

LEARN, NETWORK, ENJOY



2018

TRI-ASSOCIATION CONFERENCE

OCEAN CITY CONVENTION CENTER
Ocean City, MD • August 28–31



Hazen and Sawyer is proud
to be a continued supporter
of the Tri-Association
Conference.

Hazen

hazenandsawyer.com



Tri-Association Conference Welcome	2
Conference Planning Committee	6
Conference At-A-Glance	7
Technical Program At-A-Glance	9
Convention Center Maps	13
Conference Highlights	14
Tuesday, August 28, 2018	14
Pre-Conference Workshops	17
Wednesday, August 29, 2018	20
Operator Process Classes	27
Thursday, August 30, 2018	28
Friday, August 31, 2018	35
Technical Program Schedule	36
Wednesday, August 29, 2018	36
Thursday, August 30, 2018	44
Friday, August 31, 2018	54
Exhibit Hall & Exhibitors	59
Board Members & Committee Chairs	61
Hotel Information	65
Registration Information	67
Conference Notes	71

WELCOME TO THE 2018 TRI-ASSOCIATION CONFERENCE

On behalf of the members of WWOA, CSAWWA, CWEA, and especially the members of the Conference Committee, I would like to extend a warm welcome to everyone attending the 2018 Tri-Association Conference! It has been a genuine pleasure to be a part of the development and realization of this year's conference. We hope this conference will be of service to all water and wastewater professionals, as well as to our industrial and municipal planners and leaders. This year, the committee challenged itself to not rest on its laurels but, rather, to collectively think outside the box in a conscious effort to improve this conference by continuing to push the envelope. Our goal was to produce a technical program from which all attendees could glean insights into the challenges (and possible solutions) facing our industry and environment. Thank you to all attendees for your continued support of the Tri-Association Conference and I hope you enjoy all that the conference has to offer!

Karl Ott, 2018 Tri-Association Conference Committee Chair

The Chesapeake Water Environment Association (CWEA), the Chesapeake Section, American Water Works Association (CSAWWA), and the Water & Waste Operators Association of MD, DE, and DC (WWOA) are pleased to host a combined Annual Conference and Exhibition at the Roland E. Powell Convention Center in Ocean City, Maryland from August 28–31, 2018. The Conference Committee has planned the program and schedule, as well as negotiated blocks of rooms at conference rates with several local hotels. Please check the Tri-Association Conference website (www.ChesapeakeTricon.org) frequently for updated information regarding the program, hotel accommodations, registration, golf outing, Water For People Fun Run/Walk, and other valuable information.

The Conference Registration, Information Desk, and Exhibits will be located on the first floor of the Convention Center. We are also hosting our Opening Ceremony in the Performing Arts Center, conveniently located across from our Exhibit Hall. This year's Exhibit Hall will host our biggest exhibition ever! The hall includes more than 165 standard booths. **NEW FOR 2018: Our exhibitor demonstration areas will be outside in the North Parking Lot!** Wednesday breakfast, lunch, and Shooters Happy Hour and Thursday breakfast and morning break

will be held in the Exhibit Hall. In addition, the 11th Annual Operations Challenge will be spotlighted in the Exhibit Hall, as will the 3rd Annual Pipe Tapping Competition (so grab a beverage and come out to root for your favorite team)!

Our 2018 Technical Program will include more than 150 presentations in six concurrent technical sessions including two one-hour engineering ethics courses. In addition, two Pre-Conference Workshops will be held on Tuesday, and operators can get up to 10.5 Process Credit Hours on Wednesday.

CYBER CAFÉ

The Cyber Café will be located in Room 209 and will include several PCs and a printer. The Conference Committee has arranged for free wireless internet access at the Convention Center for attendees and exhibitors; however, this service is not guaranteed.

ROLAND E. POWELL CONVENTION CENTER

The Convention Center is located at 4001 Coastal Highway, between 40th and 41st streets. There are 1,200 parking spaces at the Convention Center. Anyone with a 2018 Tri-Association Conference name badge can ride the Ocean City buses at no charge, starting Tuesday, August 28, 2018 at 2:00 PM through Friday, August 31, 2018 at noon.

REGISTRATION

Registration Location: First Floor
Tuesday: 10:00 AM to 6:00 PM
Wednesday: 7:30 AM to 5:00 PM
Thursday: 7:30 AM to 4:00 PM
Friday: 7:30 AM to 10:30 AM

Sponsored by:



ATTENTION CERTIFIED OPERATORS

The pre-conference workshops and technical sessions have been submitted for approval, for non-process credit, by the Maryland Board of Waterworks and Waste System Operators, and course codes have been assigned. **Be sure to get your *Technical Session Attendance Form* stamped at the end of each session as this will be the only time to obtain stamps that verify your attendance. NO EXCEPTIONS: In accordance with MD and DE Regulations, you must attend a minimum of 80% of a class to get credit.**

This year's program includes a Water and Wastewater process class for operators and attendees can earn up to 10.5 hours of process credits. The classes offered are **Ground Water Treatment Options** and **Activated Sludge – BOD Removal and Nitrification** (see page 27 for more information). These classes will be offered on Wednesday August 29, 2018 and will be presented by staff from the Maryland Center for Environmental Training (MCET). Applicable certification documentation will be provided by MCET at the end of the class. There will be a registration fee of \$35.

The Maryland Board of Waterworks and Waste System Operators has again approved **one hour of non-process credit for Exhibitor Product Briefings** by visiting exhibitors in the Exhibit Hall. Operators and superintendents meet and discuss available technologies. Exhibitors will complete and sign the *Exhibitor Product Briefing Form*, which is part of the Technical Session Attendance Form, to receive credit. Operators must obtain signatures from 10 exhibitors to receive the one non-process credit hour as no partial credit will be given.

All operators must get their completed *Technical Session Attendance Form* signed by an authorized committee member at the Information Desk **before you leave the conference**. You will not be able to obtain a signature after Noon on Friday August 31, 2018.

ATTENTION PROFESSIONAL ENGINEERS

As part of the continuing education requirements for Professional Engineers registered in Maryland, Delaware, and Virginia, you are required to obtain proof of attendance for professional development hours. The *Technical Session Attendance Form* will be available at the conference to provide proof of attendance. **Be sure to get your *Technical Session Attendance Form* stamped at the end of each session. This will be the only time to obtain stamps that verify your attendance. NO EXCEPTIONS: In accordance with MD and DE Regulations, you must attend a minimum of 80% of a class to get credit.**

Engineering Ethics for Professional Engineers: One-hour presentations on engineering ethics will be provided on Wednesday, August 29, 2018 and Friday, August 31, 2018 to assist PEs with meeting the requirement.

All engineers pursuing continuing education credits must get their completed *Technical Session Attendance Form* signed by an authorized committee member at the Information Desk **before leaving the conference**. You will not be able to obtain a signature after Noon on Friday, August 31, 2018.



CONFERENCE PLANNING COMMITTEE

Raj Arora, American Pipe

Pipe Tapping Chair;
Registration Vice Chair

Sarah Bunk, JMT

Silent Auction Vice Chair

Jeff Cantwell,

Flow Assessment Services

Monitors and Moderators Chair

Prabhu Chanfrasekeran,

Greely-Hansen

YP Vice Chair;
Sponsorships Committee

Andy Cooper, WRA

Technical Program Committee

Gian Cossa, DC Water

Tri-Association Conference Vice-Chair;
Technical Program Committee;
Arrangements Committee Chair;
Opening Ceremony Vice-Chair

Teresa DiGenova, Black and Veatch

Technical Program Vice Chair

Mike Emery, DC Water

Signage Chair;
Volunteer Coordination Vice Chair

Steve Fox, Hydrocorp

Exhibits Committee; Golf Committee

Eric Held,

Charles Morrow & Associates

Exhibits Chair; Water Tapping
Vice Chair; Registration Committee;
Technical Program Committee

Aaron Hughes, WSSC

Sponsorships Chair;
Operations Challenge Committee

Jay Kirk, Brown and Caldwell

Door Prizes Chair; Arrangements
Vice Chair; Brochure Committee

Carrie Kruger, Duffield Associates

Fun Run Chair; Brochure Chair

Graeme Lake, Pennoni

Treasurer; Technical Program
Committee; Awards Committee

Sophia Liskovich,

Gannett Fleming

Technical Program Chair

Kraig Moodie, FloWav

Operations Challenge Chair

Karl Ott, Charles County

Tri-Association Conference Chair;
Convention Center Liaison Vice Chair;
Signage Committee

Kristi Perri, Brown and Caldwell

Technical Committee

Kevin Quinn, St. Mary's County

Awards Chair; Brochure Vice Chair;
Golf Vice Chair

Anthony Rocco, Howard County

Top Ops Chair

Deborah Saber, CPI Water

Opening Ceremony Chair;
Exhibitor Vice Chair

Anna Santino, Pure Technologies

YP Event Chair;
Women's Networking Chair

Ron Tatariw, Tatariw, Inc.

Golf Chair

Erica Whorley,

Brown and Caldwell

Promotions Chair; Silent Auction
Chair; Sponsorship Vice Chair

Al Will, JMT

Insurance Chair;
Convention Center Liaison

Tuesday, August 28
Registration/Check-In First Floor 10:00 AM – 6:00 PM
Golf Event Benefitting WFP *New Time! Ocean City Golf Club Berlin, MD Sign-In: 10:30 AM Shotgun Start: 12:00 PM
Exhibitor Move-In *New Time! Exhibit Hall/North Parking Lot 8:00 AM – 8:00 PM
Pre-Conference Workshop: Fundamentals of Biosolids Management Room 201 1:00 PM – 5:00 PM
Pre-Conference Workshop: Backflow Prevention – Why Is It Important? Room 203 1:00 PM – 5:00 PM
Operations Challenge Pre-Competition Meeting Room 215 4:00 PM – 4:30 PM
Operations Challenge Room 215, Exhibit Hall 4:30 PM – 6:30 PM

***NEW FOR 2018**

Monster Door Prizes at All Breaks!

And we aren't talking about fruit baskets either! Door prizes include awesome stuff from Apple, Yeti, and more of the cool stuff you want! All conference attendees receive a door prize ticket for all Breaks, the Opening Session, and Friday's Grand Finale. Each ticket indicates the location and time of the drawing, and **you must be present to win.**

Wednesday, August 29	
5K Fun-Run/Walk Benefitting WFP Boardwalk at the Grand Hotel 7:00 AM	Break/Visit Exhibitors *New Longer Time Exhibit Hall/North Parking Lot 10:00 AM – 11:00 AM
Registration/Check-In First Floor 7:30 AM – 5:00 PM	Opening Ceremony/Keynote Address Performing Arts Center 11:00 AM – 12:00 PM
Exhibits Open Exhibit Hall/North Parking Lot 7:30 AM – 6:00 PM	Lunch With Exhibitors Exhibit Hall Noon – 1:00 PM
Continental Breakfast Exhibit Hall 7:30 AM	Technical Sessions Rooms 201–206 1:00 PM – 2:30 PM
Ground Water Treatment Operator Process Class – Water Room 215 8:00 AM – 4:00 PM	Break/Visit Exhibitors *New Longer Time Exhibit Hall/North Parking Lot 2:30 PM – 3:30 PM
Activated Sludge BOD Removal & Nitrification Operator Process Class – Wastewater Room 217 8:00 AM – 4:00 PM	Technical Sessions Rooms 201–206 3:30 PM – 5:00 PM
Technical Sessions Rooms 201–206 8:30 AM – 10:00 AM	Pipe Cutting Shootout Exhibit Hall 5:00 PM – 6:00 PM
Operations Challenge Pre-Competition Meeting Exhibit Hall 8:30 AM – 9:00 AM	Shooters Happy Hour Exhibit Hall 5:00 PM – 6:00 PM
Operations Challenge Exhibit Hall 9:00 AM – 6:00 PM	Women's Networking Event Room 209 5:00 PM – 6:30 PM
Biosolids Beauty Contest CWEA Table, Outside Rooms 201–206 9:00 AM – 11:00 AM	Fun Night! Seacrets® (ticketed event) 7:00 PM – 11:00 PM
Silent Auction Benefitting EWB Exhibit Hall 9:00 AM – 6:00 PM	

Thursday, August 30	
Registration/Check-In First Floor 7:30 AM – 4:00 PM	CWEA Business Luncheon Bayfront Ballroom (ticketed event) 12:30 PM – 2:00 PM
Exhibits Open Exhibit Hall/North Parking Lot 7:30 AM – Noon Move Out: Noon – 4:00 PM	WVOA Business Luncheon Rooms 207–208 (ticketed event) 12:30 PM – 2:00 PM
Continental Breakfast Exhibit Hall 7:30 AM	Technical Sessions Rooms 201–206 2:00 PM – 3:30 PM
Silent Auction Benefitting EWB Exhibit Hall 7:30 AM – 10:30 AM <i>*Items must be picked up at Info Area by NOON</i>	Top Ops Bayfront Ballroom (upstairs) 3:30 PM – 5:30 PM
Technical Sessions Rooms 201–206 8:30 AM – 10:00 AM	Break Outside Rooms 201–206 3:30 PM – 4:00 PM
Break/Visit Exhibitors *New Longer Time Exhibit Hall/North Parking Lot 10:00 AM – 11:00 AM	Technical Sessions Rooms 201–206 4:00 PM – 5:30 PM
Pipe Tapping Exhibit Hall 10:00 AM – 11:00 AM	Awards Program Bayfront Ballroom (upstairs) <ul style="list-style-type: none"> ● Cocktails: 5:45 PM – 6:15 PM ● Program: 6:15 PM – 7:30 PM
Technical Sessions Rooms 201–206 11:00 AM – 12:30 PM	YP Happy Hour Skye Bar on 66 th Street 6:00 PM – 9:00 PM <i>*All are welcome to attend</i>
CSAWWA Business Luncheon Dockside Ballroom (ticketed event) 12:30 PM – 2:00 PM	

Friday, August 31
Registration/Check-In First Floor 7:30 AM – 10:30 AM
Continental Breakfast Outside Rooms 201–206 8:00 AM
MDE Operator Exam Room 215 9:00 AM <i>See page 35 for details.</i>
Technical Sessions Rooms 201–206 9:00 AM – 11:30 AM
Last Chance for Technical Session Attendance Form Signatures Information Area 11:30 AM – Noon
Adjourn/Monster Door Prizes Information Area 11:45 AM
CSAWWA Board Meeting & Luncheon Room 210 Noon – 2:00 PM
CWEA Board Meeting & Luncheon Room 213 Noon – 2:00 PM

	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Aeration & Energy Considerations	Engineering Ethics	Water System Infrastructure	Stormwater	Biosolids
8:30 AM	Integrated Information Management – Data-Driven Road Map for Enterprise Decision Making	City of Baltimore Back River WWTP Activated Sludge Plant – 4 Aeration System Design Considerations	Ethics for the Maryland PE	Satellite Leak Detection Pilot Study – Is it Worth It?	Improving Stormwater Program Performance: Simulated Audits & Program Review Scorecard	Anaerobic Digestion Biogas Systems – Practical Considerations for Design, Start-up, and Operation
9:00 AM	The Journey to World-Class Maintenance – Lessons Learned From Implementing a Reliability Centered Maintenance Program	Understanding Aeration Demand Challenges of Resort Area Wastewater Treatment Facilities		Pressure Monitors Emerging Technology – A Head to Head Comparison of Remote Pressure Monitoring Units	SWMM Modeling Benefits and Considerations	Conversion of WWTP Digester Gas into Compressed Natural Gas Vehicle Fuel
9:30 AM	Taking Risk to the Next Level: Capital Region Water's Risk-Based Approach to Prioritizing Consent Decree Work	Hurricane Hardened Emergency Power Systems – Does Your Facility Electrical System Meet the Industry Reliability Requirements	Chemical Emissions & Worker Exposure Associated with Cured-in-place Pipe (CIPP) Installations	Getting Remote Smart Water Sensors Talking – The Growing List of Options	1-D and 2-D Coupled Hydraulic Modeling & Alternatives Development to Assess Flooding Risk in Urban Settings: A Case Study of Harris Creek Watershed	Dust Hazard Analysis and Thermal Dryer Design Safety Considerations
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	ENR Operations	Cleaning Collection Systems	Water System Infrastructure	Stormwater	Biosolids
1:00 PM	No More "The Way We've Always Done It" – Start-up, Commissioning & Operator Training Begins on Day One	Collaboration with Regulators & the Community to Bring Enhanced Nutrient Removal to Anne Arundel County's Mayo Peninsula	Ice, Ice Baby! Ice Piggings of a Sanitary Sewer Force Main	Assessment & Rehabilitation of 30-inch Water Main on Historic Key Bridge	"Trading in Time": Using Public Investments in Wastewater Infrastructure Upgrades to Build More Sustainable Stormwater Programs & Achieve Permit Compliance	When Does it Make Sense to Put All Your Eggs in One Basket and When Does It Not: A Case Study of Biosolids Process Centralization
1:30 PM	Making Sure Your "Smart Water System" Is Truly Smart. Roadmap Your Success	Startup & Operation of New 4-Stage Bardenpho at the Salisbury WWTP	Risk-Based Predictive Maintenance Solutions for Sewer Main Cleaning – Schedules? We Do Need a Stinking Schedule!	Getting the (W)hole Story – Condition Assessment & Emergency Repairs of DC Water's 48-inch Steel Inlet/Outlet Brentwood Reservoir Water Mains	The Value of Evaluating & Updating Historic BMP Data: Maximizing Credit for Work You've Already Done	It Takes a Village: Collaboration to Import Technology to the US for a Cost-Effective Solids Handling Solution
2:00 PM	Change Happens & Sometimes It's Good – Performance History & Lessons Learned from 17 Years of Construction Projects	Improving the Health of the Bay: City of Baltimore Implements Enhanced Treatment Facilities at their Largest WW Treatment Plant	Using Data Analytics to Develop a Sewer Inspection/Cleaning Program – A Story from the Baltimore County Bureau of Utilities	Using the "Toolbox Approach" for Condition Assessment & Corrosion Study of the Brock Bridge Road Water Transmission Main	MS4 Stormwater Retrofit Case Study in the Patapsco Tidal Watershed	Dewatering System Improvements at the Sod Run WWTP: Phase 1 Implementation Plan
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Alternative Delivery	Managing CS Assets	Water System Infrastructure	Stormwater	Anaerobic Digestion Biogas Systems – Practical Considerations
3:30 PM	CMMS/EAM Systems – Are You Actually Ready?	No Decision too Tough with "All-in" Collaboration Utilizing the CMAR Delivery Method	Consideration of PACP Limitations for Prioritization of Gravity Sewer Improvements	Successful Implementation of a Proactive Main Replacement Program in Allentown, PA	Site-Sensitive Engineering Creates Bay-Friendly Stormwater System	Using Cerium Salt as an Economical Precipitant for Struvite Control & Effective Dewatering of Anaerobic Digestate
4:00 PM	Public-Private Partnerships and Capital Project Backlogs	Divide and Conquer: Breaking Up a Large Linear Project Smaller Pieces to Achieve Goals	Force Main Condition Assessment Modeling at Virginia Beach	Great! You Have a Large Valves Inspection Program... Now What?	Stream Stabilization for Asset Protection: Successes & Lessons Learned	When Fastest Is Not Necessarily Best – Digester Startup Considerations for an Operating ENR Treatment Facility
4:30 PM	Succession Planning: It's Easier Than You Think	Charting a New Course: City of Baltimore DPW's first CMAR	A Composite SIPP Design Empowered by a Comprehensive Evaluation	Reducing Risk through Adaptive Planning: Charlotte, NC	Trenchless Rehabilitation Saves Grottoes, VA Culverts – and Money – Without Disrupting Traffic	Optimizing Performance of a Centralized Thermal Hydrolysis & Anaerobic Digestion Process

	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater Plant Operations	Large Diameter Pipe Rehabilitation	Water System Infrastructure	Water Quality & Distribution	Resiliency & LEED
8:30 AM	A New KPI for Valve Operability Optimization	Can MBR Reduce or Eliminate Need for Additional Disinfection – Case Studies	Trunk Sewer Rehabilitation in Urban, High Security Areas – Washington, DC	St. Elizabeth's Water Tank Project	Emerging Groundwater Supply Concerns	Improved Droughting in the Chesapeake Bay Region: Case Study of the Baltimore Water Supply System
9:00 AM	They Don't Build Them Like This Anymore: Facility Condition Assessment	At the Mercy of the Process – Impacts of Nitrogen Removal Performance on WWTP Disinfection	Little Cuyahoga Interceptor Slip Line Replacement	Water Storage Tank Inspection Standards and Guidelines	Active Control of THM Levels in Drinking Water Distribution Systems	HRSD's SWIFT Project: Process, Benefits, Oversight & Implementation
9:30 AM	Mitigating Risk When Creating a Pressure Zone with a New Elevated Tank, New Pumps, & Really Old Pipes	Expanding Resource Recovery at WSSC	Forensic Evaluation of a Failed 20-Inch CIP Force Main Located at WSSC Piscataway Waste Water Treatment Plant – Analysis & Lessons Learned	How to Expand Water Storage Capacity without Changing the Footprint	The Devil Is in the Details: Advanced Hydraulic Model Calibration for DC Water (Part 1)	Improving Coastal Resiliency after Superstorm Sandy – Spring Creek Hazard Mitigation Project
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater Plant Operations	Collection System	Water System Infrastructure	Water Quality & Distribution	Resiliency & LEED
11:00 AM	Potomac Interceptor Inspections	Don't Freeze: The Expedited Winter Startup of a 17 MGD IFAS WWTP	Why an All Pipe Dynamic Sewer System Model? WSSC's Story of Increasing Accuracy of the Dynamic Sewer System Model	Tucson Water: Not Failing on My Watch	The Impact of Proper Production Flow Metering on Water Audits	Identifying, Prioritizing & Addressing Lifeline Infrastructure Resilience Gaps
11:30 AM	Asset Management Wins Aren't Everything, They're the Only Thing – Implementation Success Story at NEW Water's Green Bay Facility	Never Stop Optimizing: Start Planning Now on How to Pay for Your BNR & ENR Equipment Replacement Projects	Why Can't I Get Service Too? Providing Sewer Service in Fallston with Limited Capacity	Eastern Parkway Water Transmission Main Rehabilitation – Sliplining with Steel Pipe Renews Critical 48-Inch Cast Iron Main Along Historic Olmstead Parkway	City of Bowie Pipe Bursting	Be Prepared: Incorporating Climate Resilience & Mitigation Planning into Asset Management for a Water and Wastewater Utility
12:00 PM	Establishing Pipe-by-Pipe Rehabilitation & Reinspection Schedules Using Years Remaining Service Life	Lessons Learned: Based on Case Studies of Process Optimization Projects at ENR Wastewater Treatment Facilities	Upkeep of Sanitary Sewer Models	Polyethylene Encasement for External Corrosion Control for Iron Pipelines – A 60-Year History	Emergency Condition Assessment & Evaluation of Existing PCCP Header	Flood Mitigation for Critical Facilities



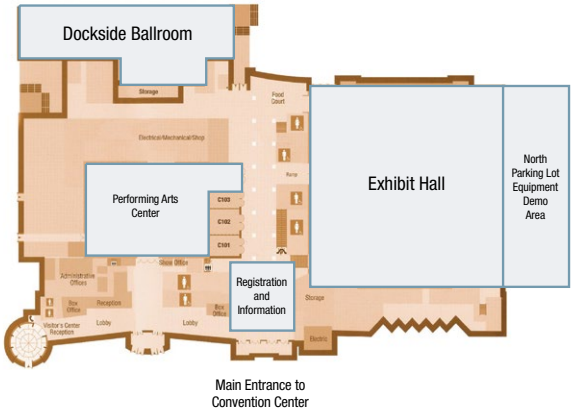
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater	Collection System	Water System Infrastructure	Water Treatment	Regulatory
2:00 PM	Plymouth, MI SAW Grant Asset Management Plan – Doing it Right!	Maryland’s New Water Quality Trading Regulations – A Utility’s Perspective	Lessons Learned from HRSD’s Condition Assessment Program	The City of Atlanta Water Supply Program: CMAR Done Right	Practical Aspects of Implementing a PFOA/PFOS Treatment System for a 5-MGD Municipal Water Supply	Agency Requirements & Permit Approvals in Washington, DC Region
2:30 PM	Clouds & Things: The implications of Cloud & Internet-of-Things for SCADA/ICS	Utilities of the Future – Evaluating & Improving Energy Use at WSSC’s Water Resource Recovery Facilities	“A River Runs Through It”: Sanitary Sewer Stream Crossing Inspections in Arlington County	Valve and Hydrants – “Some Days You Are the Dog, Some Days You Are the Hydrant”	What Bugs Got to Do With It? – Starting up Biologically Active Filters for DBP Control	Whatever Happened to the Lead & Copper Rule Revision?
3:00 PM	Sewer Tunnel System integration into Enterprise Asset Management	Design & Construction Considerations of a Wastewater Treatment Plant Ocean Outfall	Caring for Orphan Assets!	Water Supply Power & Control Reliability Improvements, Elkrige Booster Pump Station, Howard County	Investigating Alternative Strategies for Controlling DBPs in a Growing Utility	A Framework for Regulating DPR – Results from a Pathogen Benchmarking Study
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	ENR Wastewater Facilities	Collection System	Water System Infrastructure	Water Treatment	Asset Management
4:00 PM	5 Years of Pipeline Condition Assessment Program at DC Water – Lessons Learned from the Tools & Technologies Employed	New Greensboro Regional Wastewater System: Implementation & Start-up of New ENR 0.332 mgd WWTP, Conveyance & Collection System	Avoiding Tunnel Vision in Large Diameter Infrastructure Rehabilitation	New Pipeline Installations – Which Trenchless Method is Best?	Utilization of UV Disinfection for a 27 MGD WTF Upgrade to Meet Benchmarking Requirements for Giardia Inactivation/Removal	Smart Cities – Utilizing the Internet of Things to Improve Service
4:30 PM	Using Technology to Turn Tacit Knowledge into Explicit Knowledge	Rocky Gap Wastewater Treatment Facility Upgrade to Membrane Bioreactor Doubling Capacity to ENR Compliance in the Same Footprint Design & Construction Challenges	Making it Right: New Sewers for the Historic Savage Community	Tunneling under Howard County – Construction of Two 60-inch Casings for the Installation of a 36-inch Water Transmission Main in Howard County, MD	Chlorine Gas... A Safe and Efficient Choice?	How Data Management Aids in Decision Making Process for Baltimore County
5:00 PM	Using GIS & Innovative Technologies for a Proactive Approach to Identifying, Analyzing, & Managing WSSC’s Exposed Sewer Assets	Enhanced Nutrient Removal Upgrade of the Winebrenner WWTP Using Ballasted Activated Sludge	DC Water’s SCADA Infrastructure Standardization Program – Paving the Way into the Future	Inspection of the 137-Year Old Montebello-Cromwell Tunnel with a Remote Operated Vehicle	Optimizing Ozone Application for Enhanced Taste and Odor Removal & Reduced Disinfection Byproduct Production	Advancements in Cathodic Protection Technologies



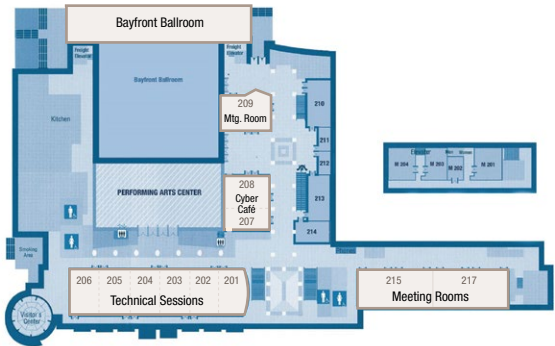
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater Treatment	Water Reduction & Odor Control	Water System Infrastructure	Water Treatment	Engineering Ethics/ Water Assets
9:00 AM	Right-Sized Strategic Asset Management Planning for Small Water/Wastewater Systems	Novel Use of In-basin Inclined Plate Settlers for Secondary Clarification in a DBO Two-Stage Activated Sludge Upgrade at the Woonsocket WWTF	Piloting DPR Without RO at pureALTA – Exploring Sustainable Alternatives for Potable Water Reuse in Central Florida	Alignment Studies for Large Diameter Water Mains: The 450A High Zone 48-inch Water Main Alignment, Capacity & Phasing Plan	Improving Nitrate Removal with Innovative Biocatalyst	Engineering Ethics for Professional Engineers
9:30 AM	DC Water at Work: Time-Proven Best Management Practices when Building Near Buried Linear Assets	Federal Wastewater Treatment Plant Showcases Sensitive Design	Naval Support Activity Annapolis (NSAA) – Water Reduction and Conservation	The Historical Analysis of the Potomac River Chesapeake and Ohio Canal	Air Scour Demonstrates Filter Performance & Economic Benefits in Philadelphia	
10:00 AM	Utility-University Collaborative Partnerships	Influent Junction... What's Your Function!? A Complex Collaboration Effort under a CMAR	Potable Reuse Treatment Trains: Challenges and Innovations at Full-Scale	DC Water Completes 5,000 AMR Replacement per Month – Here is How They Did It!	High Rate Clarification – Innovation Applied to Treat WTP Liquid Residuals	Statistically Significant Sample Set (Easy for You to Say) – A Streamlined Approach to Condition Asset Assessment for the City/County Utilities Commission
10:30 AM	Concerns and Considerations in Customer Affordability	Lessons Learned – Operation of Three Full-Scale ANITA Mox Sidestream Deammonification Systems	Holistic Approach to Process Service Water System Evaluation for DC Water Blue Plains Advanced Wastewater Treatment Plant	When an Air Gap Creates a Major Project... DC Water's Experience with Cross Connection Prevention at Its Storage Facilities	Year-Long Evaluation on the Occurrence & Fate of Pharmaceuticals, Personal Care Products, & Endocrine-Disrupting Chemicals in an Urban Drinking WTP	Getting More for Less: The Benefits of Value Engineering
11:00 AM	Customer Service or Risk Management: DC Water Efforts to Install Pressure-Reducing Valves in More than 1,700 Homes	BNR to ENR: Process Modification Achieves ENR Limits & Improves Plant Reliability	Biofilters for Odor Control: Beyond the Basics	Protect Your Pipes from Clogging Criminals!	Evaluating the Presence, Impacts & Treatment of Urea in Surface & Potable Water	Condition Monitoring of Plant Equipment



LEVEL 1



LEVEL 2



Cyber Café: Rooms 207-208
Technical Sessions: Rooms 201-206
Meeting Rooms: 209, 215, 217

TUESDAY, AUGUST 28, 2018

REGISTRATION/CHECK-IN

10:00 AM to 6:00 PM • First Floor

GOLF OUTING BENEFITTING WATER FOR PEOPLE

10:30 AM Check-In, 12:00 PM Shotgun Start

Format: Captain's Choice



water for people

Ocean City Golf Club

11401 Country Club Drive, Berlin, MD

Before you arrive in Ocean City, stop off in nearby Berlin, Maryland to play on the beautiful and challenging Newport Bay course at the Ocean City Golf Club. Prizes will be distributed at the end of the golf outing, and winners announced at the Shooters Happy Hour. The Captain's Choice outing format will have a 12:00 PM shotgun start (check-in begins at 10:30 AM). Unclaimed prizes will be posted and can be claimed at the Information Area. An individual golf registration fee of \$100 or a foursome fee of \$360 includes a box lunch, driving range, green fees and cart, and prizes. Proceeds from the golf outing will support Water For People.

Inclement Weather Cancellation

Ocean City Golf Club staff will make the determination on whether the golf course is unplayable due to inclement weather. Contact OCGC directly at 410-641-1779 if threatening or severe weather is forecasted to determine if the golf outing is cancelled. Credit card refunds will be issued to those who request one in writing directly to Ron Tatariw (rtatariw@tatariw.com) by 6:00 PM on September 6, 2018, if and only if, the golf outing is cancelled due to inclement weather. We will consider the registration fee of those golfers who do not request a refund as a donation to Water For People.



TUESDAY, AUGUST 28, 2018

Back Again for 2018 – Hole in One Competition for \$25,000!

The golf tournament will include a Hole in One Competition. It will be \$5 to enter and each person can enter only one time. The prize for a hole in one is \$25,000. If there is more than one hole-in-one winner, the prize will be split between the winners.

Registration: Register for golf through our registration system at www.ChesapeakeTriCon.org/registration.html.

For additional information, contact Ron Tatariw, Tatariw, Inc., at 703-716-0770 or by email: rtatariw@tatariw.com.

Directions to golf course from Ocean City: Go west on Route 50 to third traffic light and turn left on Route 611 (Stephen Decatur Highway). Go six miles south on Route 611 to the “Y” in the road. Bear right at the “Y” onto South Point Road. Ocean City Golf Club is one mile on the right.

EXHIBITOR MOVE-IN

8:00 AM to 8:00 PM • Exhibit Hall

PRE-CONFERENCE WORKSHOP:

Fundamentals of Biosolids Management

1:00 PM – 5:00 PM • Room 201

See page 18 for details.

PRE-CONFERENCE WORKSHOP:

Backflow Prevention – Why Is It Important?

1:00 PM – 5:00 PM • Room 203

See page 17 for details.



TUESDAY, AUGUST 28, 2018

11TH ANNUAL OPERATIONS CHALLENGE

Operations Challenge Check-In

2:00 PM to 4:00 PM

Pre-Competition Meeting

4:00 PM to 4:30 PM • Room 215

Operation OC2! – Day 1

4:30 PM to 6:30 PM • Room 215, Exhibit Hall

Continues on Wednesday. See page 21 for details.

The 2018 Operations Challenge will be showcased in our Exhibit Hall again this year, so witness the challenge, the anxiety, and high stakes as teams compete to represent CWEA in the national competition! Events highlight important skills possessed by operators, drawing teams from around the region each year. Teams show off their skills in a variety of competitions. All events and scoring are in accordance with the WEF 2018 Guidelines.

Tuesday events will include:

- Process Control (Room 215) at 5:30 PM

To register your team for this event go to:

www.ChesapeakeTricon.org/registration.html

Operations Challenge sponsored by:



PASSARO
ENGINEERING
LLC



Chesapeake Water
Environment Association



TUESDAY, AUGUST 28, 2018

The 2018 Tri-Association Conference Committee is pleased to offer two Pre-Conference Workshops. You must register for these workshops as part of your conference registration. See page 67 for registration fee and information. All workshops are subject to cancellation dependent upon the number of registrants. If your workshop is cancelled you will be notified and your workshop payment will be refunded in full.

PRE-CONFERENCE WORKSHOP: *Backflow Prevention*
 – *Why Is It Important?*

1:00 PM to 5:00 PM • Room 203

The University of Florida TREEO Center (UF/TREEO) will be offering a pre-conference session on backflow prevention and the importance of preventing cross-connections. Cross-Connection Control remains a critical link in protecting public health by maintaining the quality of our drinking water.

The session will cover:

- What a cross-connection is and why we should care;
- Cross-connections and how to prevent them with backflow prevention devices, methods and assemblies;
- What are the health and legal ramifications from a backflow incident;
- When to test, repair or replace a backflow assembly;
- The issues that arise when implementing cross-connection programs.

In this session you will also learn about the challenges and successes in creating a cross-connection control program in both a large system and a system where the state has no cross-connection regulations.

Agenda

- 1:00 PM** Welcome and Introductions (Carroll “Chip” Matthews, Integrated Cross Connection Partners)
- 1:15 PM** What is Cross-Connection and Why We Should Care? (Steve Fox, Hydrocorp)
- 2:00 PM** Testing: Then Repair or Replace? (Carroll “Chip” Matthews, Integrated Cross Connection Partners)
- 2:45 PM** Break
- 3:00 PM** Challenges of Setting up a Cross-Connection Control Program in a Large System (Tom Buckley, WSSC – invited)
- 3:45 PM** Challenges of Creating a Cross-Connection Control Program in a state with no CCC regulations (Larry Finnicum, SUEZ)
- 4:30 PM** Panel Discussion: Challenges of Managing Cross-Connection Control Programs in the Chesapeake Region (All)

TUESDAY, AUGUST 28, 2018

PRE-CONFERENCE WORKSHOP: *Fundamentals of Biosolids Management: What You Need to Know for Full Compliance with Federal & State Biosolids Regulations*

1:00 PM – 5:00 PM • Room 201

This workshop will cover the aspects of biosolids treatment and utilization that ensure compliance with federal Part 503 and Maryland regulations. The workshop will cover a full range of topics necessary for operators and supervisors handling solids. The review will cover sludge stabilization technologies, such as anaerobic and aerobic digestion, lime stabilization, composting and drying, and how these technologies relate to specific requirements for vector attraction reduction and also to the important aspects of odor nuisances, safety and storage. Biosolids sampling, recordkeeping and reporting requirements and best practices will be presented, with a focus on nutrient and soil management necessary to respond to Chesapeake Bay regulatory requirements. The pre-conference workshop will be presented by four senior experts in the biosolids field: Willima Tofey (Mid Atlantic Biosolids Association), Al Razik (Maryland Environmental Services), Jeff Faust (Synagro), and Lisa Williams (Old Line Environmental). Each has had decades of relevant plant and field experience with sound practices and regulatory compliance related to biosolids management in the state of Maryland and adjoining states.

The training program will be based on the content of four documents that comprise the principal guidance for regulatory compliance and good practices. Each of these continue to be available, at no charge, to wastewater operators and managers, and can be provided to students for this course on a flash drive for their convenience. These are:

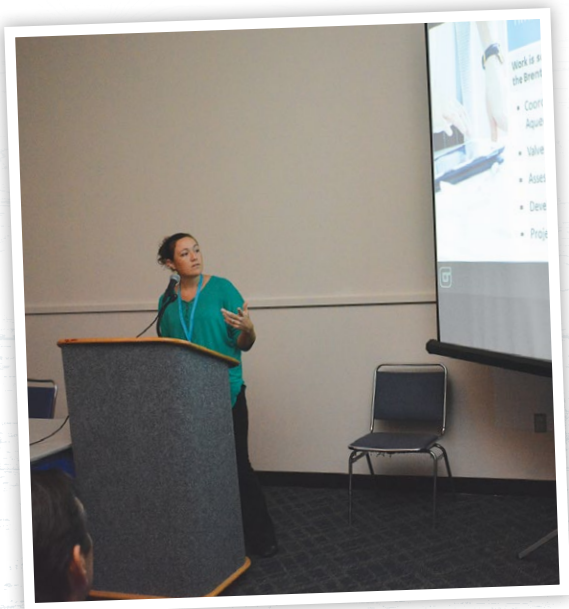
1. **Plain English Guide to EPA Part 503 Biosolids Rule**
(EPA/832/R-93/003, September 1994)
2. **Process Design Manual: Land Application of Sewage Sludge and Domestic Septage** (EPA/625/R-95/001, September 1995)
3. **Control of Pathogens and Vector Attraction in Sewage Sludge** (Including Domestic Sepage Under 40 CFR Part 503 (EPA/625/R-92/013, Revised July 2003)
4. **National Manual of Good Practice**
(National Biosolids Partnership, January 2008)

TUESDAY, AUGUST 28, 2018

The training will also include elements of practice covered by the Association of Boards of Certification's Land Appliers Certification Program. This program has been supported by the Water Environment Federation with a manual of test items that can help students judge their command of biosolids management topics. This training book will be provided to students.

Agenda

- 1:00 PM – 1:20 PM** Topic 1: Solids Treatment Overview
1:20 PM – 2:15 PM Topic 2: Federal and State Regulations
2:15 PM – 2:30 PM Topic 3: Equipment Basics for Land Application
2:30 PM – 2:45 PM Topic 4: Safety in Field Operations
2:45 PM – 3:00 PM Topic 5: Odor and Inventory Management in the Field
3:00 PM – 3:15 PM Topic 6: Soil as a Land Treatment System
3:15 PM – 3:45 PM Topic 7: Nutrient Management and Agronomic Rates
3:45 PM – 4:20 PM Topic 8: New Site Evaluation
4:20 PM – 4:40 PM Topic 9: Communication and Public Outreach
4:40 PM – 5:00 PM Topic 10: Economic of Biosolids



WEDNESDAY, AUGUST 29, 2018

5K FUN RUN/WALK BENEFITTING WATER FOR PEOPLE

7:00 AM • Boardwalk at the Grand Hotel (21st Street)

Cost includes t-shirt, prizes, and a donation to Water For People.

See page 68 for registration fee and information.



water for people

Inclement Weather Cancellation: In the event of inclement weather, Fun Run registrants will be contacted by email if the event is canceled. Credit card refunds will be issued to those who request one in writing directly to Carrie Kruger (ckruger@duffnet.com) by 6:00 PM on September 6, 2018, if and only if the Fun Run is canceled due to inclement weather. We will consider the registration fee of those runners who do not request a refund as a donation to Water For People.

Sponsored by:



WEDNESDAY, AUGUST 29, 2018

REGISTRATION/CHECK-IN

7:30 AM to 5:00 PM • First Floor

EXHIBITS OPEN

7:30 AM to 6:00 PM • Exhibit Hall/North Parking Lot

CONTINENTAL BREAKFAST

7:30 AM • Exhibit Hall

OPERATOR PROCESS CLASSES

Groundwater Treatment Options – Water

8:00 AM – 4:00 PM • Room 215

Process credits: 7 hours (10.5 hours with passed exam)

Note: You must attend the full course to receive process credits.

See page 27 for more information.

Activated Sludge – BOD Removal and Nitrification – Wastewater

8:00 AM – 4:00 PM • Room 217

Process credits: 7 hours (10.5 hours with passed exam)

Note: You must attend the full course to receive process credits.

See page 27 for more information.

TECHNICAL SESSIONS

8:30 AM to 10:00 AM • Rooms 201 – 206

11TH ANNUAL OPERATIONS CHALLENGE

Pre-Competition Meeting

8:30 AM to 9:00 AM • Exhibit Hall



Operation OC2! – Day 2

9:00 AM to 6:00 PM • Exhibit Hall

The Operations Challenge continues with Day 2's exciting events, including:

- Maintenance Event
- Collection System Event
- Safety Event
- Awards
- Pipe Cutting Shootout
- Laboratory Event

WEDNESDAY, AUGUST 29, 2018

Operations Challenge will conclude with the Pipe Cutting Shootout that happens during the Shooters Happy Hour. This event is open to any registered attendee. There will be a male and a female division and prizes. **Please sign up for the event on Tuesday or Wednesday before the event (see page 16 for details).**

BIOSOLIDS BEAUTY CONTEST

9:00 AM to 11:00 AM • CWEA Table, Outside Rooms 201–206

Contact Kelly Baxter at kelly.baxter@mottmac.com for more information on submitting your entry.

SILENT AUCTION BENEFITTING ENGINEERS WITHOUT BORDERS

University of Delaware Chapter

9:00 AM to 6:00 PM • Exhibit Hall

(Ends at 10:30 AM on
Thursday, August 30, 2018)



The 2018 Tri-Association Conference includes a Silent Auction that will benefit the University of Delaware's Chapter of Engineers Without Borders. The auction will begin Wednesday, August 29, 2018 at 9:00 AM and end Thursday, August 30, 2018 at 10:30 AM. The bid forms will be collected at 10:30 AM sharp, so make your last bid before then. Items donated by our Exhibitors will be located at individual booths with balloons hung at each item so that attendees can locate and bid on the auction items. Additional items will be located at the Silent Auction tables in the Exhibit Hall.

You can also support the work of Engineers Without Borders by donating an item for the Silent Auction. Auction items of all values are welcome. Your sponsorship of this event will not only support University of Delaware's Chapter of Engineers Without Borders' international actions in Malawi and Philippines, it will also provide exposure of your business to the conference attendees. All donors will be recognized at the event. To donate, please contact Sarah Bunk at sbunk@jmt.com or Erica Whorley at ewhorley@brwnald.com.

WEDNESDAY, AUGUST 29, 2018

WEDNESDAY MORNING BREAK/MONSTER DOOR PRIZES

10:00 AM to 11:00 AM •
Exhibit Hall/North Parking Lot

Sponsored by:



OPENING CEREMONY

11:00 AM to 12:00 PM •
Performing Arts Center

Sponsored by:



Welcome

Karl Ott, 2018 Tri-Association Conference Committee Chair



Keynote Speaker

Tom Kiefer

Tom Kiefer is Chief of the Bureau of Engineering and Construction for Baltimore County and continues to oversee his former position as the Chief of the Bureau of Utilities. He has more than 35 years of design and operations experience; 10 of those years have been with Baltimore County where his focus is on business process improvement and bringing new technologies to enhance workflow productivity.

He has recently been appointed to represent the entire Department of Public Works for its technology initiatives, including those that impact work flow integration, interdepartmental data-sharing, and mobilization of maintenance staff.

Tom frequently presents at local and national conferences on the successes (and shortcomings) of digital technologies being used in Baltimore County.

WEDNESDAY, AUGUST 29, 2018

LUNCH WITH EXHIBITORS

Noon to 1:00 PM • Exhibit Hall

Join 700 friends and colleagues for lunch served in the Exhibit Hall! While you are there, be sure to bid on our Silent Auction items and check out our exhibitors' latest and greatest technologies and products on display. And, new this year, we'll have a photo booth in the Exhibit Hall from Noon to 3:30 PM. Forget the selfie! Let the professionals memorialize you and your conference buds! And if you can't make it during the day, we'll have the photo booth at Seacrets® later that night.

Sponsored by:



TECHNICAL SESSIONS

1:00 PM to 2:30 PM • Rooms 201–206

WEDNESDAY AFTERNOON

BREAK/MONSTER DOOR PRIZES

2:30 PM to 3:30 PM •

Exhibit Hall/North Parking Lot

Sponsored by:



TECHNICAL SESSIONS

3:30 PM to 5:00 PM • Rooms 201–206

PIPE CUTTING SHOOTOUT

5:00 PM to 6:00 PM • Exhibit Hall

Operations Challenge will conclude with the Pipe Cutting Shootout that happens during the Shooters Happy Hour. This event is open to any registered attendee. Race against the clock to see who can saw through an 8-inch diameter PVC pipe the fastest! Trophies and gift cards will be awarded to the fastest men's and women's cuts!

SHOOTERS HAPPY HOUR

5:00 PM to 6:00 PM • Exhibit Hall

Come network and enjoy light fare and drinks with our valued exhibitors while you watch attendees participate in the Pipe Cutting Shootout. Sodas, beer, and wine are complimentary and a cash bar for liquor will be available. After happy hour, come join your fellow attendees and exhibitors for a Fun Night at Seacrets®!

WEDNESDAY, AUGUST 29, 2018

WOMEN'S NETWORKING EVENT

5:00 PM to 6:30 PM • Room 209

We're back! Join us this year for a women's networking Happy Hour on Wednesday, August 29, 2018 starting at 5:00 PM! We'll feature interactive discussions with female water infrastructure experts, at various career stages sharing their experiences in the water/wastewater industry. Are you an expert in the water industry? A female engineer? How did you choose your career? What are some of your challenges? Share your story and photo on LinkedIn, Twitter, Facebook or any other social media network using *#WomenImpactingWater*.

Sponsored by:



BLACK & VEATCH



WEDNESDAY, AUGUST 29, 2018

FUN NIGHT

7:00 PM to 11:00 PM • Seacrets® (ticked event)

Join more than 600 fellow conference attendees for dinner and one of the biggest networking events of our conference at Seacrets®! Water/wastewater industry legend Gary Moore and The Shucked Oyster Band will provide rocking live entertainment! Appetizers and a full dinner will be served from 7:00 PM to 8:30 PM. Each person will receive two drink tickets and the bars will be open all four hours. Drink tickets expire at 11:00 PM. Be sure to memorialize the event in our free photo booth! Remember to bring your name badge to use on the Ocean City buses for a free ride back to your hotel. Seacrets® tickets must be purchased by Tuesday, August 28, 2018. No tickets will be sold at the door or individually on Wednesday at the conference. You must be 21 years old to attend.

Sponsored by:



JACOBS



A Forterra Company

GEIGER

CBRE | HEERY



WEDNESDAY, AUGUST 29, 2018

OPERATOR PROCESS CLASSES

Instructors: Maryland Center for Environmental Training
Lunch with Exhibitors is Included

*Groundwater Treatment Options***8:00 AM – 4:00 PM • Room 215**

Process credits: 7 hours (10.5 hours with passed exam)

Note: You must attend the full course to receive process credit.

Class space is limited to 40 people.

Course Description: Due to its instant availability and quality, groundwater has become a prime source of drinking water around the country. This course is intended for public water system operators who use groundwater as their source of supply. Topics will include typical groundwater hydrology and surface and subsurface features of a typical production well. Ground-water treatment options for water quality challenges will be introduced with emphasis on disinfection using chlorine, hypochlorite, UV, ozone, and chlorine dioxide. Regulatory challenges related to the disinfection byproducts rule are also addressed.

*Activated Sludge – BOD and Nitrogen Removal***8:00 AM – 4:00 PM • Room 217**

Process Credits: 7 hours (10.5 hours with passed exam)

Note: You must attend the full course to receive process credit.

Class space is limited to 40 people.

Course Description: This activated sludge process class is designed to help wastewater operators understand the basic operations and control of activated sludge processes. The class will discuss activated sludge process modifications, their advantages and disadvantages, and long-term process control. Operators will explore the critical components and microbiology of activated sludge processes, how to develop effective sampling programs and analyze lab results, and how activated sludge processes relate to other wastewater treatment processes.

You must register for these classes as part of your registration process. See page 67 for registration fee and registration information.

THURSDAY, AUGUST 30, 2018

REGISTRATION/CHECK-IN

7:30 AM to 4:00 PM • First Floor

EXHIBITS OPEN

7:30 AM to Noon • Exhibit Hall/North Parking Lot

Move-Out: Noon – 4:00 PM

CONTINENTAL BREAKFAST

7:30 AM • Exhibit Hall

Sponsored by:



SILENT AUCTION BENEFITTING ENGINEERS WITHOUT BORDERS

University of Delaware Chapter

7:30 AM to 10:30 AM • Exhibit Hall

(continued from Wednesday)

See page 22 for more information.

**Items must be picked up at the Information Area by Noon Thursday.*

TECHNICAL SESSIONS

8:30 AM to 10:00 AM • Rooms 201–206

THURSDAY MORNING

BREAK/MONSTER DOOR PRIZES

10:00 AM to 11:00 AM •

Exhibit Hall/North Parking Lot

Sponsored by:



THURSDAY, AUGUST 30, 2018

PIPE TAPPING COMPETITION

10:00 AM to 11:00 AM • Exhibit Hall

Back for 2018 – Pipe Tapping Competition!

Pipe Tapping is a high-energy competition involving a race against time to drill into a pressurized cement-lined, ductile iron pipe and install a tap. Winning teams from Section-Level Pipe Tapping Competitions compete every year at ACE.

Several teams are planning to participate this year for a chance to compete at ACE19 in Denver! If you are interested in competing, contact Raj Arora at rarora@american-usa.com or 630-240-5058.



Sponsored by:



TECHNICAL SESSIONS

11:00 AM to 12:30 PM • Rooms 201–206

THURSDAY, AUGUST 30, 2018

BUSINESS LUNCHEONS

All conference attendees are welcome to attend the association Business Luncheon of their choice (ticket purchase required). A plated lunch is served as gavels are passed, and our leaders are recognized. Come and give our volunteers a big hand for delivering value to our members.

CSAWWA LUNCHEON (ticketed event)
12:30 PM to 2:00 PM • Dockside Ballroom



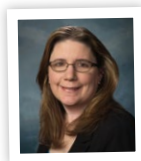
The following awards will be presented at the CSAWWA Luncheon/Forum:

- Past Chair Award
- Life Member Awards
- Silver Drop Awards
- Gold Drop Awards
- Committee Chair Recognition

Sponsored by:



AWWA National Representative



Theresa O'Grady
Vice-President (2018–2020)
American Water Works Association

Theresa O'Grady is the Water Resources Group Manager for Crawford, Murphy & Tilly, Inc. in Aurora, Illinois.

Theresa has more than 24 years of experience in the water industry. She has been an active member of AWWA since joining in 1996.

Involved in the Illinois Section, Theresa has served two terms as Trustee – District 2, Vice-Chair, Chair-Elect, Chair, and Past-Chair. On the Association level, she is serving on the Board of Directors as the Illinois Director and Vice President. She is also a member of the AWWA Engineering and Modeling Applications Committee (EMAC). In addition, she is a member of the Mid-Central Waterworks Association and Kane County Water Association. Currently, she is serving as the Resident Representative on the Will County Stormwater Planning Committee.

Theresa holds a BS degree in Civil Engineering with a Hydraulics & Hydrology emphasis from the University of Illinois, Champaign-Urbana and is a licensed Professional Engineer (P.E.) in the State of Illinois. She lives in Naperville, Illinois with her husband Michael and two children.

THURSDAY, AUGUST 30, 2018

CWEA BUSINESS LUNCHEON (ticketed event)

12:30 PM to 2:00 PM • Bayfront Ballroom



The following awards will be presented at the CWEA Business Luncheon:

- Past President Award
- WEF Delegate Award
- Golden Raindrop
- Golden Manhole
- President's Award
- 5S Inductees

Sponsored by:



WEF National Representative

Thomas E. Kunetz

2017–2018 President-Elect of the Water Environment Federation (WEF)

Tom is the assistant director of monitoring and research for the Metropolitan Water Reclamation District of

Greater Chicago. He has more than 30 years of experience in the field of environmental engineering in both the public and private sectors, focusing on design of wastewater treatment facilities, improving the water environment, and protection of public health.

A WEF member since 1992, Tom is the past chair of the Municipal Wastewater Treatment Symposium, a member of the Program Committee, and a member of the Municipal Water Resource Recovery Design Committee. He was a member of the Chicago WEFMAX organizing committee, and served on the Stockholm Junior Water Prize organizing committee with the Illinois Water Environment Association.

Tom is a registered professional engineer in the state of Illinois. He is a graduate of the WEF-sponsored Water and Wastewater Leadership Center at the University of North Carolina, the 2012 recipient of the Charles Walter Nichols Award for Environmental Excellence from the American Public Works Association, and a board certified environmental engineer with the American Academy of Environmental Engineers. He has served as technical advisor to the student chapter of Engineers for a Sustainable World at Northwestern University, traveling to Panama with the students.

Tom earned his B.S. in environmental engineering from the Pennsylvania State University and an M.S. in water resources engineering from Villanova University.

THURSDAY, AUGUST 30, 2018

WWOA BUSINESS LUNCHEON (ticketed event)

12:30 PM to 2:00 PM • Rooms 207–208



The following awards will be presented at the WWOA Business Luncheon:

- Past President Award
- Lifetime Membership Award

Sponsored by:



TECHNICAL SESSIONS

2:00 PM to 3:30 PM • Rooms 201–206

TOP OPS

3:30 PM to 5:30 PM •

Bayfront Ballroom (upstairs)



Fast action and fun characterize this annual competition as teams of water plant operators square off against each other. The quiz show format tests the understanding and quick thinking of operators as they answer challenging

technical, regulatory, and customer service questions. The room will be filled with the spirit of contest as the participants are cheered, judges are booed, and competitors vie for a chance to go to the National Top Ops Challenge at the National AWWA Conference – to be held in Denver, Colorado in 2019.

For more information, contact Anthony Rocco, Howard County Bureau of Utilities, (410) 313-4945.

Sponsored by:



THURSDAY AFTERNOON BREAK/MONSTER DOOR PRIZES

3:30 PM to 4:00 PM • Outside Rooms 201–206

TECHNICAL SESSIONS

4:00 PM to 5:30 PM • Rooms 201–206

THURSDAY, AUGUST 30, 2018

AWARDS PROGRAM**5:45 PM to 7:30 PM •****Bayfront Ballroom (upstairs)**

Everyone is welcome to enjoy refreshments and help recognize this year's award-winning

members! Meet and congratulate award winners while enjoying hot and cold hors d'oeuvres. Sodas, beer, and wine are complimentary. Cash liquor bar will be available.

Sponsored by:

**BLACK & VEATCH**
5:45 PM to 6:15 PM – Cocktails

6:15 PM to 7:30 PM – Program: Our organizations have a number of prestigious awards to grant members who have demonstrated the very best attributes that promote our missions. The following awards will be presented:

TRI-ASSOCIATION CONFERENCE

- Tri-Association Conference Committee Service Award
- Tri-Association Conference Chair Award (*New*)

WWOA

- The Barry Walter Award for Distinguished Service in Water Distribution
- Distinguished Service in Water Treatment
- Distinguished Service in Wastewater Collection Systems
- William McLean Bingley Award For Distinguished Service in Wastewater
- Marlene Patillo Laboratory Award
- Distinguished Service in Industrial Waste Management
- Stanley Kappe Training Award
- WWOA Employer Recognition Award
- WWOA Award for Outstanding Personal Service to the Association

CSAWWA

- Top Ops Competition Awards
- Pipe Tapping Winners
- Operator of the Year Award
- Horizon Award
- Carl John Lauter Award
- George Fuller Award

THURSDAY, AUGUST 30, 2018

CWEA

- The Laboratory Award
- The Burke Safety Award
- The Hatfield Award – Operators Award
- The Bedell Award – Service to the Organization
- Operations Challenge Results

YOUNG PROFESSIONALS HAPPY HOUR

6:00 PM to 9:00 PM • Skye Bar on 66th Street

Back again this year! All are welcome to join the Young Professionals on Thursday, August 30, 2018 for a fun night of networking! We will be enjoying happy hour and appetizers at Skye Bar on 66th Street from 6 PM to 9 PM. Registration includes one happy hour drink and appetizers. See page 67 for registration fee and information. Walk-ins are welcome to come and pay your own way.

Sponsored by:



BLACK & VEATCH

Hazen

Denali
WATER SOLUTIONS



FRIDAY, AUGUST 31, 2018

REGISTRATION/CHECK-IN

7:30 AM to 10:30 AM • First Floor

CONTINENTAL BREAKFAST

8:00 AM • Outside Rooms 201–206

MDE OPERATOR EXAM

9:00 AM • Room 215

MDE will offer the Certification Exam at the Tri-Association Conference this year! You must apply directly with the Maryland Board of Waterworks and Waste Systems Operators to sit for the Maryland Certification Exam. No more than 100 applications will be accepted for this exam. See MDE's website for more information: <http://mde.maryland.gov/programs/Permits/EnvironmentalBoards/Pages/BWW.aspx>.

TECHNICAL SESSIONS

9:00 AM to 11:30 AM • Rooms 201–206

LAST CHANCE FOR TECHNICAL SESSION

ATTENDANCE FORM SIGNING

11:30 AM to Noon • Information Area, First Floor

ADJOURN/MONSTER DOOR PRIZES

11:45 AM • Information Area, First Floor

CSAWWA BOARD MEETING & LUNCHEON

Noon to 2:00 PM • Room 210

CWEA BOARD MEETING & LUNCHEON

Noon to 2:00 PM • Room 213

WEDNESDAY, AUGUST 29, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

201 • ASSET/UTILITY MANAGEMENT

8:30 AM – 9:00 AM

Integrated Information Management –
Data Driven Road Map for Enterprise Decision Making

Aditya Ramamurthy, Hazen and Sawyer
(aramamurthy@hazenandsawyer.com)

9:00 AM – 9:30 AM

The Journey to World Class Maintenance – Lessons Learned From
Implementing a Reliability Centered Maintenance Program

David Gisborn, DC Water (david.gisborn@dcwater.com)

Gregory Stephens, DC Water

Gian Cossa, DC Water

9:30 AM – 10:00 AM

Taking Risk to the Next Level: Capital Region Water's Risk-Based
Approach to Prioritizing Consent Decree Work

Charlie Card, GHD, Inc. (charles.card@ghd.com)

Varun Sekar, GHD, Inc.

Sheri Berilla, Capital Region Water

1:00 PM – 1:30 PM

No More "The Way We've Always Done It" –
Start-up, Commissioning & Operator Training Begins on Day One

Robert Hindt, Little Patuxent WRF (rhindt@howardcountymd.gov)

Stacy Passaro, Passaro Engineering, LLC

Brian Balchunas, HDR

David Hill, Clark Construction Group, LLC

1:30 PM – 2:00 PM

Making Sure Your 'Smart Water System' Is Truly Smart –
Roadmap Your Success

Essey Woldemariam, DC Water (essey.woldemariam@dcwater.com)

Craig Benson, Mott MacDonald

2:00 PM – 2:30 PM

Change Happens & Sometimes It's Good – Performance History
& Lessons Learned from 17 Years of Construction Projects

Ogechi Okpechi, DC Water (ogechi.okpechi@dcwater.com)

David Parker, DC Water

Kathleen Kharkar, DC Water

Sairam Palley, Peer

3:30 PM – 4:00 PM

CMMS/EAM Systems – Are you Actually Ready?

John Helwig, GHD, Inc. (john.helwig@ghd.com)

Kathleen Zynda, GHD, Inc.

WEDNESDAY, AUGUST 29, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

4:00 PM – 4:30 PM

Public-Private Partnerships and Capital Project Backlogs
Patrick O'Brien, DC Water (*patrick.obrien@dcwater.com*)

4:30 PM – 5:00 PM

Succession Planning: It's Easier Than You Think
Margie Hamner, CPLP, ACC, Starfish Consulting, LLC
(*margie@starfishconsulting.net*)

202 • AERATION & ENERGY CONSIDERATIONS

8:30 AM – 9:00 AM

City of Baltimore Back River WWTP Activated Sludge Plant –
4 Aeration System Design Considerations
Steven Anderson, KCI Technologies, Inc. (*steven.anderson@kci.com*)
Amit Bhusal, KCI Technologies, Inc.

9:00 AM – 9:30 AM

Understanding Aeration Demand Challenges of Resort Area Wastewater
Treatment Facilities
Ladan Holakoo, GHD, Inc. (*ladan.holakoo@ghd.com*)
Loran George, Sussex County, DE
Thor Young, GHD, Inc.
Steven Clark, GHD, Inc.
Loran George, Sussex County, DE

9:30 AM – 10:00 AM

Hurricane Hardened Emergency Power Systems – Does Your Facility
Electrical System Meet the Industry Reliability Requirements?
Taha Mohammed, CDM Smith (*mohammedta@cdmsmith.com*)
Paul Pouliot, CDM Smith
Robert Magsipoc, CDM Smith

202 • ENR OPERATIONS

1:00 PM – 1:30 PM

Collaboration with Regulators & the Community to Bring Enhanced
Nutrient Removal to Anne Arundel County's Mayo Peninsula
Thor Young, GHD, Inc. (*thor.young@ghd.com*)
Sharon Cole, Anne Arundel County

1:30 PM – 2:00 PM

Startup and Operation of New 4-Stage Bardenpho at the Salisbury WWTP
Peter Schuler, Brown and Caldwell (*pschuler@brwncald.com*)
Amanda Pollack, City of Salisbury
George Anipsitakis, Brown and Caldwell
Mark Miller, Brown and Caldwell

WEDNESDAY, AUGUST 29, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

2:00 PM – 2:30 PM

Improving the Health of the Bay: The City of Baltimore Implements Enhanced Treatment Facilities at their Largest WWTP
Per Struck, Whitman, Requardt & Associates, LLP (pstruck@wrallp.com)
Marija Peric, AECOM

202 • ALTERNATIVE DELIVERY

3:30 PM – 4:00 PM

No Decision too Tough with “All-in” Collaboration Utilizing the CMAR Delivery Method
Brian Balchunas, HDR (brian.balchunas@hdrinc.com)
Joshua Gliptis, Howard County Bureau of Utilities
Dave Hill, Clark Construction

4:00 PM – 4:30 PM

Divide and Conquer: Breaking up a Large Linear Project Into Smaller Pieces to Achieve Goals
John Stullken, GHD, Inc. (john.stullken@ghd.com)
Sharon Cole, Anne Arundel County DPW
Thor Young, GHD, Inc.

4:30 PM – 5:00 PM

Charting a New Course: City of Baltimore DPW's First CMAR
Ben Asavakarin, JMT (basavakarin@jmt.com)
Paul Deardorff, Johnson, Mirmiran & Thompson
Gurminder Singh, City of Baltimore DPW
Misrak Shiferaw, City of Baltimore DPW

203 • ENGINEERING ETHICS

8:30 AM – 9:30 AM

Ethics for the Maryland PE
Samuel Grant, Gannett Fleming, Inc. (sgrant@gfnet.com)

9:30 AM – 10:00 AM

Chemical Emissions & Worker Exposure Associated with Cured-in-place Pipe (CIPP) Installations
Mohammad Najafi, University of Texas at Arlington (najafi@uta.edu)
Lynn Osborn, NASSCO Inc.
Mayank Khurana, NASSCO Inc.

203 • CLEANING COLLECTION SYSTEMS

1:00 PM – 1:30 PM

Ice, Ice Baby! Ice Pigging of a Sanitary Sewer Force Main
David Kerr, GHD, Inc. (david.kerr@ghd.com)
James Ritter, Calvert County

WEDNESDAY, AUGUST 29, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

1:30 PM – 2:00 PM

Risk-Based Predictive Maintenance Solutions for Sewer Main Cleaning – Schedules? We Do Need a Stinking Schedule!

Alex Palmatier, HDR (alex.palmatier@hdrinc.com)

Kim Duncan, City of Winston-Salem/Forsyth County Utilities

2:00 PM – 2:30 PM

Using Data Analytics to Develop a Sewer Inspection/Cleaning Program – A Story from the Baltimore County Bureau of Utilities

Paul Sayan, Louis Berger (psayan@louisberger.com)

Rodney Turner, Baltimore County DPW

203 • MANAGING CS ASSETS

3:30 PM – 4:00 PM

Consideration of PACP Limitations for Prioritization of Gravity Sewer Improvements

Christopher Garrett, Brown and Caldwell (cgarrett@brwnncald.com)

4:00 PM – 4:30 PM

Force Main Condition Assessment Modeling at Virginia Beach

Andrew Fuller, AECOM (andrew.fuller@aecom.com)

Will Gibson, AECOM

4:30 PM – 5:00 PM

A Composite SIPP Design Empowered by a Comprehensive Evaluation

Renni Zhao, DC Water (renni.zhao@dcwater.com)

Steve Bian, DC Water

Mandy LeBlanc, DC Water

204 • WATER SYSTEM INFRASTRUCTURE

8:30 AM – 9:00 AM

Satellite Leak Detection Pilot Study – Is It Worth It?

Glenn Pearson, Prince William County Service Authority

(gpearson@pwcsa.org)

Leita Bennett, GHD, Inc.

9:00 AM – 9:30 AM

Pressure Monitors Emerging Technology – A Head to Head Comparison of Remote Pressure Monitoring Units

Michael Ariante, Mott MacDonald (michael.ariante@mottmac.com)

Essey Woldemariam, DC Water

Russell Deason, Mott MacDonald

9:30 AM – 10:00 AM

Getting Remote Smart Water Sensors Talking – The Growing List of Options

Michael Mulcare, Mott MacDonald (michael.mulcare@mottmac.com)

WEDNESDAY, AUGUST 29, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

1:00 PM – 1:30 PM

Assessment and Rehabilitation of 30-inch Water Main on
Historic Key Bridge

Sarah Hanna, McKissack & McKissack (*sarah.ghali@mckissackdc.com*)

Sam Ofori, DC Water

Sonia Oton, Mott MacDonald

William Darrow, Mott MacDonald

Duane Stewart, Russell Corrosion

1:30 PM – 2:00 PM

Getting the (W)hole Story – Condition Assessment & Emergency
Repairs of the DC Water's 48-inch Steel Inlet/Outlet Brentwood
Reservoir Water Mains

Sonia Oton, Mott MacDonald (*sonia.oton@mottmac.com*)

Gert Van der Walt, DC Water

Gary Geck, Mott MacDonald

Sarah Hanna, McKissack and McKissack

2:00 PM – 2:30 PM

Using the "Toolbox Approach" for Condition Assessment & Corrosion
Study of the Brock Bridge Road Water Transmission Main

Nirav Shah, RK&K (*nshah@rkk.com*)

Elizabeth Blair, Black & Veatch

3:30 PM – 4:00 PM

Successful Implementation of a Proactive Main Replacement Program
in Allentown, PA

Michael Brown, Gannett Fleming, Inc. (*mtbrown@gfnet.com*)

Jason Peters, Lehigh County Authority

4:00 PM – 4:30 PM

Great! You Have a Large Valves Inspection Program... Now What?

Wesley McBride, WSSC (*wesley.mcbride@wsscwater.com*)

4:30 PM – 5:00 PM

Reducing Risk through Adaptive Planning: Charlotte, NC

Benjamin Cownie, Black & Veatch (*cowniebc@bv.com*)

Amanda Zarazua, Black & Veatch

Dr. Keri Cantrell, Charlotte Water

205 • STORMWATER

8:30 AM – 9:00 AM

Improving Stormwater Program Performance:
Simulated Audits & Program Review Scorecard

Fernando Pasquel, Arcadis (*fernando.pasquel@arcadis.com*)

WEDNESDAY, AUGUST 29, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

9:00 AM – 9:30 AM

SWMM Modeling Benefits and Considerations

Kerstin Geba, AECOM (kerstin.geba@aecom.com)

Michael Sabon, AECOM

Kelly Mills, City of Chesapeake

Deva Borah, City of Chesapeake

9:30 AM – 10:00 AM

1-D and 2-D Coupled Hydraulic Modeling & Alternatives

Development to Assess Flooding Risk in Urban Settings:

A Case Study of Harris Creek Watershed

Jemil Yesuf, City of Baltimore (jemil.yesuf@baltimorecity.gov)

1:00 PM – 1:30 PM

"Trading in Time": Using Public Investments in Wastewater Infrastructure Upgrades to Build More Sustainable Stormwater Programs & Achieve Permit Compliance

Erik Michelsen, Anne Arundel County Watershed Protection and Restoration Program (pwmich20@aacounty.org)

1:30 PM – 2:00 PM

The Value of Evaluating & Updating Historic BMP Data:

Maximizing Credit for Work You've Already Done

Tim Schmitt, LimnoTech (tschmitt@limno.com)

2:00 PM – 2:30 PM

MS4 Stormwater Retrofit Case Study in the Patapsco Tidal Watershed

Meredith Neely, CH2M/Jacobs (neely.meredith@gmail.com)

3:30 PM – 4:00 PM

Site-Sensitive Engineering Creates Bay-Friendly Stormwater System

Sophia Liskovich, Gannett Fleming, Inc. (sliskovich@gfnet.com)

4:00 PM – 4:30 PM

Stream Stabilization for Asset Protection: Successes and Lessons Learned

Ian Rodway, Straughan Environmental, Inc.

(irodway@straughanenvironmental.com)

Walid Halboni, WSSC

Matt Rescott, Straughan Environmental

4:30 PM – 5:00 PM

Trenchless Rehabilitation Saves Grottoes, VA Culverts – and Money – Without Disrupting Traffic

Joseph Cherry, AP/M Permaform (info@permaform.net)

WEDNESDAY, AUGUST 29, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

206 • BIOSOLIDS

8:30 AM – 9:00 AM

Anaerobic Digestion Biogas Systems –
Practical Considerations for Design, Start-up and Operation

Ken Knutsen, Barton & Loguidice, D.P.C.

(kknutsen@bartonandloguidice.com)

Rich Straut, Barton & Loguidice, D.P.C.

9:00 AM – 9:30 AM

Conversion of WWTP Digester Gas into Compressed Natural Gas Vehicle Fuel

Daryl O'Dell, Cornerstone, Tetra Tech *(daryl.odell@tetratech.com)*

Jose Velazquez, Tetra Tech

Paul Stout, Tetra Tech

9:30 AM – 10:00 AM

Dust Hazard Analysis and Thermal Dryer Design Safety Considerations

Brandon Gott, GHD, Inc. *(brandon.gott@ghd.com)*

Vince Maillard, GHD, Inc.

1:00 PM – 1:30 PM

When Does It Make Sense to Put All Your Eggs in One Basket & When
Does It Not: A Case Study of Biosolids Process Centralization

Thomas E. Kochaba, HDR *(tkochaba@hdrinc.com)*

Michael Gallagher, Baltimore City

Sebastian Smoot, HDR

Larry Hentz, HDR

1:30 PM – 2:00 PM

It Takes a Village: Collaboration to Import Technology to the US for a
Cost-effective Solids Handling Solution

Stephanie Spalding, HDR *(stephanie.spalding@hdrinc.com)*

Chad Link, Crowder Construction Company

Katherine Linares, HRSD

Paul Christy, Cambi, Inc.

2:00 PM – 2:30 PM

Dewatering System Improvements at the Sod Run WWTP:
Phase 1 Implementation Plan

Michael Olivier, Whitman, Requardt & Associates, LLP

(molivier@wrallp.com)

David Pergrin, Harford County

WEDNESDAY, AUGUST 29, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

206 • ANAEROBIC DIGESTION BIOGAS SYSTEMS

3:30 PM – 4:00 PM

Using Cerium Salt as an Economical Precipitant for Struvite Control & Effective Dewatering of Anaerobic Digestate

Dian Zhang, Virginia Tech (dianz@vt.edu)

Bob Angelotti, Upper Occoquan Service Authority

Erick Schlosser, Upper Occoquan Service Authority

Zhi-Wu Wang, Virginia Tech

4:00 PM – 4:30 PM

When Fastest Is Not Necessarily Best – Digester Startup Considerations for an Operating ENR Treatment Facility

John Maley, HDR (jrmaleyengineering@gmail.com)

Christopher Moline, HDR

Joshua Gliptis, Howard County

Robert Hindt, Howard County

4:30 PM – 5:00 PM

Optimizing Performance of a Centralized Thermal Hydrolysis and Anaerobic Digestion Process

Christopher Moline, HDR (christopher.moline@hdrinc.com)

Matthew Higgins, Bucknell University

Kevin Selock, WSSC

Dale Belschner, WSSC



THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

201 • ASSET/UTILITY MANAGEMENT

8:30 AM – 9:00 AM

A New KPI for Valve Operability Optimization

Dave Lewis, Wachs Water Services (dlewis@wachsws.com)

9:00 AM – 9:30 AM

They Don't Build Them Like This Anymore: Facility Condition Assessment

Derek Wurst, Black & Veatch (wurstdm@bv.com)

Kiran Chandran, Black & Veatch

9:30 AM – 10:00 AM

Mitigating Risk When Creating a Pressure Zone with a New Elevated Tank, New Pumps, and Really Old Pipes

Jason Garz, Mott MacDonald (jason.garz@mottmac.com)

Deidre Saunders, DC Water

Getachew Melsew, DC Water

Deidre Saunders, DC Water

11:00 AM – 11:30 AM

Potomac Interceptor Inspections

Tatiana Baranova, DC Water (tatiana.baranova@dcwater.com)

Eyasu Yilma, DC Water

Alireza Parhami, DC Water

11:30 AM – 12:00 PM

Asset Management Wins Aren't Everything, They're the Only Thing – Implementation Success Story at the NEW Water's Green Bay Facility

Mert Muftugil, GHD, Inc. (mert.muftugil@ghd.com)

Patrick Smits, NEW Water

John Stullken, GHD, Inc.

Gage Muckleroy, GHD, Inc.

12:00 PM – 12:30 PM

Establishing Pipe-by-Pipe Rehabilitation & Reinspection Schedules Using Years Remaining Service Life

Andrew Filippi, Arcadis (andrew.filippi@arcadis.com)

Jim Shelton, Arcadis

Greg Gress, Town of Sullivan's Island, SC

2:00 PM – 2:30 PM

Plymouth, MI SAW Grant Asset Management Plan – Doing It Right!

Charlie Card, GHD, Inc. (charles.card@ghd.com)

Patrick Fellrath, Charter Township of Plymouth

Gage Muckleroy, GHD, Inc.

David Kerr, GHD, Inc.

Patrick Fellrath, Charter Township of Plymouth

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

2:30 PM – 3:00 PM

Clouds & Things: The implications of Cloud and Internet-of-Things for SCADA/ICS

Bob George, Tetra Tech (bob.george@tetrattech.com)

3:00 PM – 3:30 PM

Sewer Tunnel System integration into Enterprise Asset Management

Prasad Manthena, Greeley and Hansen LLC

(pmanthena@greeley-hansen.com)

Monica Outland, DC Water

Carlton Ray, DC Water

Moussa Wone, DC Water

4:00 PM – 4:30 PM

5 years of Pipeline Condition Assessment Program at DC Water – Lessons Learned from the Tools & Technologies Employed

Alireza Parhami, DC Water (alireza.parhami@dcwater.com)

Sonia Oton, Mott MacDonald

Bisrat Abebe, DC Water

Sarah Hanna, Mott MacDonald

Russ Deason, Mott MacDonald

4:30 PM – 5:00 PM

Using Technology to Turn Tacit Knowledge into Explicit Knowledge

Madeleine Driscoll, KCI Technologies, Inc. (madeleine.driscoll@kci.com)

5:00 PM – 5:30 PM

Using GIS & Innovative Technologies for a Proactive Approach to Identifying, Analyzing, & Managing WSSC's Exposed Sewer Assets

Anthony Dowell, AECOM (anthony.dowell@aecom.com)

Andrew Rossmark, WSSC

202 • WASTEWATER PLANT OPERATIONS

8:30 AM – 9:00 AM

Can MBR Reduce or Eliminate Need for Additional Disinfection – Case Studies

Ufuk Erdal, AECOM (ufuk.erdal@aecom.com)

Beverley Stinson, AECOM

9:00 AM – 9:30 AM

At the Mercy of the Process – Impacts of Nitrogen Removal Performance on WWTP Disinfection

Ned Talbot, OBG (ned.talbot@obg.com)

9:30 AM – 10:00 AM

Expanding Resource Recovery at WSSC

Caroline Nguyen, WSSC (caroline.nguyen@wsscwater.com)

Kevin Selock, WSSC

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

11:00 AM – 11:30 AM

Don't Freeze: The Expedited Winter Startup of a 17 MGD IFAS WWTP

Kristin Waller, OBG (kristin.waller@obg.com)

Michael Manning, OBG

11:30 AM – 12:00 PM

Never Stop Optimizing: Start Planning Now on How to Pay for Your BNR & ENR Equipment Replacement Projects

John Revette, Wendel (jrevette@wendelcompanies.com)

12:00 PM – 12:30 PM

Lessons Learned: Based on Case Studies of Process Optimization Projects at ENR Wastewater Treatment Facilities

Lenny Gold, MCET (lgold@goeaston.net)

202 • WASTEWATER

2:00 PM – 2:30 PM

Maryland's new Water Quality Trading Regulations – A Utility's Perspective.

Joel Caudill, WSSC (joel.caudill@wsscwater.com)

2:30 PM – 3:00 PM

Utilities of the Future – Evaluating & Improving Energy Use at WSSC's Water Resource Recovery Facilities

Kevin Selock, WSSC – Piscataway WWTP (kevin.selock@wsscwater.com)

Caroline Nguyen, WSSC

3:00 PM – 3:30 PM

Design and Construction Considerations of a Wastewater Treatment Plant Ocean Outfall

Kelvin George, GHD, Inc. (kelvin.george@ghd.com)

Brandon Gott, GHD, Inc.

202 • ENR WASTEWATER FACILITIES

4:00 PM – 4:30 PM

New Greensboro Regional Wastewater System: Implementation & Start-up of New ENR 0.332 mgd WWTP, Conveyance & Collection System

Kelly Duffy, RK&K (kduffy@rkk.com)

Tracey Mayer, Evoqua Water Technologies, LLC

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

4:30 PM – 5:00 PM

Rocky Gap Wastewater Treatment Facility Upgrade to Membrane Bioreactor Doubling Capacity to ENR Compliance in the Same Footprint Design & Construction Challenges

Partha Tallapragada, Maryland Environmental Service (ptall@menv.com)

Zohreh Movahed, Watek Engineering Corporation

Ellen Frketic, Maryland Environmental Service

John Bowman, Maryland Environmental Service

Wes Lidie, Maryland Environmental Service

5:00 PM – 5:30 PM

Enhanced Nutrient Removal Upgrade of the Winebrenner WWTP Using Ballasted Activated Sludge

Kevin Nash, RK&K (knash@rkk.com)

Kelly Duffy, RK&K

203 • LARGE DIAMETER PIPE REHABILITATION

8:30 AM – 9:00 AM

Trunk Sewer Rehabilitation in Urban, High Security Areas – Washington, DC

Mike Hess, Brown and Caldwell (mhess@brwnncald.com)

Haile Tsehayu, DC Water

Mandy LaBlanc, DC Water

9:00 AM – 9:30 AM

Little Cuyahoga Interceptor Slip Line Replacement

Jim Shelton, Arcadis (james.shelton@arcadis.com)

9:30 AM – 10:00 AM

Forensic Evaluation of a Failed 20-Inch CIP Force Main Located at WSSC Piscataway Waste Water Treatment Plant – Analysis & Lessons Learned

Haile Yerdaw, WSSC (haile.yerdaw@wsscwater.com)

Aloysius Obodoako, WSSC

203 • COLLECTION SYSTEMS

11:00 AM – 11:30 AM

Why an All Pipe Dynamic Sewer System Model? WSSC's Story of Increasing Accuracy of the Dynamic Sewer System Model

Anna Neugebauer, CDM Smith (neugebauera@cdmsmith.com)

Kenneth Dixon, WSSC

Charles Moore, CDM Smith

Dennis Lopez, WSSC

Kenneth Dixon, WSSC

TECHNICAL PROGRAM SCHEDULE

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

11:30 AM – 12:00 PM

Why Can't I Get Service Too? Providing Sewer Service in Fallston with Limited Capacity

Will Hinz, Whitman, Requardt & Associates, LLP (whinz@wrallp.com)

Dave Burke, Harford County DPW

12:00 PM – 12:30 PM

Upkeep of Sanitary Sewer Models

Bryan Bokey, Baltimore County, DPW (bbokey@baltimorecountymd.gov)

2:00 PM – 2:30 PM

Lessons Learned from HRSD's Condition Assessment Program

Chris Wilson, Brown and Caldwell (cwilson@brwncald.com)

Christene Mitchell, HRSD

Phil Hubbard, HRSD

2:30 PM – 3:00 PM

"A River Runs Through It": Sanitary Sewer Stream Crossing Inspections in Arlington County

Pierre Cayatte, Arlington County (pcayatte@arlingtonva.us)

Dabney Carver, Arlington County

3:00 PM – 3:30 PM

Caring for Orphan Assets!

Prabhu Chandrasekeran, Greeley and Hansen LLC

(cprabhushankar@gmail.com)

4:00 PM – 4:30 PM

Avoiding Tunnel Vision in Large Diameter Infrastructure Rehabilitation

Robert Bell Jr., OBG (robert.bell@obg.com)

Alireza Parhami, DC Water

4:30 PM – 5:00 PM

Making it Right: New Sewers for the Historic Savage Community

John Moore PE, RK&K (jmoore@rkk.com)

Kerri Dinsmore PE, Howard County Government

Claire Kwiatkowski, RK&K

Edward Germroth PE, RK&K

5:00 PM – 5:30 PM

DC Water's SCADA Infrastructure Standardization Program – Paving the Way into the Future

Mark Cusac, CDM Smith (cusacmi@cdmsmith.com)

Samant Garg, DC Water

Duncan Mukira, DC Water

Matt Lick, CDM Smith

Josh Gelman, CDM Smith

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

204 • WATER SYSTEM INFRASTRUCTURE

8:30 AM – 9:00 AM

St. Elizabeth's Water Tank Project

Deidre Saunders, DC Water (deidre.saunders@dcwater.com)

Gary Moore, Bryant & Associates

Chris Remme, Arcadis

9:00 AM – 9:30 AM

Water Storage Tank Inspection Standards and Guidelines

Nicole Clarke, Tank Industry Consultants (clarke@tankindustry.com)

9:30 AM – 10:00 AM

How to Expand Water Storage Capacity without Changing the Footprint

Jack Schneider, Fisher Tank Company (jschneider@fishertank.com)

11:00 AM – 11:30 AM

Tucson Water: Not Failing on My Watch

Anna Pridmore, Structural Technologies, LLC

(apridmore@structuraltec.com)

Rasko Ojdrovic, Simpson, Gumpertz & Heger

Paul Acosta, Tucson Water

Peter Nardini, Simpson, Gumpertz & Heger

11:30 AM – 12:00 PM

Eastern Parkway Water Transmission Main Rehabilitation –

Sliplining with Steel Pipe Renews Critical 48-Inch Cast Iron Main Along Historic Olmstead Parkway

Jordan Carrier, Garney Companies, Inc. (jcarrier@garney.com)

Raj Arora, American Cast Iron Pipe Company

12:00 PM – 12:30 PM

Polyethylene Encasement for External Corrosion Control for Iron Pipelines – A 60-Year History

Allen Cox, Ductile Iron Pipe Research Association (acox@dipra.org)

2:00 PM – 2:30 PM

The City of Atlanta Water Supply Program: CMAR Done Right

Brian Walker, PC Construction (bwalker@pcconstruction.com)

Bob Huie, PC Construction

Ade Abon, City of Atlanta

2:30 PM – 3:00 PM

Valve and Hydrants – “Some Days You are the Dog, Some Days You are the Hydrant”

Pat Burke, Ferguson (pat.burke@ferguson.com)

Mark Snyder, Mueller Company

Nirav Shah, RK&K

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

3:00 PM – 3:30 PM

Water Supply Power & Control Reliability Improvements, Elkridge Booster Pump Station, Howard County

Steven Anderson, KCI Technologies, Inc. (steven.anderson@kci.com)

Joshua Gliptis, Howard County Bureau of Utilities

4:00 PM – 4:30 PM

New Pipeline Installations – Which Trenchless Method is Best?

James Parkes, Schnabel Engineering (jparkes@schnabel-eng.com)

4:30 PM – 5:00 PM

Tunneling under Howard County –

Construction of Two 60-inch Casings for the Installation of a 36-inch Water Transmission Main in Howard County, MD

Louis Ragozzino, OBG (louis.ragozzino@obg.com)

Paul DiMarco, Howard County Utility Design Division

Louis Ragozzino, PE, O'Brien & Gere Engineers, Inc.

Paul DiMarco, PE, Howard County Utility Design Division

Chelsea Pearce, O'Brien & Gere Engineers, Inc.

5:00 PM – 5:30 PM

Inspection of the 137-Year Old Montebello – Cromwell Tunnel with a Remote Operated Vehicle

Paul Deardorff, JMT (pdeardorff@jmt.com)

Remi Urbonas, City of Baltimore

Andrew Hofert, City of Baltimore

205 • WATER QUALITY & DISTRIBUTION

8:30 AM – 9:00 AM

Emerging Groundwater Supply Concerns

Karen Benson, WSP (formerly LBG, Inc.) (kbenson@lbgnj.com)

Frank Getchell, WSP (formerly LBG)

9:00 AM – 9:30 AM

Active Control of THM Levels in Drinking Water Distribution Systems

Gary Schaeffer, UGSI Solutions, Inc. (gschaeffer@ugsicorp.com)

9:30 AM – 10:00 AM

The Devil is in the Details:

Advanced Hydraulic Model Calibration for DC Water (Part 1)

Russell Deason, Mott MacDonald (russell.deason@mottmac.com)

Rizwan Elahi, DC Water

Laura Siemers-Kennedy, McKissack and McKissack

Alireza Parhami, DC Water

11:00 AM – 11:30 AM

The Impact of Proper Production Flow Metering on Water Audits

John Van Arsdel, M.E. Simpson CO., Inc. (john@mesimpson.com)

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

11:30 AM – 12:00 PM

City of Bowie Pipe Bursting

John Blondell, KCI Technologies, Inc. (john.blondell@kci.com)

Christopher Overcash, KCI Technologies, Inc.

12:00 PM – 12:30 PM

Emergency Condition Assessment and Evaluation of Existing PCCP Header

Ismail Hanieh, Black & Veatch (haniehif@bv.com)

Rasko Ojdrovic, Simpson, Gumpertz & Heger

Karem Carpio, WSSC

Greg Fick, WSSC

Jorge Rodríguez, Pure Technologies

205 • WATER TREATMENT

2:00 PM – 2:30 PM

Practical Aspects of Implementing a PFOA/PFOS Treatment System for a 5-MGD Municipal Water Supply

PJ Crow, OBG (pj.crow@obg.com)

Narayan Venkatesan, OBG

2:30 PM – 3:00 PM

What Bugs Got to Do With It? –

Starting up Biologically Active Filters for DBP Control

Russell Ford, Jacobs/CH2M (russell.ford@ch2m.com)

3:00 PM – 3:30 PM

Investigating Alternative Strategies for Controlling DBPs in a Growing Utility

James Christopher, Tetra Tech (james.christopher@tetratech.com)

Andrea Netcher, Tetra Tech

4:00 PM – 4:30 PM

Utilization of UV Disinfection for a 27 MGD WTF Upgrade to Meet Benchmarking Requirements for Giardia Inactivation/Removal

Mark Notheis, Jacobs/CH2M (mark.notheis@gmail.com)

Ronnie Ricks, City of Portsmouth

Ed Snyder, City of Portsmouth

Nathan Litteral, City of Portsmouth

4:30 PM – 5:00 PM

Chlorine Gas... A Safe and Efficient Choice?

Terence Bradley, City of Bowie (tbradley@cityofbowie.org)

5:00 PM – 5:30 PM

Optimizing Ozone Application for Enhanced Taste & Odor Removal and Reduced Disinfection Byproduct Production

Christina Alito, HDR (christina.alito@hdrinc.com)

Robert Hoffman, HDR

Gwen Woods-Chabane, HDR

Alice Wang, HDR

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

206 • RESILIENCY & LEED

8:30 AM – 9:00 AM

Improved Drought Planning in the Chesapeake Bay Region:
Case Study of the Baltimore Water Supply System

Josh Weiss, Hazen and Sawyer (jweiss@hazenandsawyer.com)

Clark Howells, Baltimore City DPW

John Balay, Susquehanna River Basin Commission

Richard Palmer, University of Massachusetts Amherst

9:00 AM – 9:30 AM

HRSD's SWIFT Project: Process, Benefits, Oversight and Implementation

Christopher Pomeroy, AquaLaw PLC (chris@aqualaw.com)

Edward Henifin, HRSD

9:30 AM – 10:00 AM

Improving Coastal Resiliency after Superstorm Sandy –
Spring Creek Hazard Mitigation Project

Srikanth Gorugantula, HDR (srikanth.gorugantula@hdrinc.com)

11:00 AM – 11:30 AM

Identifying, Prioritizing and Addressing Lifeline Infrastructure
Resilience Gaps

Ahmad Habibian, CDM Smith (habibiana@cdmsmith.com)

11:30 AM – 12:00 PM

Be Prepared: Incorporating Climate Resilience & Mitigation Planning into
Asset Management for a Water & Wastewater Utility

Charlotte Daigle, Jacobs (charlotte.hays@ch2m.com)

Laurens van der Tak, Jacobs

Paula Sanjines, Jacobs

Rob Taylor, WSSC

12:00 PM – 12:30 PM

Flood Mitigation for Critical Facilities

Grant Davies, AECOM (grant.davies@aecom.com)

Diala Dandach, DC Water

Kathleen Kharkar, DC Water

Ed Locke, AECOM

206 • REGULATORY

2:00 PM – 2:30 PM

Agency Requirements and Permit approvals in Washington, DC Region

Mark Babbitt, DC Water (mark.babbitt@dcwater.com)

Chein-Chi Chang, DC Water

2:30 PM – 3:00 PM

Whatever Happened to the Lead & Copper Rule Revision?

Dana Cooper, Cooper Moores, LLC (dana@coopermoores.com)

THURSDAY, AUGUST 30, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

206 • REGULATORY/ASSET MANAGEMENT

3:00 PM – 3:30 PM

A Framework for Regulating DPR –

Results from a Pathogen Benchmarking Study

Andrea Netcher, Tetra Tech (andrea.netcher@tetratech.com)

Dave MacNevin, Tetra Tech

Matthew Azarian, Tetra Tech

4:00 PM – 4:30 PM

Smart Cities – Utilizing the Internet of Things to Improve Service

Chuck Lacey, Jr. PE, LB Water (chuck.lacey@lbh2o.com)

4:30 PM – 5:00 PM

How Data Management Aids in Decision Making Process
for Baltimore County

Manreet Ludhar, Louis Berger (mxludhar@baltimorecountymd.gov)

5:00 PM – 5:30 PM

Advancements in Cathodic Protection Technologies

John Smith, Engineering Design Technologies, Inc. (john.smith@edtinc.net)

Daniel Smith, Engineering Design Technologies, Inc.



FRIDAY, AUGUST 31, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

201 • ASSET/UTILITY MANAGEMENT

9:00 AM – 9:30 AM

Right-Sized Strategic Asset Management Planning for Small Water/Wastewater Systems

Sarah Marek, KCI Technologies, Inc. (sarah.marek@kci.com)

9:30 AM – 10:00 AM

DC Water at Work: Time-proven Best Management Practices when Building Near Buried Linear Assets

Steve Bian, DC Water (steve.bian@dcwater.com)

Brian McDermott, DC Water

10:00 AM – 10:30 AM

Utility-University Collaborative Partnerships

Morgan Brown, WRF (mbrown@wef.org)

10:30 AM – 11:00 AM

Concerns and Considerations in Customer Affordability

Robert Ryall, Arcadis (robertryall@yahoo.com)

11:00 AM – 11:30 AM

Customer Service or Risk Management: DC Water Offers to Install Pressure Reducing Valves in More Than 1,700 Homes

Devang Prajapati, Mott MacDonald (devangprajapati1979@gmail.com)

Deidre Saunders, DC Water

Linda Bernhardt, Creative Pages

Peter Tinubu, DC Water

202 • WASTEWATER TREATMENT

9:00 AM – 9:30 AM

Novel Use of In-basin Inclined Plate Settlers for Secondary Clarification in a DBO Two-Stage Activated Sludge Upgrade at the Woonsocket WWTF

Lee Tharps, CH2M/Jacobs (lee.tharps@CH2M.com)

9:30 AM – 10:00 AM

Federal Wastewater Treatment Plant Showcases Sensitive Design

Elik Livay, Gannett Fleming, Inc. (elivay@gfnet.com)

10:00 AM – 10:30 AM

Influent Junction...What's Your Function!?

A Complex Collaboration Effort under a CMAR

Joshua Rodgers, HDR (josh.rodgers@hdrinc.com)

Monty Simon, City of Baltimore

FRIDAY, AUGUST 31, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

10:30 AM – 11:00 AM

Lessons Learned – Operation of Three Full Scale ANITA Mox Sidestream Deammonification Systems

Meg Hollowed, Kruger/Veolia (meg.hollowed@veolia.com)

Charles Cocker, South Durham WRF, Durham, NC

Kathy Lai, Metro Wastewater Reclamation District of Greater Chicago

Edyta Stec-Uddin, Metro Wastewater Reclamation District, Denver, CO

11:00 AM – 11:30 AM

BNR to ENR: Process Modification Achieves ENR Limits and Improves Plant Reliability

Vel Subramanian, Atkins (vel.subramanian@atkinsglobal.com)

Martin Johnson Jr, WSSC

Aurora Schaefer, Atkins

203 • WATER REDUCTION & ODOR CONTROL

9:00 AM – 9:30 AM

Piloting DPR Without RO at pureALTA – Exploring Sustainable Alternatives for Potable Water Reuse in Central Florida

Pranjali Kumar, Carollo Engineers (pkumar@carollo.com)

David Ammerman, Carollo Engineers

Andy Salvesson, Carollo Engineers

Jo Ann Jackson, City of Altamonte Springs

9:30 AM – 10:00 AM

Naval Support Activity Annapolis (NSAA) – Water Reduction and Conservation

Andrew Hood, Keystone Engineering Group (dhood@kegi.net)

10:00 AM – 10:30 AM

Potable Reuse Treatment Trains: Challenges and Innovations at Full-Scale

Dave MacNevin, Tetra Tech (dave.macnevin@tetrattech.com)

Luke Mulford, Hillsborough County PUD

Emilie Moore, Tetra Tech

10:30 AM – 11:00 AM

Holistic Approach to Process Service Water (PSW) System Evaluation for DC Water Blue Plains Advanced Wastewater Treatment Plant

David Meredith, AECOM (david.meredith@dcwater.com)

Edmund Doku, AECOM

Rouben DerMinassian, DC Water

11:00 AM – 11:30 AM

Biofilters for Odor Control: Beyond the Basics

Lynne Moss, Black & Veatch (mosslh@bv.com)

Lee Weber, Black & Veatch

Sock Koon Koh, Black & Veatch

FRIDAY, AUGUST 31, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

204 • WATER SYSTEMS INFRASTRUCTURE

9:00 AM – 9:30 AM

Alignment Studies for Large Diameter Water Mains: The 450A High Zone 48-inch Water Main Alignment, Capacity & Phasing Plan

Christopher Overcash, *Johns Hopkins University (coverca1@jhu.edu)*

Tesfai Giorgis, *WSSC*

Kui Lin, *KCI Technologies, Inc.*

9:30 AM – 10:00 AM

The Historical Analysis of the Potomac River Chesapeake and Ohio Canal

Scott Shipe, *Retired Water & Wastewater Professional (jssh20@aol.com)*

10:00 AM – 10:30 AM

DC Water Completes 5,000 AMR Replacement per Month – Here Is How They Did It!

Michael Skerritt, ***Mott MacDonald*** (*michael.skerritt@mottmac.com*)

April Bingham, *DC Water*

John Wujek, *Mott MacDonald*

10:30 AM – 11:00 AM

When an Air Gap Creates a Major Project... DC Water's Experience with Cross Connection Prevention at Its Storage Facilities

Devang Prajapati, ***Mott MacDonald*** (*devangprajapati1979@gmail.com*)

Sam Ofori, *DC Water*

Dan Pomeroy, *Mott MacDonald*

Sam Ofori, *DC Water*

11:00 AM – 11:30 AM

Protect Your Pipes from Clogging Criminals!

John Deignan, *DC Water (john.deignan@dcwater.com)*



FRIDAY, AUGUST 31, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

205 • WATER TREATMENT

9:00 AM – 9:30 AM

Improving Nitrate Removal With Innovative Biocatalyst

Matthew Williams, WesTech (mwilliams@westech-inc.com)

Andrew Findlay, Microvi Biotechnologies

Ali Dorri, Microvi Biotechnologies

Bryce Myers, WesTech

9:30 AM – 10:00 AM

Air Scour Demonstrates Filter Performance and Economic Benefits in Philadelphia

Lori Kappen, Gannett Fleming, Inc. (lkappen@gfnet.com)

Jamie Shambaugh, Gannett Fleming, Inc.

Ya-Chi Tsao, Philadelphia Water Department

Shiju Kuriakose, Philadelphia Water Department

10:00 AM – 10:30 AM

High Rate Clarification – Innovation Applied to Treat WTP Liquid Residuals

Joe Nattress, CH2M/Jacobs (joe.nattress@ch2m.com)

Korkud Egrican, CH2M/Jacobs

10:30 AM – 11:00 AM

Year-Long Evaluation on the Occurrence & Fate of Pharmaceuticals, Personal Care Products, & Endocrine-Disrupting Chemicals in an Urban Drinking WTP

Francis Kungu, Engineering Design Technologies, Inc. (francis.kungu@edtinc.net)

Lokesh Padhye, Georgia Institute of Technology

Hong Yao, Beijing Jiaotong University

Ching-Hua Huang, Georgia Institute of Technology

11:00 AM – 11:30 AM

Evaluating the Presence, Impacts and Treatment of Urea in Surface and Potable Water

Kelsey Kenel, HDR (kelsey.kenel@hdrinc.com)

Christina Alito, HDR



FRIDAY, AUGUST 31, 2018

Speakers' names in bold italics, Co-speakers' names in bold, Co-authors' names in italics.

206 • ETHICS/ENGINEERING WATER ASSETS

9:00 AM – 10:00 AM

Engineering Ethics for Professional Engineers

Christopher Pomeroy, AquaLaw PLC (chris@aqualaw.com)

10:00 AM – 10:30 AM

Statistically Significant Sample Set (Easy for You to Say) –
A Streamlined Approach to Condition Asset Assessment for the
City/County Utilities Commission

Alex Palmatier, HDR (alex.palmatier@hdrinc.com)

10:30 AM – 11:00 AM

Getting More for Less: The Benefits of Value Engineering

Mike Hanna, Black & Veatch (hannakm@bv.com)

Teresa DiGenova, Black & Veatch

11:00 AM – 11:30 AM

Condition Monitoring of Plant Equipment

John Kingham, Bently Nevada, Inc. (john.kingham@bhge.com)

Michael Karpa, Magyar and Associates



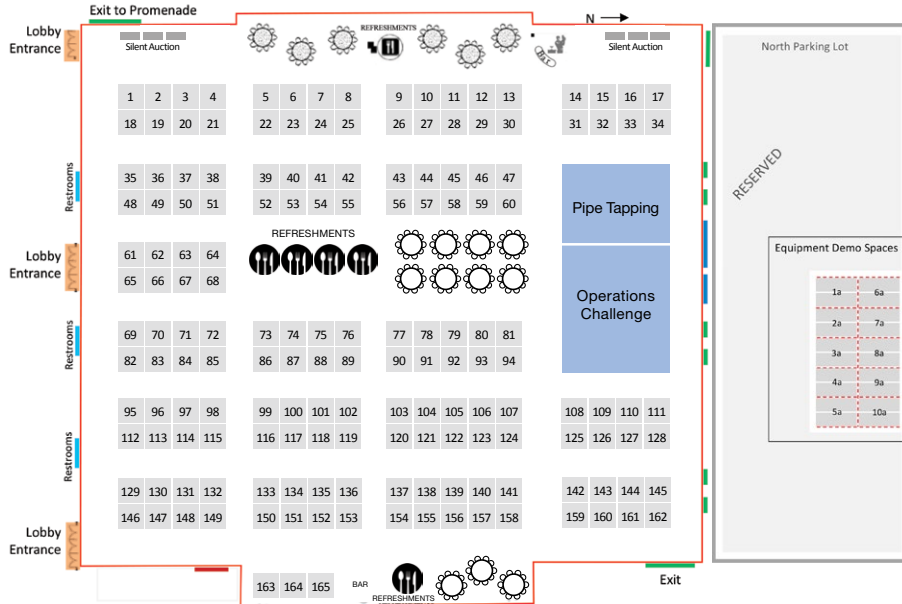


EXHIBIT HALL HOURS:

Tuesday, August 28
 Exhibitor Move-In
 8:00 AM – 8:00* PM
 *New Time!

Wednesday, August 29
 7:30 AM – 6:00 PM

Thursday, August 30
 7:30 AM – Noon

Thursday, August 30
 Exhibitor Move-Out
 Noon – 4:00 PM

*No entry into the Exhibit Hall without a Conference Badge.

EXHIBITOR LIST

Company Name	Booth No.	Company Name	Booth No.	Company Name	Booth No.
A.C.Schultes, Inc.....	115	Atlantic Machinery, Inc.	26	Chlorine Chemistry Division of the American Chemistry Council	122
A.W. Rose Associates	6	AWC Water Solutions	139	Cla-Val Co.	154
ADS LLC.....	72	Balfour Beatty US.....	38	Clow Valve Company.....	22
AECOM Technical Services	83	Badger Meter	15	Coyne Environmental Services	56
AMERICAN	66	Barton & Loguidice.....	87	Coyne Environmental Services	57
American Contracting & Environmental Services, Inc. (ACE)	71	BDP EnviroTech	92	Denali Water Solutions, LLC	158
American Water Resources.....	1	Bingham & Taylor Corp.	90	Bowen.....	125
AMES, Inc.....	36	C&D Municipal Sales, Inc.....	108	Ditch Witch.....	6a
AMES, Inc.....	37	CB&I Inc.	112	Dixon Engineering, Inc.	82
AP/M Permaform	5	Charles Morrow and Associates	80	DN Tanks.....	120
Aqualtec Wastewater Treatment Equipment	46	Chesapeake Environmental Equipment	151	Doetsch Environmental Services	35
Aquam Pipe Diagnostics.....	164	Chesapeake Environmental Equipment	152	DSI, Inc.....	109
		Chesapeake Environmental Equipment	153	Ductile Iron Pipe Research Association	106

Company Name	Booth No.	Company Name	Booth No.	Company Name	Booth No.
Duke's Root Control, Inc.	60	IOREX USA	8	Pure Technologies	49
Duncan-Parnell	93	JET BLAST Inc.	107	Pyrz Water Supply Co., Inc.	94
Dutchland, Inc.	150	Kamstrup Water Metering	126	Reed Manufacturing Company	25
EA Engineering, Science, and Technology, Inc., PBC	133	Kappe Associates, Inc.	62	RePipe 4710, Inc.	123
EA Tanks Inc.	40	Kappe Associates, Inc.	63	Riordan Materials	52
Eastern Controls, Inc.	138	Kemira Water Solutions Inc.	103	Riordan Materials	53
EBA Engineering	86	Kershner Environmental Technologies, LLC	77	Riordan Materials	54
Envirep/TLC	69	Kershner Environmental Technologies, LLC	78	Riordan Materials	55
Environmental Solutions-CBR, Inc.	156	Kershner Environmental Technologies, LLC	79	Rockacy and Associates, Inc.	134
Excelsior Blower Systems	28	Keystone Engineering Group, Inc.	81	Rockacy and Associates, Inc.	135
Exeter Supply Co Inc	101	LB Water/Sensus	58	Sanexen Water Inc.	98
Ferguson Waterworks	95	LB Water/Sensus	59	Savin Engineers, P.C.	50
Flow Assessment Services, LLC	19	LMK Technologies	140	Sekisui SPR Americas, LLC	111
Freemire & Associates	24	M. Davis & Sons, Inc.	14	Shannon Chemical Corporation	2
Gage Environmental Products and Services, LLC	30	Madewell Products Corp.	88	Sherwin-Williams Company	20
Gardner O'Connor	114	Magyar and Associates	121	Sherwood-Logan and Associates	129-132
Garney Construction	67	Maryland Biochemical Company	44	Sherwood-Logan and Associates	146-149
Geiger Pump & Equipment Co.	61	Maryland Industrial Trucks Inc.	102	Smith-Midland Corporation	3
Geiger Pump & Equipment Co.	65	Maryland Rural Water	18	Southern Design	64
General Industries, Inc.	155	Midas	124	Southern Design	68
George, Miles & Buhr, LLC	116	Miller Environmental Group, Inc.	13	Standard Solar	165
Hach	27	MLK & Assoc.	117	STH Inc.	51
HammerHead Trenchless	110	MLK & Assoc.	118	SUEZ Advanced Solutions	32
Haskell	43	MLK & Assoc.	119	Swan Analytical USA	100
Hayward Flow Control	157	MLK & Assoc.	5a	Sydnor Hydro, Inc.	48
Hayward, Inc.	73	Mobile Dredging & Video Pipe	91	Tank Industry Consultants	70
Hayward, Inc.	74	Mr. Rehab, Inc.	104	The Vortex Companies	9
Hayward, Inc.	75	Mueller Co.	97	Thompson Pipe Group – Flowtite	3a
Hayward, Inc.	76	Mueller Systems	96	Thompson Pump	17
Hayward, Inc.	1a	Mumford-Bjorkman Assoc.	136	Trumbull Mfg.	31
HOBAS Pipe USA	47	Neo Chemicals & Oxides	159	Ulliman Schutte	163
Honeywell Smart Energy	10	Neptune Technology Group	33	Underground Solutions, Inc.	41
Hungerford & Terry, Inc.	84	North East Technical Sales, Inc.	105	Univar	42
Hydra-Stop	7	Northwest Pipe Co	85	URECON – Pre-Insulated Pipe	141
HydroCorp	137	Oldcastle Precast – Stormwater	21	Wachs Utility Products	39
Hydrostructures	89	Paxxo	4	Water Management Solutions, Inc.	11
Innovyze	23	PEER Consultants, P.C.	113	White Marsh Environmental Systems, Inc.	34
Intercoastal Trading Inc.	29	Phoenix Fabricators & Erectors	12		
		Pleasant's Construction	99		
		Preload, LLC	45		

BOARD MEMBERS & COMMITTEE CHAIRS

CSAWWA 2017–2018 Officers & Committee Chairs

Chair, Awards Chair, Finance Chair	Andy Cooper
Past Chair, Nominations, Strategic Planning	Sophia Liskovich
Chair Elect, Conference Mgmt. Co-Chair, Program Chair	Teresa DiGenova
Secretary/Treasurer	Rob Penman
Asst. Secretary/Treasurer, By-Laws Chair	Jonathan Madagu
Trustee – Events and Communications	Ann McPherson
Trustee – Community Relations and Partnerships	Jason Kirk
Trustee – Membership and Demographics	Radhika Wijetunge
Trustee – Technical Committees	Russ Dalton
Director, 2017–2020	Gary Geck
Executive Director	Rachel Ellis
Student Activities	Anna Kazasi
Public Relations	George Rest
Customer Service	Angela Ballard-Landers
Diversification Management	Elford Jackson
Government Affairs	J. Scott Shipe
Chesapeake Magazine	Armin Vakili
Manufacturer's Associates Council (MAC)	Eric Held
Membership Chair	Abbie Smith
Operators	James (JC) Langley
Safety	J. Michael Lewis
Section Communications, e-newsletter Editor	Rebecca Jimenez
Spring Meeting	Lynne Putnam
Strategic Outreach	Aaron Duke
Utility Management Chair	Andrew Fuller
Water Distribution Chair	Nick Lewis
Water Distribution Vice-Chair	Patrick Burke
Water Quality	Jeremy Hise
Website and Social Media	Angela Perry
Young Professionals Chair	Chris Caro
MDE Liaison	Jay Price
US EPA Small Systems Training	John Moore
Water For People	Carrie Kruger
DE Events	Joe Nattress
Utilities	Chein-Chi Chang
CTA Board Liaison	Graeme Lake
Tri-Association Conference Committee Voting Member	Raj Arora
Tri-Association Conference Committee Voting Member	Jay Kirk
Tri-Association Conference Committee Voting Member	Eric Held
Tri-Association Conference Committee Voting Member	Teresa DiGenova
Short Course Committee	Jay Price
Short Course Committee	J. Michael Lewis
Short Course Committee	Angela Ballard-Landers

CWEA 2017–2018 Officers & Committee Chairs

President	Jennifer A. Kaberline
President-Elect	Ellen A. Frketic
Vice President	Aaron Hughes
Past President	Kraig Moodie
Secretary	Alan Will
Treasurer	Cece Nguyen
Trustee – MD	Laura Jo Oakes
Trustee – DE	Prabhu Chandrasekeran
Trustee – DC	Gian A. Cossa

BOARD MEMBERS & COMMITTEE CHAIRS

WEF Delegate.....	Tim Wolfe
WEF Delegate.....	James Shelton
PWO Representative	Rob Roff
Executive Administrator	Marlou Gregory
Short Course Committee	Scott Harmon, Bill Farrell, Noelle Anuszkiewicz, Wayne Reed, Darryl Noakes
Asset Management Chair	Charles E. Card
Asset Management Vice-Chair	Gage Muckleroy
Awards Chair	Hiram Tanner
Awards Vice-Chair.....	Barry Lucas
Biosolids & ResidualsManagement Chair	Kelly Baxter
Biosolids & ResidualsManagement Vice-Chair.....	Mark Ramirez
Budget/Finance Chair.....	Paul Sayan
By-Laws Chair	Alan Will
Charity Events Chair	Eric Held
Collection Systems Chair	Maya Sathyanadhan
Collection Systems Vice-Chair.....	David Rockacy
Government Affairs & Fly-In Chair	J. Scott Shipe
Laboratory Practices Chair.....	Clarence Beverhoudt
Laboratory Practices Vice-Chair	Dale Baker
MAMWA Liaison	Jon Doane
MDE W/WW Board Liaison.....	Scott Harmon
Membership Chair	Charles Poskas
Mentorship Committee Chair	Anna Santino
Mentorship Committee Vice-Chair	Moalie Jose
Nominations Chair.....	Ellen A. Frketic
Plant O&M Chair	Kenrick St. Louis
Plant O&M Vice-Chair	Gregory Stephens
Public Outreach Chair	Marlou Gregory
SJWP Committee Chair	Mathew Roder
Publications Chair	Aaron Hughes
Safety & Security Chair	Sorin Schwartz
Sponsorship Chair	John Fletcher
Sponsorship Vice-Chair	Cheryl Paulin
Spring Meeting Chair	Moalie Jose
Spring Meeting Vice-Chair	Laura Jo Oakes
Stormwater Chair.....	Rebecca Winer-Skonovd
Stormwater Vice-Chair	Turgay Dabak
Stormwater Vice-Chair	Charles Poskas
Strategic Planning & Implementation.....	Burt Curry
Student Activities Chair/Young Professionals	Pono Hanson
Student Activities/Young Professionals Vice-Chair.....	Cece Nguyen
Student Activities/YP Representative.....	Jonathan Gordon
Student Activities/YP Representative.....	Nadia Shebaro
Technical Education Chair.....	Edward Shea
Technical Education Vice-Chair	Matt Zelin
Training, Review & Evaluation (TRE) Chair	Marshall Phillips
Tri-Association Conference Voting Members	Aaron Hughes, Anna Santino, Gian Cossa, Prabhu Chandrasekeran
Water ReuseChair	Zohreh Movahed
WRF Liaison	Paresh Sanghavi

BOARD MEMBERS & COMMITTEE CHAIRS

WVOA 2017–2018 Officers & Committee Chairs

President	Steve Fox
Past President	Kevin Quinn
President-Elect	Karl Ott
Vice President.....	Bob Johns
Secretary.....	Tara L. Modisette
Treasurer.....	Michael Emery
Assistant Treasurer.....	Karl L. Ott
Maryland Trustee	Kristy McAndrew
Delaware Trustee	Scott Getchell
District of Columbia Trustee	Chris Cusic
Eastern Shore Section Director.....	Lori Cameron
Central Section Director.....	Winfield P. McKell
Southern Section Director.....	Brad Washington
Western Maryland Section Director	Bruce Damer
District of Columbia Certification Liaison.....	Gregory Stephens
Delaware Certification Liaison	Sarah Smith
Maryland Certification Liaison	Bruce Damer
Awards Committee Chair	Kevin Quinn
By-Laws Committee Chair	Karl L. Ott
Chesapeake Tri-Association, Inc. Director	Karl L. Ott
Ecoletter Co-Editor	Floyd Johnson
Education Committee Chair	Sharita Lyle
Finance & Budget Committee Chair.....	Michael Emery
WVOA Administrator.....	Rachel Ellis
Membership Committee Chair.....	Vacant
Nominations Committee Chair.....	Steve Fox
Public Relations Committee Chair.....	Winfield P. McKell
Public Relations Committee Co-Chair	Kristy McAndrew
Short Course Committee Chair.....	Winfield P. McKell
Tri-Association Conference Committee Voting Members	Karl Ott, Michael Emery, Steve Fox, Kevin Quinn
TRE Committee Representative	Ed Hogan
Webmaster.....	Anthony Rocco



BOARD MEMBERS & COMMITTEE CHAIRS

CSAWWA 2018–2019 Slate of Officers (Nominated)

Past Chair	Andy Cooper
Chair	Teresa DiGenova
Chair-Elect	Robert Penman
Secretary-Treasurer	Jonathan Madagu
Assistant Secretary-Treasurer	Radhika Wijetunge
Trustee	Ann McPherson
Trustee	Jay Kirk
Trustee	Raj Arora
Trustee	Elford Jackson

CWEA 2018–2019 Slate of Officers

The following are the CWEA automatic advancements/continuation of terms.
The slate of officers will be announced separately.

President	Ellen Frketic
President Elect	Aaron Hughes
Past President	Jennifer Kaberline
Secretary (<i>second year of two-year term</i>)	Alan Will
Treasurer (<i>second year of two-year term</i>)	Cece Nguyen
Delaware Trustee (<i>second-year of three-year term</i>)	Prabhu Chadrasereran
DC Trustee (<i>third year of three-year term</i>)	Gian Cossa
WEF Delegate (<i>third year of three-year term</i>)	Tim Wolfe
WEF Delegate (<i>second year of three-year term</i>)	Jim Shelton
PWO Representative (<i>second year of two-year term</i>)	Robert Roff

2018–2019 WWOA Slate of Officers (Nominated)

President (automatic advancement)	Karl Ott
Past President (automatic advancement)	Steve Fox
President Elect (automatic advancement)	Bob Johns
Vice President	Tara Jones
Treasurer	Michael Emery
Maryland Trustee	Kristy McAndrew
Delaware Trustee	Scott Getchell
District of Columbia Trustee	Chris Cusic



The Conference Committee has negotiated blocks of rooms at 19 Ocean City Hotels for the 2018 Tri-Association Conference. Conference rates are available Monday, August 27 through Thursday, August 30, 2018 (Friday checkout). **Room blocks at each hotel are limited and most room blocks close July 27, 2018, so make your reservations early to get your choice of hotel.** In some cases, rooms may be available at less than the Conference rate. To obtain the Conference rate, you must call the hotel directly and ask for the "Tri-Association Conference" rate. Many of the hotels have offered reduced rates before and/or after the Conference but you must ask them specifically for this reduced rate.

Hotel & Location	Miles to Convention Center	Room Type*	Conference Rates	Hotel Phone Number & Website
Best Western Ocean City Hotel & Suites 55th Street	1.0	H	\$125	443-664-4001; 866-664-4004 www.bestwesternocsuites.com
		S	\$145	
Clarion Resort Fontainebleau Hotel 101st Street	3.4	H	\$150–180	410-524-3535; 800-638-2100 www.clarionoc.com
		C	\$190–345	
Comfort Inn Gold Coast 112th Street	4.1	H	\$149	410-524-3000 www.comfortgoldcoast.com
Dunes Manor Hotel 28th Street	1.0	H	\$219	410-289-1100; 800-523-2888 www.dunesmanor.com
Dunes Boardwalk Suites 2716 Atlantic Avenue	0.9	S	\$199	410-289-1100; 800-523-2888
Grand Hotel 21st Street	1.4	E	\$136–166	410-289-6191; 800-447-6779 www.grandhoteloceancity.com
Harrison Hall Hotel Boardwalk 1409 Atlantic Ave	2.1	H	\$99	410-289-6222 www.ocdmhotels.com/ harrisonhall.com
Holiday Inn Oceanfront Hotel 67th Street	1.6	E	\$209	410-524-1600; 800-837-3588 www.holidayinnoceanfront.com
Princess Bayside 48th Street	0.5	H,E	\$99–149	410-723-2900; 800-854-9785 www.princessbayside.com
Princess Royale (Host Hotel) 91st Street	3.0	S	\$149	410-524-7777; 800-4ROYALE www.princessroyale.com
		C	\$399	
Quality Inn Oceanfront 54th Street	1.0	H	\$159–184	410-524-7200; 800-827-3586 www.qioceanfront.com
*H - Hotel, E - Efficiency, S - Suite, C - Condominium				

HOTEL INFORMATION

Hotel & Location	Miles to Convention Center	Room Type*	Conference Rates	Hotel Phone Number & Website
Doubletree Oceanfront 33rd Street	0.8	S	\$239	410-289-1234 www.qibeachfront.com
Sea Bay Hotel 60th Street	1.0	H	\$90	410-524-6100; 800-888-2229 www.seabayhotel.com
CG – Carousel Oceanfront Hotel & Condos 117th Street	4.2	H, C	\$185–295	800-641-0011 www.carouselhotel.com
CG – Atlantic Oceanfront Inn 46th Street	0.7	H	\$190–275	800-641-0011 www.carouselhotel.com
CG – Bonita Beach Hotel 82nd Street	2.6	H	\$185–215	800-641-0011 www.carouselhotel.com
CG – Crystal Beach Oceanfront Hotel 25th Street	1.4	H	\$195–250	800-641-0011 www.carouselhotel.com
CG – Coastal Palms Inn & Suites 121st Street	4.4	H, S	\$160–180	800-641-0011 www.carouselhotel.com
CG – Tideland Caribbean Hotel & Suites 5th Street	2.5	H, S	\$240–335	800-641-0011 www.carouselhotel.com
*H - Hotel, E - Efficiency, S - Suite, C - Condominium				



All attendees must register for the 2018 Tri-Association Conference online. You can access registration through the conference website:
www.ChesapeakeTriCon.org

EARLY BIRD REGISTRATION RATES (\$50 SAVINGS) (Early Bird Registration Ends August 7, 2018 at 11:59 PM)

Registration Options	Member	Certified Operator	Non-Member	Full-Time Student
Full Conference: Complete Package	\$290	\$240	\$360	N/A
Full Conference: No Ticketed Events	\$240	\$190	\$310	\$65
One-Day Registration: Wednesday	\$190	\$140	\$260	\$25
One-Day Registration: Thursday	\$190	\$140	\$260	\$25
One-Day Registration: Friday	\$90	\$90	\$150	\$25

To get the Member rate, you or your utility must be a current member of one of the three associations (CWEA, CSAWWA, or WWOA). Your membership in AWWA or WEF must be with the Chesapeake affiliate/section.

Early Bird Registration (\$50 savings) Ends: August 7, 2018 at 11:59 PM.

Standard Conference Registration pricing begins at the close of Early Bird Registration. FULL PAYMENT IS REQUIRED AT THE TIME OF REGISTRATION.

Full Conference: Complete Package

Includes access to Technical Sessions, Exhibit Hall, non-ticketed Social Events, one ticket to Wednesday Night Seacrets® Event, and one ticket to an Association Luncheon/Meeting (CSAWWA, CWEA, or WWOA).

Full Conference: No Ticketed Events

Includes access to Technical Sessions, Exhibit Hall, and non-ticketed Social Events.

One-Day Registration

Includes access to Technical Sessions, Exhibit Hall (Wednesday or Thursday Only), and non-ticketed Social Events for that day.

REGISTRATION INFORMATION

ADDITIONAL SELECTIONS

Pre-Conference Workshops – Tuesday, August 28, 2018

- **Fundamentals of Biosolids Management**

1:00 PM to 5:00 PM

Early Bird Registration Cost: \$35/Standard Registration Cost \$45

- **Backflow Prevention – Why Is It Important?**

1:00 PM to 5:00 PM

Early Bird Registration Cost: \$35/Standard Registration Cost \$45

5K Water For People Fun-Run/Walk – Wednesday, August 29, 2018

The 5K WFP Fun-Run/Walk will be held on Wednesday, at 7:00 AM.

Early Bird Registration Cost: \$25/Standard Registration Cost: \$35

Fun Night at Seacrets – Wednesday, August 29, 2018

Note: Seacrets® tickets must be purchased by Tuesday, August 28, 2018.

NO INDIVIDUAL TICKETS WILL BE SOLD AT THE CONFERENCE ON WEDNESDAY

OR AT THE DOOR. Must be 21 years or older to enter. *Cost: \$65 per ticket.*

Business Luncheons/Meetings – Thursday, August 30, 2018

All three organizations (CSAWWA, CWEA, and WWOA) will hold their annual business luncheons/meetings concurrently on Thursday. Tickets are required for attendance at the business lunch. *Cost: \$40 per ticket.*

Operator Process Classes – Groundwater Treatment Options (TRE 6020-16-11: All WT) or Activated Sludge – BOD Removal and Nitrification (TRE 5903-16-05: All WW; IWW 5,6, and 7)

The Tri-Association Conference will host two training classes for operator process credits on Wednesday, August 29, 2018, from 8:00 AM to 4:00 PM. The classes will be conducted by MCET and are approved for operators and superintendents. Attendees of either class will earn 7 hours of process credit plus additional 3.5 hours of process credit with a passing Post Test (must attend the entire class to receive any credit). Please note: You must first register for the conference in order to attend this training. Classes are limited to 40 students each. *Cost: \$35 per ticket.*

Golf at the Ocean City Golf Club

The Pre-Conference Golf Outing will be held on Tuesday, August 28, 2018 at the Ocean City Golf Club. **Please sign up using the registration system.** Register online at: www.ChesapeakeTricon.org. *Cost: \$100 per individual and \$360 for a foursome.*

Young Professionals Happy Hour

All are welcome to join the Young Professionals on Thursday, August 30, 2018 for a fun night of networking! We will be enjoying happy hour and appetizers at Skye Bar on 66th Street from 6 PM to 9 PM. Registration includes one happy hour drink and appetizers. *Registration cost: \$10*

Guest Badges

All guests who wish to attend the non-ticketed Social Events, including breakfasts, breaks, receptions and other social events, will need to purchase a Guest Badge. *Cost: \$60 per guest. Guest tickets are intended for those accompanying an attendee for non-business related purposes. All attendees wishing to conduct business must register for the conference.*

THE FINE PRINT

Payment Methods

Registration can only be purchased using a credit card – **no cash or checks will be accepted for registration either in advance or at the conference.** Upon completion of your registration you will receive a confirmation that will show what was purchased, the type of payment used, and the amount paid.

Cancellations

All cancellation requests must be made *in writing* (see “Contact the Registrar” for email address) and received by the Registrar no later than August 10, 2018 at 11:59 PM. Refunds will be issued, minus a 20% administrative fee, for cancellations received before August 10, 2018 at 11:59 PM. No refunds will be issued for requests received after August 10, 2018 at 11:59 PM.



On-Site Registration

On-site registration will be available at the convention center. On-site registration can be done at the Cyber Café or at the On-Site Registration Desk. *Note: Lines may be long for on-site registration so allow plenty of time to register before the sessions.*

Registration Information

Registered attendees can pick up their conference badge and tickets at the Registration Desk. **New for 2018: Please bring your email confirmation with you to receive your badge and tickets at the desk.** Technical Session Attendance Forms, Conference Brochure, and any updates to conference information will be available at the Information Area.

Contact the Registrar

If you have questions about the online registration process or systems, please contact RCS at tricon2018@rcsreg.com or (805) 654-0171.

For all other general conference information, please contact Rachel Ellis at info@ChesapeakeTricon.org.

CSAWWA, CWEA, and WWOA thank you for your support!





pure
TECHNOLOGIES

a xylem brand

THE MORE
PIPELINE
DATA
YOU HAVE,
THE BETTER YOU WILL
SLEEP AT NIGHT.

Pure Technologies provides innovative data-driven solutions that help utilities manage aging pipeline infrastructure. This optimizes capital investment and drives better long-term decision making. Now that's something to help you rest easy.

Visit **booth 49** to learn about our condition assessment solutions for PCCP and metallic pipe.

xylem.com

xylem
Let's Solve Water

RECOVER. REUSE. RESTORE.

The goal is simple
- Recover. Reuse. Restore. -
preserving our environment
for future generations.

96%
of CSOs captured
and treated annually

32 MILLION
pounds reduction of
TN annually into the
Chesapeake Bay

\$500 MILLION
saved using high-rate
wet weather treatment

