PA DEP License) must be submitted with your registration if you are attending for PA DEP contact hours.*

**Are you a member of any PA Sections (check all that apply):**

- [ ] EPWPCOA
- [ ] CPWQA
- [ ] WPWPCA

**Community Service Project (Sunday, 9am-1pm):**

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

---

**FEE FOR WORKSHOP ONLY**

<table>
<thead>
<tr>
<th>Day</th>
<th>Workshop Description</th>
<th>Fee for Workshop Only**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday, 8:45am-2:30pm - PWO Committee</strong></td>
<td>Disinfection and Chlorination (PA DEP approved for 4.0 wastewater contact hours)</td>
<td>[ ] $0</td>
</tr>
<tr>
<td><strong>Monday, 8:45am-4:30pm - Industrial Pretreatment Committee</strong></td>
<td>Introduction to Pretreatment (PA DEP approved for 6.0 wastewater contact hours)</td>
<td>[ ] $0</td>
</tr>
<tr>
<td><strong>Monday, 1:00pm-4:30pm - Safety Committee</strong></td>
<td>Active Shooter Preparation and Response (This course is not PA DEP approved) (2.5 hours classroom time)</td>
<td>[ ] $0</td>
</tr>
<tr>
<td><strong>Tuesday, 8:00am-11:45am - Lab Practices Committee</strong></td>
<td>Laboratory Ethics (PA DEP approved for 3.0 drinking water &amp; wastewater contact hours)</td>
<td>[ ] $0</td>
</tr>
<tr>
<td><strong>Tuesday, 8:00am-4:30pm - Training Committee</strong></td>
<td>Introduction to Wastewater (PA DEP approved for 5.0 wastewater contact hours)</td>
<td>[ ] $0</td>
</tr>
<tr>
<td><strong>Wednesday, 8:00am-12:00pm - PWO Committee</strong></td>
<td>Responsibilities of Clean Water Professionals (PA DEP approved for 3.5 wastewater contact hours)</td>
<td>[ ] $0</td>
</tr>
</tbody>
</table>

* To qualify for complimentary workshop registration with your full PennTec registration, attach this form to the completed registration form found on page 23.

**One check may be issued for the combined total due for Conference Registration and Workshop Registration**

**Method of Payment**

- [ ] Check (payable to PWEA)
- [ ] MasterCard
- [ ] Visa
- [ ] American Express
- [ ] Discover

**Card Number:** ___________________________  **Expiration Date:** ___________________________  **Security Code:** ___________________________

**Name (as it appears on card):** ___________________________  **Signature:** ___________________________

**Billing Address (if different from above):** ___________________________

---

**CANCELLATION/SUBSTITUTION POLICY**

No refunds granted after April 30th. A $50 cancellation fee will be assessed on all refund requests received by April 30th. All refunds must be requested in writing. Substitutions are permitted with a $25 per person substitution fee. Substitutions may be made until May 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
**A Day at Hersheypark®**  
*Sunday, 1:00-10:00pm*

Enjoy a day at the Park with your colleagues and family. See page 5 for details.

Cost is $50 per person, which includes park admission and a picnic dinner. Deadline to order is May 15th. Tickets will not be available on-site.

---

**Beer & Pretzels Reception**  
*Tuesday, 4:30-5:30pm*

We will be serving complimentary beer, root beer, and soft pretzels! Come to the Hall to relax and visit with the vendors.

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

---

**PWEA Annual Business Meeting**  
*Monday, 12:30-1:00pm*

PWEA members and non-members are invited to attend and participate in the Annual Business Meeting. The Board of Directors welcomes input from everyone.

Not a member? Join online, print a membership application from the PWEA web site, www.pwea.org, or pick one up at the registration desk on-site.

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

---

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

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

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

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

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

---

**President’s Reception**  
*Monday, 4:30-5:30pm*

Be sure to attend the President’s Reception! Enjoy complimentary beer & snacks while you network with your colleagues and the vendors.

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

---

**“Raise Your Glass” Wine Tasting & Food Pairing**  
*Tuesday, 6:00-9:00pm*

Come and join PWEA’s Young Professionals for a wine tasting and food pairing event! Participants will taste various Pennsylvania wines, and learn appropriate food-wine pairings from a PA winery owner. Participants will gain first-hand insight into how the wines are made and how winery wastewater is managed, and will also learn about the history of each wine variety. If you are looking for a fun evening with fellow SYPs and experienced professionals alike, this program will not disappoint!

Cost is $50 per person, which includes snacks and beverages. A limited number of tickets will be available on-site.  
*Dress is casual.*

---

**PWEA Annual Awards Ceremony & Reception**  
*Monday, 6:00-8:00pm*

The Annual Awards Ceremony honoring your colleagues who have won prestigious state and national awards will take place during this reception, which is open to all Conference attendees.

Pre-registration is requested. There is no charge for this event.  
*Dress is business casual.*
**2018 CONFERENCE REGISTRATION FORM**

**PLEASE PRINT**

Registrant Name: ___________________________ Nickname (for badge): ___________________________

Organization: ______________________________

Mailing Address: ________________________________________________________________

City: __________________ State: ___________ Zip: ___________

Phone: __________________ Phone: __________________

PWEA Member #: ___________________ PA DEP Client #: __________________ PE License #: ___________

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

☐ College Students – Registration fee is waived for full-time college students if this form is submitted with a photocopy of current student identification. Social events and workshops are not included.

Are you a member of any PA Sections (check all that apply):

☐ EPWPCOA ☐ CPWQA ☐ WPWPCA

Community Service Project (Sunday, 9am-1pm):

☐ 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.

<table>
<thead>
<tr>
<th></th>
<th>By March 31</th>
<th>April 1-May 15</th>
<th>On-Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWEA Member</td>
<td>☐ $430</td>
<td>☐ $485</td>
<td>☐ $515</td>
</tr>
<tr>
<td>Non-Member</td>
<td>☐ $510</td>
<td>☐ $560</td>
<td>☐ $595</td>
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<tr>
<td>Monday Only</td>
<td>☐ $240</td>
<td>☐ $290</td>
<td>☐ $325</td>
</tr>
<tr>
<td>PWEA Member</td>
<td>☐ $300</td>
<td>☐ $350</td>
<td>☐ $385</td>
</tr>
<tr>
<td>Non-Member</td>
<td>☐ $240</td>
<td>☐ $290</td>
<td>☐ $325</td>
</tr>
<tr>
<td>Tuesday Only</td>
<td>☐ $240</td>
<td>☐ $290</td>
<td>☐ $325</td>
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<td>☐ $300</td>
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<tr>
<td>Non-Member</td>
<td>☐ $240</td>
<td>☐ $290</td>
<td>☐ $325</td>
</tr>
<tr>
<td>Wednesday Only</td>
<td>☐ $85</td>
<td>☐ $100</td>
<td>☐ $115</td>
</tr>
<tr>
<td>PWEA Member</td>
<td>☐ $100</td>
<td>☐ $115</td>
<td>☐ $130</td>
</tr>
<tr>
<td>Non-Member</td>
<td>☐ $85</td>
<td>☐ $100</td>
<td>☐ $115</td>
</tr>
</tbody>
</table>

Monday Only Student & Young Professional (SYP) Registration

|                  | ☐ $150      | ☐ $200         | ☐ $235  |
| SYP PWEA Member  | ☐ $200      | ☐ $250         | ☐ $285  |
| SYP Non-Member   | ☐ $150      | ☐ $200         | ☐ $235  |

Complimentary with SYP Registration – check if you will attend:

☐ PWO Plant Tour (Derry Township Municipal Authority)

Tuesday Only Student & Young Professional (SYP) Registration

|                  | ☐ $150      | ☐ $200         | ☐ $235  |
| SYP PWEA Member  | ☐ $200      | ☐ $250         | ☐ $285  |
| SYP Non-Member   | ☐ $150      | ☐ $200         | ☐ $235  |

Complimentary with SYP Registration – check if you will attend:

☐ SYP Plant Tour (Hershey Chocolate Company)

---

**NETWORKING EVENTS**

Complimentary Events – please indicate whether you will attend:

<table>
<thead>
<tr>
<th></th>
<th>Monday - President's Reception</th>
<th>Monday - Awards Reception</th>
<th>Tuesday - Beer &amp; Pretzels Reception</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐ yes</td>
<td>☐ yes</td>
<td>☐ yes</td>
</tr>
<tr>
<td></td>
<td>☐ no</td>
<td>☐ no</td>
<td>☐ no</td>
</tr>
</tbody>
</table>

Ticketed Events – please indicate quantity of tickets and total.

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
<th>Cost</th>
<th>Total Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hersheypark® Event</td>
<td>___</td>
<td>$50</td>
<td>___</td>
</tr>
<tr>
<td>(Includes park admission and picnic dinner.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWO Plant Tour</td>
<td>___</td>
<td>$20</td>
<td>___</td>
</tr>
<tr>
<td>Tuesday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYP Plant Tour</td>
<td>___</td>
<td>$20</td>
<td>___</td>
</tr>
<tr>
<td>Wine Tasting Event</td>
<td>___</td>
<td>$50</td>
<td>___</td>
</tr>
<tr>
<td>(Includes snacks &amp; beverages.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golf Tournament</td>
<td>___</td>
<td>$70</td>
<td>___</td>
</tr>
<tr>
<td>Foursome discount*</td>
<td>___</td>
<td>$260</td>
<td>___</td>
</tr>
</tbody>
</table>

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

1. ______________________  2. ______________________  3. ______________________  4. ______________________

Method of Payment

To qualify for the early registration discount, payment must be postmarked by March 31st.

☐ Check (payable to PWEA)

☐ MasterCard ☐ Visa ☐ American Express ☐ Discover

Card Number: ___________________________ Expiration Date: _____________ Security Code: _____________

Name (as it appears on card): ___________________________ Signature: ___________________________

Billing Address (if different from above): ______________________________________________________

---

Cancellation/Substitution Policy

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Total Registration Fees: $ _____________

Total Ticketed Events Fees: $ _____________

Total Due: $ _____________

---

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
SAVE THE DATE
June 3-6 2018

Why Your Employer Should Invest in You Attending PennTec 2018

1. Continuing Education Credit – earn up to **14.5** DEP contact hours for operator licenses; or up to **17.5** Professional Development Hours for professional engineer licenses

2. Find Solutions to Current Problems – regulatory issues, equipment issues, management issues, customer service issues, process issues, etc.

3. Find Ways to Do More with What Your Organization Already Has

4. Discover New & Innovative Technologies to Take Your Organization Into the Future

5. Powerful Networking Opportunities – talk with people who can save your organization money

6. Cross-Training Opportunities for Others While You Attend PennTec

7. You Can Return and Share the Information Gained from Attending PennTec