

LEARN, NETWORK, ENJOY




2017

TRI-ASSOCIATION CONFERENCE

OCEAN CITY CONVENTION CENTER
Ocean City, MD • August 29 to September 1



A large suspension bridge, likely the Chesapeake Bay Bridge-Tunnel, spans a body of water. The bridge features tall concrete piers and steel truss structures. The water is dark blue with white foam from a wake in the foreground. The sky is a clear blue with scattered white clouds. The sun is visible in the upper left corner, creating a bright glow.

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

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TABLE OF CONTENTS



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 29, 2017	14
Pre-Conference Workshops	16
Wednesday, August 30, 2017	18
Operator Process Class	19
Thursday, August 31, 2017	26
Friday, September 1, 2017	33
Technical Program Schedule	34
Wednesday, August 30, 2017	34
Thursday, August 31, 2017	42
Friday, September 1, 2017	52
Exhibit Hall & Exhibitors	57
Board Members & Committee Chairs	59
Hotel Information	63
Registration Information	65
Conference Notes	68

WELCOME TO THE 2017 TRI-ASSOCIATION CONFERENCE

On behalf of CSAWWA, CWEA, and WWOA, I would like to welcome everyone to our 2017 Tri-Association Conference! It is my distinct honor to serve our local water industry through our conference organizing committee that continues to push the envelope, developing a forum where we can learn from each other to help solve our most complex environmental challenges together. As we all gather in Ocean City this year, I want to thank you for your continued support and hope you enjoy what the conference has to offer!

Jay Kirk, 2017 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 once again host a combined Annual Conference and Exhibition at the Roland E. Powell Convention Center in Ocean City, Maryland from August 29, 2017 – September 1, 2017. 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 nearly 150 standard booths and 4 equipment demonstration areas. Wednesday breakfast and breaks, Thursday breakfast and morning break, and Wednesday lunch will be held in the Exhibit Hall with the exhibitors. In addition, the 9th Annual Operations Challenge and 2nd Annual Pipe Tapping Contest will be spotlighted in the Exhibit Hall. The exciting Pipe Cutting Shootout is scheduled at the same time as the Wednesday evening Shooters Happy Hour.

Our 2017 Technical Program will include more than 150 presentations in six concurrent technical sessions including two 1-hour engineering ethics courses. In addition to the technical presentations, two Pre-Conference Workshops will be held on Tuesday, August 29, 2017. Our technical program will also include up to 10.5 hours of process credits for operators and superintendents on Wednesday, August 30, 2017!

The Committee would like to thank our technical program reviewers for reviewing the submitted abstracts and helping to create our strong technical program. We wouldn't be able to do it without you!

CYBER CAFÉ

The Cyber Café will be located in Rooms 207–208 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.

Cyber Café sponsored by:



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 2017 Tri-Association Conference name badge can ride the Ocean City buses at no charge (see page 67 for details).



WELCOME

REGISTRATION

Registration Location: First Floor Lobby

Tuesday: 7:00 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 will be 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.

This year's program includes up to 10.5 hours of process credits on the National Pollution Discharge Elimination System (NPDES) reporting for operators and superintendents (see page 19 for more information). This class will be offered on Wednesday August 30, 2017 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.

It is anticipated that the Maryland Board of Waterworks and Waste System Operators will approve **1 hour of non-process credit for Exhibitor Product Briefings** for visiting exhibitors in the Exhibit Hall. Operators and superintendents can meet and discuss available technologies with a minimum of 10 exhibitors. Exhibitors can 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 1 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, September 1, 2017.

ATTENTION PROFESSIONAL ENGINEERS

As part of the continuing education requirements for Professional Engineers registered in Maryland 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.

Engineering Ethics in 2017: Two 1-hour presentations on engineering ethics will be provided as part of the technical program to assist PEs with meeting the requirement (Room 203, Wednesday 8:30 AM and Friday 9:00 AM).

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 you leave the conference**. You will not be able to obtain a signature after Noon on Friday, September 1, 2017.



CONFERENCE PLANNING COMMITTEE

Raj Arora, American Pipe

Registration Vice Chair

Pipe Tapping Chair

Jane Bayer, HBK Engineering, LLC

Committee Member

Sarah Bunk, JMT

Silent Auction Chair

Jeff Cantwell,

Flow Assessment Services

Monitors and Moderators Chair

Chein-Chi Chang, DC Water

Committee Member

Andy Cooper, WRA

Technical Program Vice Chair

Gian Cossa, DC Water

Hotels, Seacrets, and Catering Chair

Opening Ceremony Vice Chair

Technical Program Committee

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Exhibitor Pre-Sales Chair

Signage Vice Chair

Aaron Hughes, WSSC

Operations Challenge Vice Chair

Christine Gunsaulas,

Entech Engineering

Fun Run Chair

Eric Held,

Charles Morrow & Associates

Exhibitor Chair

Pipe Tapping Vice Chair

Jay Kirk, Brown and Caldwell

Tri-Association Conference

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Treasurer

Technical Program Committee

Sophia Liskovich,

Gannett Fleming

Technical Program Committee

Kraig Moodie, FloWav

Operations Challenge Chair

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Hazen and Sawyer

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Karl Ott, Charles County

Signage Chair

Convention Center Liaison Vice Chair

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Technical Program Chair

Registration Chair, Brochure Chair

Sponsorship Vice Chair

Kevin Quinn, St. Mary's METCOM

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

Young Professionals Event Chair

Women's Networking Breakfast Chair

Bob Stenger, City of Rehoboth

Technical Program Committee

Ron Tatariw, Tatariw, Inc.

Golf Chair

Erica Whorley, Heery International

Silent Auction Vice Chair

Promotions Chair

Al Will, JMT

Insurance Chair

Convention Center Liaison

Tuesday, August 29	
Registration/Check-In First Floor Lobby 7:00 AM – 6:00 PM	
Golf Event Benefitting WFP Ocean City Golf Club Berlin, MD 8:00 AM Check-In, 9:00 AM Start	
Exhibitor Move-In Exhibit Hall 8:00 AM – 5:00 PM	
Legionella and Cross Connection Controls Workshop: Legionella Basics – Philly, Flint and Beyond Room 201 Noon – 5:00 PM	
Emergency Management Planning Workshop: Developing an Effective Emergency Response Plan for Small and Medium Utilities Room 203 Noon – 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	
Early Bird Reception Exhibit Hall 5:30 PM – 7:30 PM	

Wednesday, August 30	
5K Fun-Run/Walk Benefitting WFP Boardwalk at the Grand Hotel 7:00 AM	Break/Visit Exhibitors Exhibit Hall 10:00 AM – 10:30 AM
Registration/Check-In First Floor Lobby 7:30 AM – 5:00 PM	Opening Ceremony/Keynote Address Performing Arts Center 10:30 AM – 11:45 AM
Exhibits Open Exhibit Hall 7:30 AM – 6:00 PM	Lunch With Exhibitors Exhibit Hall Noon – 1:30 PM
Continental Breakfast Exhibit Hall 7:30 AM	Technical Sessions Rooms 201 – 206 1:30 PM – 3:00 PM
Operator Process Class: National Pollutant Discharge Elimination System (NPDES) Permit Reporting Room 215 8:00 AM – 4:30 PM	Break/Visit Exhibitors Exhibit Hall 3:00 PM – 3:30 PM
Technical Sessions Rooms 201 - 206 8:30 AM – 10:00 AM	Technical Sessions Rooms 201 – 206 3:30 PM – 5:00 PM
Operations Challenge Pre-Competition Meeting Exhibit Hall 8:30 AM – 9:00 AM	Pipe Cutting Shootout Exhibit Hall 5:00 PM – 6:00 PM
Operations Challenge Exhibit Hall 9:00 AM – 6:00 PM	Shooters Happy Hour Exhibit Hall 5:00 PM – 6:00 PM
Biosolids Beauty Contest CWEA Table, First Floor Lobby 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	

CONFERENCE AT-A-GLANCE

Thursday, August 31	
Women's Networking Breakfast Room 209 7:15 AM – 8:30 AM	CSAWWA Business Luncheon Dockside Ballroom (ticketed event) Noon – 2:00 PM
Registration/Check-In First Floor Lobby 7:30 AM – 4:00 PM	CWEA Business Luncheon Bayfront Ballroom (ticketed event) Noon – 2:00 PM
Exhibits Open Exhibit Hall 7:30 AM – Noon Move Out: Noon – 4:00 PM	WVOA Business Luncheon Room 209 (ticketed event) Noon – 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>Check Information Desk for winner and to pick up items.</i>	Top Ops Bayfront Ballroom 3:00 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
MDE Certification Exam Room 215 9:00 AM <i>See page 26 for details.</i>	Technical Sessions Rooms 201 – 206 4:00 PM – 5:30 PM
Break/Visit Exhibitors Exhibit Hall 10:00 AM – 10:30 AM	Awards Program Bayfront Ballroom (upstairs) • Cocktails: 5:45 PM – 6:15 PM • Program: 6:15 PM – 7:30 PM
Pipe Tapping Contest Exhibit Hall 10:00 AM	YP Happy Hour Skye Bar on 66 th Street 6:00 PM – 9:00 PM <i>All are welcome to attend.</i>
Technical Sessions Rooms 201 – 206 10:30 AM – Noon	

Friday, September 1
Registration/Check-In First Floor Lobby 7:30 AM – 10:30 AM
Continental Breakfast Outside Rooms 201 – 206 8:00 AM
Technical Sessions Rooms 201 – 206 9:00 AM – 11:30 AM
Last Chance for Technical Session Attendance Form Signatures Information Desk, First Floor Lobby 11:30 AM – Noon
Adjourn/Monster Door Prizes Information Desk, First Floor Lobby 11:45 AM
CSAWWA Board Meeting & Luncheon Room 210 Noon – 2:00 PM
CWEA Board Meeting & Luncheon Room 213 Noon – 2:00 PM
WVOA Board Meeting & Luncheon Room 209 Noon – 2:00 PM

	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Nutrient Removal	Engineering Ethics	Collection System	Water System Infrastr.	Water Treatment/Distrib.
8:30 AM	Phased Assessment Strategy for Sewers (PASS): Understanding Sewer Condition Quicker with Fewer Resources	What Do We Know about Sidestream EBPR? Benefits and Opportunities to Improve Process Resiliency!	Ethics - The Heart of the Engineering Profession	Going Deep to Avoid Conflict – Microtunnel Application for Pipeline Construction	Reuse of Existing Water Treatment Infrastructure to Optimize Space & Minimize Environmental Impacts for a 27-MGD Upgrade	City of Frederick, MD WTP, Design Build Upgrades, and Investigations Process
9:00 AM	Change Management Essentials	Planning Ahead: Selecting & Sizing a Centrate Treatment System Prior to Anaerobic Digester Start-Up		72-Inch Brick Sewer Rehabilitation in Downtown Washington, DC	Tackling Complex Water Infrastructure Relocations Within a Utility Congested Light Rail Transit Corridor	Rural Fire Protection Program in Howard County
9:30 AM	Vallejo Sanitation and Flood Control District Journey in Asset Management – This AMP Goes to 11!	Evaluation of Nutrient Trading Policy to Support Nutrient Strategy Development in Falls Lake Watershed		Negotiating WSSC's Consent Decree Extension Using a Data-driven Mathematical Model	Startup & Commissioning for a New Potomac River Water Supply Raw Water Intake and Pumping Station	Road Salt and Groundwater: Monitoring, Management, and Mitigation Strategies
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Treatment Plant Startup	Utility Program Mgmt.	Collection System	Water System Rehabilitation	Water System Management
1:30 PM	Lose the Spreadsheet! Asset Management Database Design and Integration	Startup and Operation of the Marlay Taylor WRF New 6-MGD BioMag System	Water Infrastructure Finance and Innovation Act (WIFIA) Program: Find out the Latest Updates	What's Eating Our Pipe? Condition Assessment & Corrosion Investigation for a Large-Diameter Sewer	Rehabilitation of a 72-inch and 66-inch PCCP Water Main in Downtown Washington, DC	Innovating for Future Needs: Using Zinc Coated Ductile Iron Pipe to Extend Asset Service Life
2:00 PM	Forever Forward: Operation and Maintenance Strategies for the City of Annapolis Water & Wastewater Infrastructure Asset Management Program	Operational Comparison of Micro Filtration and Ultra Filtration Membrane Bio-Reactors and Key Factors Impacting Start-up	Program Management of WSSC's 1.6 Billion SSO Consent Decree Program	Kennedy Center Presents: Challenging DC Water Interceptor Cleaning Project Under the Kennedy Center for Performing Arts	Bathurst Street & Teston Road Watermains – A Client, Engineer & Contractor Discussion on Risk Control in a Small-Diameter Tunnelling Project within Urban Environment	Water and Revenue Losses in Pennsylvania and New Jersey Water Utilities: How Big, How Much, and How Do they Compare Nationally?
2:30 PM	Monetizing Risk – A Case for Assessing Mitigation Strategies	Alphabet Soup: MBBR Startup Ain't Exactly ENR or IFAS! Lessons Along the Way to Optimization	Building Constructive Relations with the Regulators: The Baltimore County Case Study	Challenges of Cleaning Large-Diameter Sewers in an Urban Environment	Water and Wastewater Infrastructure Replacement in Geologically Unstable Conditions: The Piscataway Drive Slope Failure Project	Strengthening the Bonds of Your Distribution System – DC Water's Experience with AWWA's Partnership for Safe Water Distribution System Optimization
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater Treatment	Water Planning	Collection System	Water Infrastr. Assessment	Water Treatment/Quality
3:30 PM	Innovations in Water Infrastructure Financing – Addressing the Water Infrastructure Gap	Wastewater Treatment in an Energy- and Carbon-Constrained World	Source Trace Analysis – Using a Hydraulic Model to Minimize Treatment Improvement Costs & Identify Low Cost Alternatives	Transient Events and Control to Prevent Damage to Sewage Force Mains	Spoiler Alert! Your Water Mains Are Corroding... Learn About DC Water's Corrosion Condition Assessment Program	Why Are My Filters Failing? Forensic Analysis of Filter Underdrain Failures at WSSC's 285 MGD Potomac Water Filtration Plant
4:00 PM	The Future of Asset Management Using Unmanned Aerial Vehicles – How Corrosion Engineers Are Using Drones for Inspections	Challenges of Chemical Phosphorus Removal with Long SRT Operation in ENR Plants	Proactive Outreach as an Element of a Successful Master Plan Implementation	Baltimore Siphon Rehabilitation: Changing Conditions, Dynamic Solutions	Condition Assessment and Rehabilitation of a 70-year-old RCCP Transmission Main	Ozone – AOP for Taste and Odor Removal along with Meeting Simultaneous Compliance Issues
4:30 PM	Project Prioritization of Emergency Containment Planning for Climate Resiliency	Achieving BNR with Bioaugmentation & High Purity Oxygen: Technology Review & Process Modeling Leads to Successful Startup at Harrisburg AWWTF BNR Retrofit	Master Planning Priorities: Getting Your Existing System in Order While Preparing for Growth	Investigating & Correcting Source of Pump No.4 Air Binding at Marley SPS in Anne Arundel County	Don't Forget the Water Mains Hanging from Bridges... Assessment, Prioritization, and Repairs of Water Main on Bridges	Water Treatment Operations and Optimal Coagulation Control

	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater	Biosolids	Collection System	Water System Storage	Stormwater
8:30 AM	Building the Digital Utility of the Future	Working Smarter: Paperless Field Data Collection and Data Management for NetDMR Reporting	Impacts of Phosphorus Management Tool and Emerging Phosphorus Recovery Technologies on Biosolids Land Application	Innovation to Solutions: Cleanwater to Tackle Private, Leaky Pipes	Challenges and Lessons Learned in Planning, Designing, and Constructing a New 2 Million Gallon St. Elizabeth's Water Tower in Washington, DC	Catalyzing Environmental Markets to Accelerate the Implementation of Chesapeake Bay Clean Water Goals: Lessons from Anne Arundel County's Full Delivery Pilot Project
9:00 AM	Taking the First Steps on the Asset Management Journey: How HRSD Has Developed & Is Implementing Their Asset Management Program	Are You Operating with Situational Awareness? Practical Techniques & Application of High Performance Human Machine Interface within the Water/Wastewater Industry	"Looking Forward" – Maximizing the Value of Biogas Through Consideration of Alternative Uses	Public-Private Partnership in Rockville Solves Wastewater Collection System Capacity Constraints	Unique Design Aspects of the City of Baltimore's Druid Lake Finished Water Tanks Project	TMDL Action Plans – Reflecting on the Past and Looking to the Future
9:30 AM	City of Rehoboth Beach Drinking Water and Wastewater Infrastructure Asset Management Program	Transferring O&M Information to a Web-Based Format	Municipal Infrastructure and Renewable Energy: A National Perspective	Vero Beach, FL Case Study: An Economical, Low-Impact Wastewater Collection System	Successful Nitrification Control Using Chloramine Boosting and Mixing in Tanks	Inspection of Stormwater Controls for Better Performance
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater Treatment	Biosolids: Digestion	Collection System	Water Infrastructure Assessment	Stormwater
10:30 AM	Implementing an Asset Management Incentive Program for Delaware's Public Wastewater and Drinking Water Utilities	WWTP Process Leftovers – How Much Can We Squeeze in That Is Green and Sustainable?	Centralized Biosolids Processing with Thermal Hydrolysis and Anaerobic Digestion: Lab-Scale Testing and Process Modeling	Tunneling Uphill Through Tight DC Corridors	[Don't] Take a Leak-Beyond the Headphones with DC Water: DC Water's Application of Fixed Leak Detection to Monitor Water Mains Near High Profile Construction Site	Innovative Program Management for Restoration and Retrofit
11:00 AM	Improving Regional Resilience to Water Supply Emergencies	WEF Road Maps for the Utility of the Future – Energy, Nutrients, and Reuse	Codigestion with Food Wastes and FOG	The Planning, Design, and Rehabilitation of 4,200 Linear Feet of Large Diameter 30-inch Force Main Underneath the Bush River	Dude, Where's My SmartBall? When a Watermain Inspection Goes Sideways	Leveraging Continuous Monitoring and Adaptive Control (CMAC) Technology to Achieve Water Quality Objectives in the City of Lynchburg
11:30 AM	Piloting Emerging Technologies – Selection and Testing for Optimal Utility Management	Onsite Water Reuse: A Shortcut to Reclaimed Water Irrigation and Reduced Nitrogen Loading	The Microbial Community Dynamics of Thermal Hydrolysis Digesters	Design and Construction of Improvements to the High Level Sewershed Collection System (HLSCS): Lessons Learned	Silence of the Lines – Minimizing Water Losses with Acoustic Monitoring	Implementing MS4 Permits and TMDL Requirements: Lessons Learned and Innovative BMPs



	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater Facilities	Biosolids	Collection System	Water System Storage	Stormwater
2:00 PM	Process Mapping and Its Critical Role in CMMS Implementations	ENR Upgrades to the Marlay-Taylor 6 MGD WRF	Struvite, Turning a Potential Maintenance Problem into an Opportunity	Flushing Those Troubles Away in Baltimore County – How a Simple Non-Flushable Investigation Led to Big Results	Ocean City's Newest Landmark: The Beach Ball Water Tank	Striking a Balance, Incorporating Water Quality into Drainage Improvement Projects
2:30 PM	Force Mains System Prioritization, Assessment, and Risk Mitigation in Emerald Coast, Florida	Benefits of Alternative Construction Methods for Oxidation Ditch No.3 to Meet Oct. 2018 Deadline for Commissioning Patuxent WRF Expansion Project in Anne Arundel Co.	Heat Recovery from Biosolids Dryer Significantly Reduces Operating Costs at LASA Wastewater Treatment Facility	Inflow & Infiltration Analysis Innovations – Evaluating Actual Reduction of Rainfall Derived Inflow & Infiltration using Control Basin and Hydraulic Modeling Methods	Title Options: Too Much of a Good Thing? Reducing Excess Water Storage	Updating BMP Databases in the District of Columbia and Anne Arundel County: Comparing & Contrasting the Data Needs & Goals of Two Local Governments
3:00 PM	Help! We've Lost \$4.5M and Don't Know What to Do. A Budget Story from the Baltimore County Bureau of Utilities	Design-build Delivery for Large Wastewater Treatment Plant Project Leads to Positive Changes for the Chesapeake Bay	Not All Dryer Products are Created Equal	Elementary, Watts(on): Using Innovative Modeling Approaches to Sleuth Out Specific I/I Sources in the Watts Branch Sewershed	You Get What You Pay For: Getting the Best Value During a Tank Rehabilitation	Meeting Evolving Stormwater Management Goals with Innovative Designs: Ashburton Water Tanks, City of Baltimore
	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Water Resource Facilities	Biosolids	Collection System	Water Pipelines	Water Treatment/Quality
4:00 PM	Holistic Approach for Wastewater Infrastructure Asset Management	Don't Settle for Conventional: Emerging Alternative Primary Treatment Technologies	Ensuring Success for a State-of-the-Art Biosolids Treatment System at the Neuse River Resource Recovery Facility	Design of Gravity Sewer and Sewer House Connections Post-Flooding – Ellicott City, MD	Don't Blow Your Bonnet	Identification and Remediation of Perfluorinated Compounds in Drinking Water
4:30 PM	Performancestat: A New Approach to Operations Management in the Utility Sector	Development of Process Models for Planning, Operations, and Training	Belt Filter Press Optimization Study at DC Water	S%!? Flows Downhill... So Why Pump It?	Distribution Maintenance & Repair Techniques to Avoid System Shutdown	Cost-Effectively Improving Distribution System Water Quality Using Chlorine Dioxide
5:00 PM	Defining Likelihood and Consequence of Failure Parameters Specific to Storm Drainage Systems	Start-up of the Filtrate Treatment Facility	Technical Study on Improving Polymer Efficiency for Sludge Dewatering: Case Studies at Water & Wastewater Treatment Plants	Internal Coordination & Emergency Repair of a Distressed 102-inch Diameter Sewer Under an Active Storage Depot	Water Main Structural Lining and Same Trench Replacement in a Former Defense Site – Spring Valley, Washington, DC	Removing Arsenic from Groundwater at Calvert County's Marley Run Station

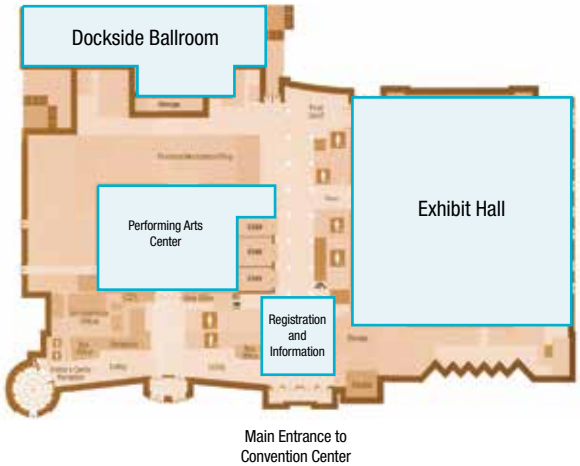


	Room 201	Room 202	Room 203	Room 204	Room 205	Room 206
	Asset/Utility Management	Wastewater	Engineering Ethics/ Sustainability	Collection System	Water System Infrastructure	Water Treatment
9:00 AM	Best Practices for Enterprise CCTV Management	Use of Physical Hydraulic Modeling in the Evaluation of Options for Upgrading Reclaimed Final Effluent Pumping Systems	Ethics for the Maryland PE	Design of 36-Inch Quad Avenue Wastewater Pumping Station Force Main: Challenges and Complexities	Case Study: Inspection and Assessment of a Large-Diameter PCCP Main in the City of Baltimore	Corrosion Control and the Impact that Coagulants Have – Balancing DBP Compliance with Lead and Copper Compliance
9:30 AM	It's All About Risk: Capital Planning for Trunk Sewers Using the RAMCAP J100 Risk Standard	Physical Modeling for New and Existing Pump Stations		Sewer Emergency Containment Plan Unveiling Seminar and SECP Game	Preparation and Design of a Physical and Electronic Inspection of a 66-inch Steel Water Main Along 8th Street, N.E. in Washington, DC	The Need for More Time: Settling and Disinfection Upgrades to Charles Town Water Treatment Plant
10:00 AM	Defining Affordability	What is WSSC's mysterious "Project F"?	How Bad Will It Get? When Should You Cut Back? Using Water Supply Forecasts & Water Shortage Triggers to Manage Droughts	Optimization of Baltimore County's Preventive Maintenance Cleaning Program	Analysis and Verification of PCCP Stiffness Testing Using Non-Invasive Acoustics	How Big Does It Need to Be? Analyzing Raw Water Data to Develop Design Basis for Solids Handling Facilities
10:30 AM	Potomac Interceptor Odor Control Facilities Optimization	Assessing the Value of Microgrids for Water and Wastewater Utilities	Groundwater Depletion: Alternative Water Supply Options for the Coastal Mid-Atlantic	Monitoring Combined Sewers to Establish the Baseline for the Effectiveness of Green Infrastructure	Large Water Valve Inspection and Rehabilitation in the WSSC	Tough as Iron: Optimizing Water Treatment & Residual Recycle at Water Treatment Plants with High Levels of Iron
11:00 AM	Developing Metrics for Evaluating Attributes of Community Outreach/Public Engagement Programs	Upgrading Existing Electrical and Control Systems at Operating Water & Wastewater Treatment Facilities	Environmental Sustainability for a Cultural History	Best Consultant of the Year Goes to: Client's Perspective of Design Management Priorities in Baltimore City's \$500M Consent Decree Sewer Collection Systems Improvements	Design-Build Replacement of Prince William County Service Authority's Distribution and Collection SCADA System	Optimizing Clearwell Performance – Lessons Learned from Computational Fluid Dynamics (CFD) Analyses & Tracer Testing

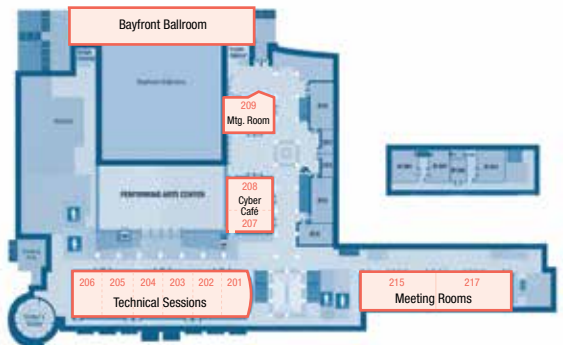


CONVENTION CENTER MAPS

LEVEL 1



LEVEL 2



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

TUESDAY, AUGUST 29, 2017

REGISTRATION/CHECK-IN

7:00 AM to 6:00 PM • First Floor Lobby

GOLF EVENT BENEFITTING WATER FOR PEOPLE

8:00 AM Check-In, 9:00 AM 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, MD to play the beautiful, challenging Newport Bay course at the Ocean City Golf Club. The Captain's Choice format will have a 9:00 AM shotgun start (check-in begins at 8:00 AM). Proceeds will benefit Water For People. Prizes will be distributed at the end of the outing, and winners announced at the Early Bird Reception. Unclaimed prizes will be posted and can be claimed at the Information Desk.

Back Again for 2017 – 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 \$25,000 prize will go to the first person who hits a hole-in-one; after that the competition will end and we will stop selling chances.

Registration: See page 66 for registration information. For additional information: Contact Ron Tatariw, Tatariw, Inc., at 703-716-0770 or by e-mail: rtatariw@tatariw.com.

EXHIBITOR MOVE-IN

8:00 AM to 5:00 PM • Exhibit Hall

LEGIONELLA AND CROSS CONNECTION CONTROLS WORKSHOP

Legionella Basics – Philly, Flint and Beyond

Noon – 5:00 PM • Room 201

See page 16 for details.

EMERGENCY MANAGEMENT PLANNING WORKSHOP

*Developing an Effective Emergency Response Plan
for Small and Medium Utilities*

Noon – 5:00 PM • Room 203

See page 17 for details.

TUESDAY, AUGUST 29, 2017

9TH ANNUAL OPERATIONS CHALLENGE

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 2017 Operations Challenge will be showcased in our Exhibit Hall, so come 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 2017 Guidelines.

Tuesday events will include:

- Process Control (Room 215)
- Laboratory (Exhibit Hall)

To register your team for this event, go to:

<http://www.ChesapeakeTricon.org/Ops-Challenge.html>

Operations Challenge sponsored by:



Dewberry



McKISSACK
McKISSACK



Measured up to the Challenge Your Team.

EARLY BIRD RECEPTION

5:30 PM to 7:30 PM • Exhibit Hall

Come get warmed up for the conference by enjoying light fare and drinks with our valued exhibitors. You will have the chance to win fabulous door prizes. Sodas, beer, and wine are complimentary and a cash bar for liquor will be available.

Sponsored by:



TUESDAY, AUGUST 29, 2017

The 2017 Tri-Association Conference Committee is pleased to offer Pre-Conference Workshops focused on **Legionella and Cross Connection Controls and Emergency Management Planning**.

LEGIONELLA AND CROSS CONNECTION CONTROLS WORKSHOP

Legionella Basics – Philly, Flint and Beyond

Noon – 5:00 PM • Room 201

See page 66 for registration information.

Facilitators: Steve Fox, Account Manager & Training Coordinator, HydroCorp™ (sfox@hydrocorpinc.com), Dr. Janet Stout, Director of Special Pathogen Laboratory Pittsburg, PA, and César Cordero, EPA Office of Ground Water and Drinking Water

Objective: The purpose of this workshop is to provide basic education on legionella and best management practices for legionella control/management, with a focus/emphasis on where it starts in our water source then moving to evaluating plumbing systems within a water user. The topics were developed with the possibility of presenting to multiple audiences/viewpoints – private water users (i.e., hotels) and city water suppliers:

Legionella Management – City Water Suppliers

- Legionella history and characteristics
- Potential sources, disease aspects
- EPA regulations/water treatment/control
- Responsibilities/liability
- Managing legionella (chlorination method, dead leg elimination, system flushing, cross connection program, water quality, work on water mains, etc.)
- Working with private water systems (how to respond to potential outbreaks, etc.)

Legionella Management – Private Water Users

- Various water using systems susceptible to legionella growth (DHW, cooling towers, spas, swimming pools, etc.)
- Regulations/liability
- Plumbing System Review/Analysis
- Other systems review/analysis (cooling towers, swimming pools, spas)
- Managing legionella
- Establish an ongoing, documented Water System Management Program

TUESDAY, AUGUST 29, 2017

EMERGENCY MANAGEMENT PLANNING WORKSHOP*Developing an Effective Emergency Response Plan
for Small and Medium Utilities***Noon – 5:00 PM • Room 203**

See page 66 for registration information.

Facilitators: Jonathan Reeves (Jonathan.Reeves@dcwater.com)
and Carl Simons (csimons@horsleywitten.com)

Objective: The workshop will begin with a discussion on the lessons learned and best practices from recent water/wastewater utility incidents (e.g., Body in the Reservoir, Unknown Contaminant, Potomac River Oil Sheen, Eastside Pump Station Flood, and Northeast Boundary Sewer Damage). Participants will break into small groups to discuss response to hypothetical emergencies/incidents. Each group will develop response strategy and brief the larger audience with facilitators guiding the discussion. The facilitators will also present information on:

- Development of tailored, action-oriented Emergency Response Plans (ERPs) for small and medium utilities and the available tools and resources,
- Roles and responsibilities of emergency management during a water utility incident, and
- Various avenues to obtain water sector resources.

Agenda

1:00 PM – 1:20 PM	Introductions, Workshop Administration, & Logistics
1:20 PM – 2:10 PM	Lessons Learned and Best Practices
2:10 PM – 3:10 PM	Small Group Emergency Response Practical Application Exercise
3:10 PM – 3:25 PM	Break / Networking
3:25 PM – 4:25 PM	ERPs for Small & Medium Utilities
4:25 PM – 4:40 PM	Utility / Emergency Management Relationships
4:40 PM – 4:50 PM	Mutual Aid and Assistance
4:50 PM – 5:00 PM	Feedback and Closing



CONFERENCE HIGHLIGHTS

WEDNESDAY, AUGUST 30, 2017

5K FUN RUN/WALK

BENEFITTING WATER FOR PEOPLE

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

See page 66 for registration information.

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



water for people

Sponsored by:



Dewberry



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ENGINEERING GROUP



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ASSOCIATES
Soil, Water & the Environment

Hazen



ISO



WEDNESDAY, AUGUST 30, 2017

REGISTRATION/CHECK-IN

7:30 AM to 5:00 PM • First Floor Lobby

EXHIBITS OPEN

7:30 AM to 6:00 PM • Exhibit Hall

CONTINENTAL BREAKFAST

7:30 AM • Exhibit Hall

Sponsored by:



OPERATOR PROCESS CLASS

*National Pollutant Discharge Elimination System
(NPDES) Permit Reporting*

8:00 AM to 4:30 PM • Room 215

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

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

There is no fee for this class.

Instructor: Maryland Center for Environmental Training

Objective: The National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. This one-day course is designed to train wastewater operators and superintendents on the NPDES reporting process in Maryland. The following topics will be covered: general objectives of the discharge reporting system, proper identification of excessive discharges, required methods for reporting to regulatory agencies, and the accurate preparation of monthly Discharge Monitoring Reports. Dissolved oxygen, chlorine residual, pH tests, and flow monitoring will also be discussed. Each participant must bring to this course a calculator with a log function and a copy of his or her plant's Discharge Permit.

1. Discuss general objectives of the discharge reporting system;
2. Identify excessive discharge properly;
3. Cite required methods of reporting violations to the regulatory agency;

CONFERENCE HIGHLIGHTS

WEDNESDAY, AUGUST 30, 2017

4. Prepare the state required monthly Discharge Monitoring Report accurately; and
5. Discuss tests involved in basic parameters, i.e., dissolved oxygen, chlorine residual, pH, and flow monitoring.

Lunch will be held with the Exhibitors in the Exhibit Hall.

Agenda

Morning Session

8:00 AM – 8:15 AM	Introduction / Course Overview
8:15 AM – 8:45 AM	Pre-Test
8:45 AM – 9:15 AM	History of NPDES
9:15 AM – 9:45 AM	NPDES Permitting
9:45 AM – 10:00 AM	Break
10:00 AM – 11:30 AM	NPDES Compliance: Plant Operation, Sample Collection, Preservation and Analysis, Reporting
11:30 AM – Noon	Common NPDES Compliance Problems and Solutions
Noon – 1:30 PM	Lunch with Exhibitors, Exhibit Hall

Afternoon Session

1:30 PM – 2:30 PM	Review of Site Specific WWTP NPDES Permits and Discharge Monitoring Reports (DMRs)
2:30 PM – 2:45 PM	Break
2:45 PM – 3:45 PM	Demonstrations: Excel MOR/DMR, EPA NetDMR
3:45 PM – 4:15 PM	Post Test
4:15 PM – 4:30 PM	Evaluation & Closing



WEDNESDAY, AUGUST 30, 2017

TECHNICAL SESSIONS

8:30 AM to 10:00 AM • Rooms 201 – 206

9TH ANNUAL OPERATIONS CHALLENGE

8:30 AM to 6:00 PM • Exhibit Hall

Continued from Tuesday. See page 15 for details.

Pre-Competition Meeting

8:30 AM to 9:00 AM • Exhibit Hall

Operation OC2! – Day 2

The Operations Challenge continues with day two's exciting events, including:

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

Operations Challenge will conclude with the Pipe Cutting Shootout that occurs 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 24 for details.

BIOSOLIDS BEAUTY CONTEST

9:00 AM to 11:00 AM • First Floor Lobby

Contact Scott Weikert at Scott.Weikert@ch2m.com for more Information on submitting your entry.



CONFERENCE HIGHLIGHTS

WEDNESDAY, AUGUST 30, 2017

SILENT AUCTION

BENEFITTING ENGINEERS WITHOUT BORDERS –

Johns Hopkins University Chapter

9:00 AM to 6:00 PM • Exhibit Hall

(Ends at 10:30 AM on Thursday, August 31, 2017)



The 2017 Tri-Association Conference includes a Silent Auction that will benefit the Engineers Without Borders – John Hopkins University Chapter. The auction will begin Wednesday, August 30, 2017 at 9:00 AM, and end Thursday, August 31, 2017 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 – John Hopkins University Chapter by donating an item for the Silent Auction. Auction items of all values are welcome. Your sponsorship of this event will not only support Engineers Without Borders – Johns Hopkins University Chapter's international actions in Guatemala and Sierra Leone, and local actions in Baltimore City, 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 (410) 568-2668.

Stop by the Information Desk after 11:00 AM on Thursday August 31, 2017 to see the winners of the silent auction. **Winners must pay for and pick up their items at the Information Desk before the end of the conference.**

WEDNESDAY MORNING

BREAK / VISIT EXHIBITORS

10:00 AM to 10:30 AM •

Exhibit Hall

Sponsored by:



WEDNESDAY, AUGUST 30, 2017

OPENING CEREMONY

10:30 AM to 11:45 AM • Performing Arts Center

Welcome

Jay Kirk, Tri-Association Conference Chair

Opening Remarks

Sophia Liskovich, CSAWWA Chair

Kevin Quinn, WWOA President

Kraig Moodie, CWEA President

Keynote Speaker



Howard Neukrug, PE, BCEE, Hon. D.WRE

Professor of Practice in Water Leadership and Innovation, University of Pennsylvania;
Senior Fellow, Kleinman Center for Energy Policy;
Faculty Fellow, Penn Institute for Urban Research;
Principal, CASE Environmental LLC;

and Senior Advisor, Global Water Leaders Group, Professor of Practice in Water Leadership Innovation, University of Pennsylvania.

The US Water Industry is changing. Issues of climate change, deferred maintenance, an aging infrastructure and workforce, new contaminants, old and new laws and regulations, advancing technologies, movement toward sustainability and green infrastructure, resource recovery and energy self-reliance, the perceived value of water and a customer base largely unwilling or unable to pay more for water, are all topics leading the industry to do much more with much less.

How will the U.S. water industry adjust to ensure that Americans today – much less 50 or 100 years from now – have access to high-quality drinking water 24/7; have their waste taken away and treated without threat of disease; that water supplies are available to overcome periods of drought or increased water demand; that protections are in place to prevent periods of flooding; and that our rivers and streams are fishable, swimmable, safe, attractive and accessible? Are these even the roles of the water industry? If not, whom?

There are a number of trends in water policy, land management, ecology, science & technology innovation, business & systems management, urbanization & sustainability that will be explored. Political & social aspects and environmental outreach & advocacy will also be integral to these discussions.

CONFERENCE HIGHLIGHTS

WEDNESDAY, AUGUST 30, 2017

Mr. Neukrug is a Professional Engineer, a member of the US National Drinking Water Advisory Council, and a Professor of Practice in Water Leadership and Innovation at The University of Pennsylvania. Mr. Neukrug is the founder of Philadelphia's Office of Watersheds and the creator of its Green Cities, Clean Waters program. He is also the principal of CASE Environmental LLC, which advises cities on the role water can play in meeting urban sustainability, resiliency and budgetary goals. Mr. Neukrug is also a senior advisor to the Global Water Leaders Group, where he chairs The Leading Utilities of the World CEO Network.

LUNCH WITH EXHIBITORS

Noon to 1:30 PM • Exhibit Hall

Sponsored by:



TECHNICAL SESSIONS

1:30 PM to 3:00 PM • Rooms 201 – 206

WEDNESDAY AFTERNOON BREAK / VISIT EXHIBITORS

3:00 PM to 3:30 PM •
Exhibit Hall

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!

WEDNESDAY, AUGUST 30, 2017

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®!

FUN NIGHT (SEACRETS®)

7:00 PM to 11:00 PM (ticketed event)

Join more than 500 fellow conference attendees for dinner and one of the biggest networking events of our conference at Seacrets®! Appetizers and a full dinner will be served from 7:00 to 8:30 PM. Each person will receive two drink tickets, but the bars will be open all four hours. 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 29, 2017. 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:



**WALLACE
MONTGOMERY**



Special thanks to RACHEL ELLIS who serves as our Event Manager... We would be lost without you!

CONFERENCE HIGHLIGHTS

THURSDAY AUGUST 31, 2017

WOMEN'S NETWORKING BREAKFAST

7:15 AM to 8:30 AM • Room 209

Join a panel of female water/infrastructure experts, at various stages of their careers, speaking about 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 type of work are you doing in the industry? Share your story and photo on social media using #WomenImpactingWater.

REGISTRATION/CHECK-IN

7:30 AM to 4:00 PM • First Floor Lobby

EXHIBITS OPEN

7:30 AM to Noon • Exhibit Hall

Move-Out: Noon – 4:00 PM

CONTINENTAL BREAKFAST

7:30 AM • Exhibit Hall

Sponsored by:



SILENT AUCTION BENEFITTING ENGINEERS WITHOUT BORDERS – *Johns Hopkins University Chapter*

7:30 AM to 10:30 AM • Exhibit Hall

(continued from Wednesday) See page 22 for more information.

MDE OPERATOR CERTIFICATION EXAM

9:00 AM • Room 215

Attention Maryland Operators – The Maryland Department of the Environment will offer a Certification Exam at TriCon this year! Seating is limited, and you must apply directly through MDE. The Tri-Association Conference will NOT register individuals for this exam. Links to the application and MDE information can be found on our website. DO NOT DELAY as this will sell out quickly! Registration for the Tri-Association Conference is not required to take the MDE exam; however, attendance at other conference events including the technical sessions will require a Conference Registration.

THURSDAY AUGUST 31, 2017

TECHNICAL SESSIONS

8:30 AM to 10:00 AM • Rooms 201 – 206

THURSDAY MORNING

BREAK / VISIT EXHIBITORS

10:00 AM to 10:30 AM • Exhibit Hall

Sponsored by:



PIPE TAPPING COMPETITION

10:00 AM • Exhibit Hall

Back for 2017 – Pipe Tapping Competition! Pipe Tapping is a high-energy competition involving a race against time to drill into a 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 ACE18 in Las Vegas!



Sponsored by:



TECHNICAL SESSIONS

10:30 AM to Noon • Rooms 201 – 206

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.

CONFERENCE HIGHLIGHTS

THURSDAY AUGUST 31, 2017

CSAWWA LUNCHEON (ticketed event)
Noon 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

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AWWA National Representative



Alan Forrest
Vice-President (2017–2019)
American Water Works Association

Alan Forrest is a Senior Manager in the Water Business Group at CH2M, where he has been employed since 2015. Alan has spent a majority of his career managing public water utilities, most recently as the Director of Tucson Water. He has been an active member of the Arizona Section of AWWA since joining in 1994.

Involved in many of the Section's committees, Alan's service has included Chair of the Technical Program Committee and he is currently the Arizona Section Director. Alan is also a member of the Water Environment Association and the American Academy of Water Resource Engineers.

He received the Distinguished Alumni Award from the University of Arizona in 2014 and holds a BS and MS in Civil Engineering from the University of Arizona. Alan and his wife Linda live in Oro Valley, AZ and are parents of Krystle, Daniel, and Jason.



THURSDAY AUGUST 31, 2017

CWEA BUSINESS LUNCHEON (ticketed event)

Noon 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

Paul T. Bowen, Ph.D.



**Immediate Past President
Director, Sustainable Operations,
The Coca-Cola Co., Lawrenceville, GA
Member Association: Georgia Association
of Water Professionals**

Paul Bowen is the 2016–17 Immediate Past President of the Water Environment Federation (WEF), an international organization of water quality professionals headquartered in Alexandria, Va.

Paul is currently the Director, Environmental Sustainability for The Coca-Cola Company. In this role he leads a multidisciplinary program that reaches across the Coca-Cola system. He is responsible for delivering on company commitments in water, energy, climate, and packaging recovery. His team helps embed environmental sustainability across all Coca-Cola System operations. He serves as a technical expert for developing water reuse with corporate quality standards and as a subject matter expert on water and wastewater treatment issues.

A WEF member since 1977, Paul has held multiple leadership and committee roles within WEF. He currently serves as the vice chair of the Committee Leadership Council. He has served on the Program Committee as both chair and vice chair as well as served as a member and chair of the Residuals & Biosolids Technical Symposium, Industrial Wastes Technical Symposium, and the Research Symposia. Paul was also chair of the Committee Leadership Council's Delivery Focus Group and a member of the Public Affairs & Communications and Industrial Wastes Committees.

THURSDAY AUGUST 31, 2017

WWOA BUSINESS LUNCHEON (ticketed event)

Noon to 2:00 PM • Room 209



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

- Past President Award
- Lifetime Membership Award

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TECHNICAL SESSIONS

2:00 PM to 3:30 PM • Rooms 201 – 206

TOP OPS

3:00 PM to 5:30 PM • Bayfront Ballroom



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 Las Vegas, Nevada in 2018. For more information, contact Anthony Rocco, Howard County Bureau of Utilities, (410) 313-4945.

Sponsored by:



THURSDAY AUGUST 31, 2017

THURSDAY AFTERNOON BREAK

3:30 PM to 4:00 PM •

Outside Rooms 201 – 206

Sponsored by:



TECHNICAL SESSIONS

4:00 PM to 5:30 PM • Rooms 201 – 206

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:



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 of attributes that promote our missions. The following awards will be presented:

TRI-ASSOCIATION CONFERENCE

- Tri-Association Conference Committee Service Award

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

CONFERENCE HIGHLIGHTS

THURSDAY AUGUST 31, 2017

- 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

CWEA

- Operations Challenge Overall Winner
- Biosolids Beauty Contest Winner
- WEF MA Award – Lab Analyst
- WEF MA Award – Bedel for Service to MA
- WEF MA Award – Hatfield for Operator/Professional Education

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 31, 2017 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. Walk-ins are welcome to come and pay your own way. See page 66 for registration details.

Sponsored by:

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& L**
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FRIDAY, SEPTEMBER 1, 2017

REGISTRATION/CHECK-IN

7:30 AM to 10:30 AM • First Floor Lobby

CONTINENTAL BREAKFAST

8:00 AM • Outside Rooms 201 – 206

Sponsored by:



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 Desk, First Floor Lobby

ADJOURN/MONSTER DOOR PRIZES

11:45 AM • Information Desk, First Floor Lobby

CSAWWA BOARD MEETING & LUNCHEON

Noon to 2:00 PM • Room 210

CWEA BOARD MEETING & LUNCHEON

Noon to 2:00 PM • Room 213

WWOA BOARD MEETING & LUNCHEON

Noon to 2:00 PM • Room 209



TECHNICAL PROGRAM SCHEDULE

WEDNESDAY, AUGUST 30, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

ROOM 201 • ASSET/UTILITY MANAGEMENT

8:30 AM – 9:00 AM

Phased Assessment Strategy for Sewers (PASS):
Understanding Sewer Condition Quicker with Fewer Resources
Steve Sebastian, EnviroSight (*SSebastian@envirosight.com*)

9:00 AM – 9:30 AM

Change Management Essentials
Gian Cossa, DC Water (*gian.cossa@dcwater.com*)

9:30 AM – 10:00 AM

Vallejo Sanitation and Flood Control District Journey in Asset Management
- This AMP goes to 11!
Gage Muckleroy, GHD Inc. (*gage.muckleroy@ghd.com*)
Mert Muftugil, GHD Inc.
Johnson Ho, Vallejo Sanitation and Flood Control District
Mark Tomko, Vallejo Sanitation and Flood Control District

1:30 PM – 2:00 PM

Lose the Spreadsheet! Asset Management Database Design and Integration
Charlie Card, EBA Engineering, Inc. (*charlie.card@ebaengineering.com*)
Rich DeBell, EBA Engineering, Inc.
Mike Kyle, Lancaster Area Sewer Authority
Peter Hartmann, Lancaster Area Sewer Authority

2:00 PM – 2:30 PM

Forever Forward: Operation & Maintenance Strategies for the City of
Annapolis Water & Wastewater Infrastructure Asset Management Program
Mert Muftugil, GHD Inc. (*mert.muftugil@ghd.com*)
Diane Doyen, City of Annapolis
Thora Burkhardt, City of Annapolis
David Kerr, GHD Inc.

2:30 PM – 3:00 PM

Monetizing Risk – A Case for Assessing Mitigation Strategies
Craig Daly, Pure Technologies (*craig.daly@puretechltd.com*)

3:30 PM – 4:00 PM

Innovations in Water Infrastructure Financing –
Addressing the Water Infrastructure Gap
Amy Santos, Arcadis (*amy.santos@arcadis.com*)
John Mastracchio, Arcadis

4:00 PM – 4:30 PM

The Future of Asset Management Using Unmanned Aerial Vehicles –
How Corrosion Engineers Are Using Drones for Infrastructure Inspections
John Smith, Engineering Design Technologies, Inc. (*josmithpe@gmail.com*)
Daniel Smith, Engineering Design Technologies, Inc.

WEDNESDAY, AUGUST 30, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

4:30 PM – 5:00 PM

Project Prioritization of Emergency Containment Planning for
Climate Resiliency

Chein-Chi Chang, DC Water (chang87@gmail.com)

Kevin Slaven, Arcadis

Getachew D. Melsew, DC Water

Kevin Slaven, Arcadis

Craig Fricke, DC Water

ROOM 202 • NUTRIENT REMOVAL

8:30 AM – 9:00 AM

What Do We Know about Sidestream EBPR? Benefits & Opportunities
to Improve Process Resiliency!

Patrick Dunlap, Black & Veatch (DunlapPJ@bv.com)

James Barnard, Black & Veatch

Roland Jezek, Black & Veatch

Gregory Knight, Black & Veatch

9:00 AM – 9:30 AM

Planning Ahead: Selecting and Sizing a Centrate Treatment System Prior
to Anaerobic Digester Start-Up

Brian Balchunas, HDR (Brian.Balchunas@hdrinc.com)

Larry Hentz, HDR

Sebastian Smoot, HDR

9:30 AM – 10:00 AM

Evaluation of Nutrient Trading Policy to Support of Nutrient Strategy
Development in Falls Lake Watershed

Mary Sadler, Hazen and Sawyer (msadler@hazenandsawyer.com)

Damann Anderson, Hazen and Sawyer

Joe Sowinski, Hazen and Sawyer

ROOM 202 • TREATMENT PLANT STARTUP

1:30 PM – 2:00 PM

Start-Up and Operation of the Marlay Taylor WRF New 6-MGD BioMag System

Peter Schuler, Brown and Caldwell (pschuler@brwnncald.com)

DuWayne Potter, MetCom

Jose Jimenez, Brown and Caldwell

Lynne Putnam, Dewberry

TECHNICAL PROGRAM SCHEDULE

WEDNESDAY, AUGUST 30, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

2:00 PM – 2:30 PM

Operational Comparison of Micro Filtration and Ultra Filtration
Membrane Bio-Reactors & Key Factors Impacting Start-Up

Ezgi Kurdoglu, Maryland Environmental Service (ekurd@menv.com)

Partha Tallapragada, Maryland Environmental Service

Tiffany Bradshaw, Maryland Environmental Service

Kirk Parks, Maryland Environmental Service

2:30 PM – 3:00 PM

Alphabet Soup: MBBR Startup Ain't Exactly ENR or IFAS!

Lessons Along the Way to Optimization

William Meinert, OBG (Bill.Meinert@obg.com)

Edward Talbot, OBG

ROOM 202 • WASTEWATER TREATMENT

3:30 PM – 4:00 PM

Wastewater Treatment in an Energy- and Carbon-Constrained World

Samuel Jeyanayagam, CH2M (samuel.jeyanayagam@ch2m.com)

4:00 PM – 4:30 PM

Challenges of Chemical Phosphorous Removal with Long SRT Operation
in ENR Plants

Ladan Holakoo, GHD Inc. (Ladan.Holakoo@GHD.com)

Thor Young, GHD Inc.

4:30 PM – 5:00 PM

Achieving BNR with Bioaugmentation and High Purity Oxygen:

Technology Review & Process Modeling Leads to Successful Startup of
the Harrisburg AWTF BNR Retrofit

Kevin Frank, AECOM (kevin.frank@aecom.com)

Jess Rosentel, Capital Region Water

ROOM 203 • ENGINEERING ETHICS

8:30 AM – 9:30 AM

Ethics – The Heart of the Engineering Profession

Jim Johnson, Jr., Wallace Montgomery

(jjohnson@wallacemontgomery.com)

9:30 AM – 10:00 AM

Lessons Learned from Flint and Preparing for Anticipated Changes to
Lead and Copper Rule (LCR)

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

John Moore, RK&K

WEDNESDAY, AUGUST 30, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

ROOM 203 • UTILITY PROGRAM MANAGEMENT

1:30 PM – 2:00 PM

Water Infrastructure Finance and Innovation Act (WIFIA) Program:
The Latest Updates

Danusha Chandy, US EPA (chandy.danusha@epa.gov)

2:00 PM – 2:30 PM

Program Management of WSSC's 1.6 Billion SSO Consent Decree Program

Yvette Parker, WSSC (yvette.parker@wsscwater.com)

Kristina Williams, WSSC

Jenny Johnson, WSSC

2:30 PM – 3:00 PM

Building Constructive Relations with the Regulators: The Baltimore
County Case Study

Spyros Papadimas, Louis Berger (spapadimas@louisberger.com)

ROOM 203 • WATER PLANNING

3:30 PM – 4:00 PM

Source Trace Analysis – Using a Hydraulic Model to Minimize Treatment
Improvement Costs & Identify Low-Cost Alternatives to Reduce DBPs

Jeremy Hise, Hazen and Sawyer (jhise@hazenandsawyer.com)

Meric Selbes, Hazen and Sawyer

Craig Lambert, City of Frederick

Dan Seal, City of Frederick

Wayne Zhang, Hazen and Sawyer

4:00 PM – 4:30 PM

Proactive Outreach as an Element of a Successful Master Plan Implementation

Dennis Funk, Gannett Fleming, Inc. (dfunk@gfnet.com)

Simon Baidoo, WSSC

4:30 PM – 5:00 PM

Master Planning Priorities: Getting Your Existing System in Order While
Preparing for Growth

Kevin Laptos, Black & Veatch (laptoskt@bv.com)

Ben Cownie, Black & Veatch

Katy Weidner, Black & Veatch

Keri Cantrell, Charlotte Water

ROOM 204 • COLLECTION SYSTEM

8:30 AM – 9:00 AM

Going Deep to Avoid Conflict – Microtunnel Application for
Pipeline Construction

Dennis Funk, Gannett Fleming, Inc. (dfunk@gfnet.com)

TECHNICAL PROGRAM SCHEDULE

WEDNESDAY, AUGUST 30, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

9:00 AM – 9:30 AM

72-Inch Brick Sewer Rehabilitation in Downtown Washington, DC

Scott Naiva, Milliken Infrastructure Solutions, LLC

(Scott.Naiva@milliken.com)

Steve Bian, DC Water

Bob Serenko, Inland Pipe Rehabilitation

9:30 AM – 10:00 AM

Negotiating WSSC's Consent Decree Extension Using a Data-driven Mathematical Model

Prabhushankar Chandrasekeran, Greeley and Hansen

(pchandrasekeran@greeley-hansen.com)

Marcia Tucker, WSSC

Arturo Acevedo, Greeley and Hansen

Ed Cronin, Greeley and Hansen

1:30 PM – 2:00 PM

What's Eating Our Pipe? Condition Assessment & Corrosion Investigation for a Large Diameter Sewer

Matt Roder, Greeley and Hansen *(mroder@greeley-hansen.com)*

Aaron Hughes, WSSC

Glendon Diaz, WSSC

Andrew Fitzsimons, WSSC

Arturo Acevedo, Greeley and Hansen

2:00 PM – 2:30 PM

Kennedy Center Presents: Challenging DC Water Interceptor Cleaning Project under the Kennedy Center for Performing Arts

M. Ella Garcia, DC Water *(ella.garcia@dcwater.com)*

Rob Hilton, Chester Engineers

Joe Schotthoefer, Doetsch Environmental Services

2:30 PM – 3:00 PM

Challenges of Cleaning Large-Diameter Sewers in an Urban Environment

Tiffany Harrison, Gannett Fleming, Inc. *(tharrison@gfnet.com)*

Joseph Strauch, Gannett Fleming, Inc.

Mohamad Alkhatib, City of Baltimore DPW

3:30 PM – 4:00 PM

Transient Events and Control to Prevent Damage to Sewage Force Mains

Jeffrey Grow, RK&K *(jgrow@rkk.com)*

Brian Rowland, RK&K

Robert Linthicum, RK&K

4:00 PM – 4:30 PM

Baltimore Siphon Rehabilitation: Changing Conditions, Dynamic Solutions

Cece Nguyen, Brown and Caldwell *(CNguyen@brwnncald.com)*

Wazir Qadri, City of Baltimore

Pono Hanson, Brown and Caldwell

WEDNESDAY, AUGUST 30, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

4:30 PM – 5:00 PM

Investigating and Correcting Source of Pump No.4 Air Binding at Marley SPS in Anne Arundel County

Jonathan Pollard, Atkins (Jonathan.Pollard@atkinsglobal.com)

Parimal Bachubhay, Anne Arundel County

ROOM 205 • WATER SYSTEM INFRASTRUCTURE

8:30 AM – 9:00 AM

Reuse of Existing Water Treatment Infrastructure to Optimize Space Usage & Minimize Environmental Impacts for a 27-MGD Upgrade

Mark Notheis, CH2M (mark.notheis@ch2m.com)

Susan Watson, City of Portsmouth Virginia

9:00 AM – 9:30 AM

Tackling Complex Water Infrastructure Relocations Within a Utility Congested Light Rail Transit Corridor

Patrick Hager, RK&K (phager@rkk.com)

Elford Jackson, RK&K

Nirav Shah, RK&K

Rachel Richardson, RK&K

9:30 AM – 10:00 AM

Startup & Commissioning for a New Potomac River Water Supply Raw Water Intake and Pumping Station

Chris Waters, Arcadis (chris.waters@arcadis.com)

Raghavender Joshi, Loudoun Water

ROOM 205 • WATER SYSTEM REHABILITATION

1:30 PM – 2:00 PM

Rehabilitation of a 72-inch and 66-inch PCCP Water Main in Downtown Washington, DC

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

Sam Ofori, DC Water

Gary Geck, Mott MacDonald

William Darrow, Mott MacDonald

Sarah Ghali, McKissack & McKissack

2:00 PM – 2:30 PM

Bathurst Street and Teston Road Watermains: A Client, Engineer & Contractor Discussion on Risk Control in a Small Diameter Tunnelling Project within Urban Environment

Khaled Elnabolsy, GHD Inc. (khaled.elnabolsy@ghd.com)

Mandy Paglia, The Regional Municipality of York

John Ranta, The Regional Municipality of York

Walter Trisi, CRS Tunnelling

TECHNICAL PROGRAM SCHEDULE

WEDNESDAY, AUGUST 30, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

2:30 PM – 3:00 PM

Water & Wastewater Infrastructure Replacement in Geologically Unstable Conditions: The Piscataway Drive Slope Failure Project

Christopher Overcash, KCI Technologies, Inc. (covercash@kci.com)

Marcia Tucker, WSSC

Nasr Widatalla, WSSC

Kui Lin, KCI Technologies, Inc.

ROOM 205 • WATER INFRASTRUCTURE ASSESSMENT

3:30 PM – 4:00 PM

Spoiler Alert! Your Water Mains Are Corroding...

Learn about DC Water's Corrosion Condition Assessment Program

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

Bisrat Abebe, DC Water

Duane Stewart, Russell Corrosion Consultants

Fernando Garra, Russell Corrosion Consultants

Russell Deason, Mott MacDonald

4:00 PM – 4:30 PM

Condition Assessment & Rehabilitation of a 70-year-old RCCP Transmission Main

Brian Ball, Black & Veatch (ballbp@bv.com)

4:30 PM – 5:00 PM

Don't Forget the Water Mains Hanging from Bridges...

Assessment, Prioritization & Repairs of Water Main on Bridges

William Darrow, Mott MacDonald (William.Darrow@mottmac.com)

Sam Ofori, DC Water

Sonia Oton, Mott MacDonald

Sarah Ghali, McKissack & McKissack

Fernando Garra, Russell Corrosion Consultants

ROOM 206 • WATER TREATMENT/DISTRIBUTION

8:30 AM – 9:00 AM

City of Frederick, MD WTP – Design Build Upgrades and Investigations Process

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

Lars Peterson, KCI Technologies, Inc

9:00 AM – 9:30 AM

Rural Fire Protection Program in Howard County

Paul DiMarco, Howard County DPW (pdimarco@howardcountymd.gov)

Grace Wang, KCI Technologies, Inc

WEDNESDAY, AUGUST 30, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

9:30 AM – 10:00 AM

Road Salt and Groundwater:

Monitoring, Management, and Mitigation Strategies

Frank Getchell, Leggette, Brashears & Graham, Inc.

(frank.getchell@lbgnj.com)

Karen Benson, Leggette, Brashears & Graham, Inc.

ROOM 206 • WATER SYSTEM MANAGEMENT

1:30 PM – 2:00 PM

Innovating for Future Needs:

Using Zinc Coated Ductile Iron Pipe to Extend Asset Service Life

Keith Tyson, WSSC (Keith.Tyson@wsscwater.com)

Aloysius Obodoako, WSSC

2:00 PM – 2:30 PM

Water & Revenue Losses in Pennsylvania and New Jersey Water Utilities:

How Big, How Much, and How Do they Compare Nationally?

Edward Osann, Natural Resources Defense Council (eosann@nrdc.org)

2:30 PM – 3:00 PM

Strengthening the Bonds of Your Distribution System –

DC Water's Experience with AWWA's Partnership for Safe Water

Distribution System Optimization Program

Gert van der Walt, DC Water (Gert.VanDerWalt@dcwater.com)

John Civardi, Mott MacDonald

ROOM 206 • WATER TREATMENT/QUALITY

3:30 PM – 4:00 PM

Why Are My Filters Failing? Forensic Analysis of Filter

Underdrain Failures at WSSC's 285 MGD Potomac Water Filtration Plant

George Rest, OBG (restgb@obg.com)

Joseph Johnson, WSSC

Alan Sauvageau, WSSC

Fred Pfeifer, WSSC

4:00 PM – 4:30 PM

Ozone – AOP for Taste and Odor Removal Along with Meeting

Simultaneous Compliance Issues

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

Amy Gao, CH2M

Joseph Nattress, CH2M

4:30 PM – 5:00 PM

Water Treatment Operations and Optimal Coagulation Control

Ana Morfesis, Malvern Instruments Inc. (ana.morfesis@malvern.com)

Alon Vaisman, Malvern Instruments, Inc.

TECHNICAL PROGRAM SCHEDULE

THURSDAY AUGUST 31, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

ROOM 201 • ASSET/UTILITY MANAGEMENT

8:30 AM – 9:00 AM

Building the Digital Utility of the Future

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

9:00 AM – 9:30 AM

Taking the First Steps on the Asset Management Journey: How HRSD Has Developed & Is Implementing their Asset Management Program

Will Williams, Black & Veatch (*WilliamsWD@bv.com*)

Martin Jones, Black & Veatch

Pete Baskette, Black & Veatch

9:30 AM – 10:00 AM

City of Rehoboth Beach Drinking Water & Wastewater Infrastructure Asset Management Program

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

Gage Muckleroy, GHD Inc.

10:30 AM – 11:00 AM

Implementing an Asset Management Incentive Program for Delaware's Public Wastewater and Drinking Water Utilities

Greg Pope, Delaware DNREC Env't'l Finance (*greg.pope@state.de.us*)

Carrie DeSimone, Duffield Associates, Inc.

11:00 AM – 11:30 AM

Improving Regional Resilience to Water Supply Emergencies

Ahmet Ozman, Black & Veatch (*Ozmanan@bv.com*)

Steven Bieber, MWCOG

Lisa Ragain, MWCOG

11:30 AM – 12:00 PM

Piloting Emerging Technologies –

Selection and Testing for Optimal Utility Management

Bisrat Abebe, DC Water (*bisrat.abebe@dcwater.com*)

Craig Benson, Mott MacDonald

Jason Graz, Mott MacDonald

2:00 PM – 2:30 PM

Process Mapping and Its Critical Role in CMMS Implementations

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

Kathleen Zynda, GHD Inc.

2:30 PM – 3:00 PM

Force Mains System Prioritization, Assessment, and Risk Mitigation in Emerald Coast, Florida

Kate Zhao, Pure Technologies (*kate.zhao@puretechltd.com*)

Brock Johns, Arcadis

Chris Duckworth, Pure Technologies

THURSDAY AUGUST 31, 2017

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3:00 PM – 3:30 PM

Help! We've Lost \$4.5M and Don't Know What to Do. A Budget Story from the Baltimore County Bureau of Utilities

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

Tom Kiefer, Baltimore County DPW

4:00 PM – 4:30 PM

Holistic Approach for Wastewater Infrastructure Asset Management

Tom Kiefer, Baltimore County (ecarpenetti@hotmail.com)

Ed Carpenetti, Louis Berger

4:30 PM – 5:00 PM

Performancestat: A New Approach to Operations Management in the Utility Sector

Jay Sakai, 4Tenets Consulting, LLC (jsakai@fourtenets.com)

Bryan Samuels, WSSC

5:00 PM – 5:30 PM

Defining Likelihood and Consequence of Failure Parameters Specific to Storm Drainage Systems

Edward Shea, Greeley and Hansen (eshea@greeley-hansen.com)

Valerie Tucker, Fairfax County DPW & ES

Amy Linderman, Fairfax County DPW & ES

Kenneth Eyre, Greeley and Hansen

Joshua Crossen, Greeley and Hansen

ROOM 202 • WASTEWATER

8:30 AM – 9:00 AM

Working Smarter: Paperless Field Data Collection and Data Management for NetDMR Reporting

Jason Gillespie, Maryland Environmental Service (jgill@menv.com)

Jay Janney, Maryland Environmental Service

9:00 AM – 9:30 AM

Are You Operating with Situational Awareness?

Practical Techniques & Application of High Performance

Human Machine Interface within the Water/Wastewater Industry

Billy Fox, HDR (billy.fox@hdrinc.com)

David Brearley, HDR

9:30 AM – 10:00 AM

Transferring O&M Information to a Web-Based Format

John Cannon, GHD Inc. (john.cannon@ghd.com)

Thor Young, GHD Inc.

TECHNICAL PROGRAM SCHEDULE

THURSDAY AUGUST 31, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

ROOM 202 • WASTEWATER TREATMENT

10:30 AM – 11:00 AM

WWTP Process Leftovers – How Much Can We Squeeze in That Is Green and Sustainable?

Isaac Katz, OBG (*isaac.katz@obg.com*)

11:00 AM – 11:30 AM

WEF Road Maps for the Utility of the Future – Energy, Nutrients, and Reuse

Brianne Nakamura, Water Environment Federation (*bnakamura@wef.org*)

11:30 AM – 12:00 PM

Onsite Water Reuse: A Shortcut to Reclaimed Water Irrigation and Reduced Nitrogen Loading

Damann Anderson, Hazen and Sawyer

(*danderson@hazenandsawyer.com*)

Josefin Hirst, Hazen and Sawyer

ROOM 202 • WASTEWATER FACILITIES

2:00 PM – 2:30 PM

ENR Upgrades to the Marlay-Taylor 6 MGD WRF

Lynne Putnam, Dewberry Consultants, LLC (*calgal15@gmail.com*)

Mike Sullivan, MetCom

Steve Engleson, MetCom

Christy Hollander, MetCom

2:30 PM – 3:00 PM

Benefits of Alternative Construction Methods for Oxidation Ditch No.3 to Meet Oct. 2018 Deadline for Commissioning Patuxent WRF Expansion Project in Anne Arundel Co.

Parimal Bachubhay, Anne Arundel County DPW (*pwbach22@aacounty.org*)

Karthik Manchala, Atkins North America, Inc.

3:00 PM – 3:30 PM

Design-build Delivery for Large Wastewater Treatment Plant Project Leads to Positive Changes for the Chesapeake Bay

Jason Kerns, HDR (*jkerns@hdrinc.com*)

ROOM 202 • WATER RESOURCE FACILITIES

4:00 PM – 4:30 PM

Don't Settle for Conventional: Emerging Alternative Primary Treatment Technologies

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

Bill Meinert, OBG

Ned Talbot, OBG

THURSDAY AUGUST 31, 2017

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4:30 PM – 5:00 PM

Development of Process Models for Planning, Operations, and Training

Phill Yi, Hazen and Sawyer (pyi@hazenandsawyer.com)

Joseph Sowinski, Hazen and Sawyer

W. James Gellner, Hazen and Sawyer

Thomas Kutcher, Metropolitan Sewer District of Greater Cincinnati

5:00 PM – 5:30 PM

Start-up of the Filtrate Treatment Facility

Jimit Modi, Black & Veatch (modijn@bv.com)

Pete Thomson, Black & Veatch

Salil Kharkar, DC Water

Nick Passarelli, DC Water

ROOM 203 • BIOSOLIDS

8:30 AM – 9:00 AM

Impacts of Phosphorus Management Tool and Emerging Phosphorus

Recovery Technologies on Biosolids Land Application

Sebastian Smoot, HDR (engineer.smoot@gmail.com)

Larry Hentz, HDR

9:00 AM – 9:30 AM

“Looking Forward” – Maximizing the Value of Biogas Through

Consideration of Alternative Uses

Matthew Van Horne, Hazen and Sawyer

(mvanhorne@hazenandsawyer.com)

Bryan Lisk, Hazen and Sawyer

Micah Blate, Hazen and Sawyer

9:30 AM – 10:00 AM

Municipal Infrastructure and Renewable Energy: A National Perspective

Jeremy Holland, HDR (jeremy.holland@hdrinc.com)

ROOM 203 • BIOSOLIDS DIGESTION

10:30 AM – 11:00 AM

Centralized Biosolids Processing with Thermal Hydrolysis & Anaerobic

Digestion: Lab-Scale Testing & Process Modeling

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

Matthew Higgins, Bucknell University

Dale Belchner, WSSC

Kevin Selock, WSSC

11:00 AM – 11:30 AM

Codigestion with Food Wastes and FOG

Wayne McFarland, GHD Inc. (wayne.mcfarland@ghd.com)

TECHNICAL PROGRAM SCHEDULE

THURSDAY AUGUST 31, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

11:30 AM – 12:00 PM

The Microbial Community Dynamics of Thermal Hydrolysis Digesters

Josh Mah, Virginia Tech (jmah@vt.edu)

John Novak, Virginia Tech

ROOM 203 • BIOSOLIDS

2:00 PM – 2:30 PM

Struvite, Turning a Potential Maintenance Problem into an Opportunity

Terry Goss, AECOM (terry.goss@aecom.com)

2:30 PM – 3:00 PM

Heat Recovery from Biosolids Dryer Significantly Reduces Operating Costs at LASA Wastewater Treatment Facility

Jeffrey Culton, Buchart Horn, Inc. (jculton@bucharthorn.com)

Scot Fertich, Lancaster Area Sewer Authority

3:00 PM – 3:30 PM

Not All Dryer Products Are Created Equal

Lisa Boudeman, Material Matters, Inc. (lboudeman@materialmatters.com)

4:00 PM – 4:30 PM

Ensuring Success for a State-of-the-Art Biosolids Treatment System at the Neuse River Resource Recovery Facility

Engin Guven, Black & Veatch (guven.engin@gmail.com)

Kent Lackey, Black & Veatch

4:30 PM – 5:00 PM

Belt Filter Press Optimization Study at DC Water

Miguel E Miranda, DC Water (miguel.miranda@dcwater.com)

Mahmudul Hasan, DC Water

Qi Zhang, DC Water

5:00 PM – 5:30 PM

Technical Study on Improving Polymer Efficiency for Sludge Dewatering:

Case Studies at Water & Wastewater Treatment Plants

Yong Kim, UGSI Solutions, Inc. (ykim@ugsicorp.com)

Mike Whitaker, Neshaminy Water Treatment Plant

Brian Hawley, Fairfield-Suisun Sewer District

ROOM 204 • COLLECTION SYSTEM

8:30 AM – 9:00 AM

Innovation to Solutions: Clearwater to Tackle Private, Leaky Pipes

Beth Kilbourne, WSSC (beth.kilbourne@wsscwater.com)

Andres Villarraga, WSSC

Mike Harmer, WSSC

THURSDAY AUGUST 31, 2017

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9:00 AM – 9:30 AM

Public-Private Partnership in Rockville Solves Wastewater Collection System Capacity Constraints

James Woods, City of Rockville DPW (jwoods@rockvillemd.gov)

9:30 AM – 10:00 AM

Vero Beach, FL Case Study: An Economical, Low-Impact Wastewater Collection System

Julie Barown, Orenco Systems, Inc. (jbarown@orenco.com)

10:30 AM – 11:00 AM

Tunneling Uphill Through Tight DC Corridors

Lisa Franke, JMT (lfranke@jmt.com)

Amah Binde, JMT

Haile Tsehayu, DC Water

11:00 AM – 11:30 AM

The Planning, Design & Rehabilitation of 4,200 Linear Feet of Large Diameter 30-inch Force Main Underneath the Bush River

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

Steven Schulz, Harford County Division of W&S

11:30 AM – 12:00 PM

Design & Construction of Improvements to the High Level Sewershed Collection System (HLSCS): Lessons Learned

Khalid Qadwai, EBA Engineering, Inc. (khalid.qadwai@ebaengineering.com)

Jessica Weron, Baltimore City DPW

2:00 PM – 2:30 PM

Flushing those Troubles Away in Baltimore County –

How a Simple Non-Flushable Investigation Led to Big Results

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

Tom Kiefer, Baltimore County DPW

2:30 PM – 3:00 PM

Inflow & Infiltration Analysis Innovations –

Evaluating Actual Reduction of Rainfall Derived Inflow & Infiltration using Control Basin and Hydraulic Modeling Methods

Bill Barrack, Arcadis (bill.barrack@arcadis.com)

John Paul Travis, Arcadis

Eric Harold, Arcadis

3:00 PM – 3:30 PM

Elementary, Watts(on): Using Innovative Modeling Approaches to Sleuth Out Specific I/I Sources in the Watts Branch Sewershed

Srinivasa Gadiparthi, DC Water (sgadiparthi@dcwater.com)

Eric Harold, Arcadis

TECHNICAL PROGRAM SCHEDULE

THURSDAY AUGUST 31, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

4:00 PM – 4:30 PM

Design of Gravity Sewer and Sewer House Connections Post-Flooding
Ellicott City, MD

Lauren Smith, Whitman, Requardt & Associates (lsmith@wrallp.com)

Monika Blassino, Whitman, Requardt & Associates

4:30 PM – 5:00 PM

S%!? Flows Downhill... So Why Pump It?

Kenneth Knutsen, Barton & Loguidice (kknutsen@bartonandloguidice.com)

5:00 PM – 5:30 PM

Internal Coordination & Emergency Repair of a Distressed 102-inch
Diameter Sewer Under an Active Storage Depot

Matt Roder, Greeley and Hansen (mroder@greeley-hansen.com)

Aaron Hughes, WSSC

Glen Diaz, WSSC

Andy Fitzsimons, WSSC

Mark Behe, WSSC

ROOM 205 • WATER SYSTEM STORAGE

8:30 AM – 9:00 AM

Challenges & Lessons Learned in Planning, Designing and Constructing
a New 2 Million Gallon St. Elizabeth's Water Tower in Washington, DC

Duncan Mukira, DC Water (dmukira@dcwater.com)

9:00 AM – 9:30 AM

Unique Design Aspects of the City of Baltimore's Druid Lake Finished
Water Tanks Project

Karen Moran, Whitman, Requardt & Associates (kmoran@wrallp.com)

Jamie Bell, Whitman, Requardt & Associates

9:30 AM – 10:00 AM

Successful Nitrification Control Using Chloramine Boosting and Mixing
in Tanks

Tom Caulfield, PAX Water, a UGSI Solutions Company

(tcaulfield@ugsicorp.com)

Jeremy Hise, Hazen and Sawyer

Rick Jacobson, Loudoun Water

THURSDAY AUGUST 31, 2017

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ROOM 205 • WATER INFRASTRUCTURE ASSESSMENT

10:30 AM – 11:00 AM

[Don't] Take a Leak-Beyond the Headphones with DC Water:
DC Water's Application of Fixed Leak Detection to Monitor Water Mains
Near High Profile Construction Site

Sarah Ghali, McKissack & McKissack (sarah.ghali@mckinc.com)

Marlee Franzen, DC Water

Sonia Oton, Mott MacDonald

Joshua Mazurek, DC Water

Christopher Coit, DC Water

11:00 AM – 11:30 AM

Dude, Where's My SmartBall? When a Watermain Inspection Goes Sideways

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

Ethan Vidal, Pure Technologies

Bisrat Abebe, DC Water

11:30 AM – 12:00 PM

Silence of the Lines – Minimizing Water Losses with Acoustic Monitoring

Russell Titus, New Jersey American Water (Russell.Titus@amwater.com)

John Marciszewski, Echologics LLC

ROOM 205 • WATER SYSTEM STORAGE

2:00 PM – 2:30 PM

Ocean City's Newest Landmark: The Beach Ball Water Tank

Francis Bonkowski, Whitman, Requardt & Associates

(fbonkowski@wrallp.com)

Brian Mullis, Whitman, Requardt & Associates

Jim Parsons, Town of Ocean City, MD

Howard Iman, Town of Ocean City, MD

2:30 PM – 3:00 PM

Too Much of a Good Thing? Reducing Excess Water Storage

Laura Siemers-Kennedy, McKissack & McKissack

(laura.siemers-kennedy@mckinc.com)

Devang Prajapati, Mott MacDonald

Rizwan Elahi, DC Water

3:00 PM – 3:30 PM

You Get What You Pay For: Getting the Best Value During a Tank Rehabilitation

Christine Gunsauillus, Entech Engineering, Inc.

(cgunsauillus@entecheng.com)

TECHNICAL PROGRAM SCHEDULE

THURSDAY AUGUST 31, 2017

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ROOM 205 • WATER PIPELINES

4:00 PM – 4:30 PM

Don't Blow Your Bonnet

Marc Frotton, Black & Veatch (*pwfrot34@aacounty.org*)

David Watts, Anne Arundel County

4:30 PM – 5:00 PM

Distribution Maintenance & Repair Techniques to Avoid System Shutdown

Bill Roome, Hydra-Stop (*broome@hydra-stop.com*)

5:00 PM – 5:30 PM

Water Main Structural Lining and Same Trench Replacement in a
Former Defense Site- Spring Valley, Washington, DC

Susan MacNeil, DC Water (*susan.macneil@dcwater.com*)

Rizwan Elahi, DC Water

ROOM 206 • STORMWATER

8:30 AM – 9:00 AM

Catalyzing Environmental Markets to Accelerate

the Implementation of Chesapeake Bay Clean Water Goals:

Lessons from Anne Arundel County's Full Delivery Pilot Project

Erik Michelsen, Anne Arundel County DPW (*pwmich20@aacounty.org*)

9:00 AM – 9:30 AM

TMDL Action Plans – Reflecting on the Past and Looking to the Future

Noelle Slater, Arcadis (*noelle.slater@arcadis.com*)

Becca Stoner, Arcadis

9:30 AM – 10:00 AM

Inspection of Stormwater Controls for Better Performance

Ryan O'Banion, Hazen and Sawyer (*robanion@hazenandsawyer.com*)

Karlee Copeland, Fairfax County, Virginia

Shekar Sharma, Hazen and Sawyer

10:30 AM – 11:00 AM

Innovative Program Management for Restoration and Retrofit

Erik Michelsen, Anne Arundel County DPW (*pwmich20@aacounty.org*)

Sheri Lott, Anne Arundel County DPW

11:00 AM – 11:30 AM

Leveraging Continuous Monitoring & Adaptive Control (CMAC) Technology
to Achieve Water Quality Objectives in the City of Lynchburg

Viktor Hlas, Opti (*vhlas@optirtc.com*)

Whitney Blankenship, City of Lynchburg DWR

Erin Hawkins, City of Lynchburg

Viktor Hlas, Opti

THURSDAY AUGUST 31, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

11:30 AM – 12:00 PM

Implementing MS4 Permits and TMDL Requirements:
Lessons Learned and Innovative BMPs

Maura Carroll, Arcadis (*maura.carroll@arcadis.com*)

Fernando Pasquel, Arcadis

Maura Carroll, Arcadis

2:00 PM – 2:30 PM

Striking a Balance, Incorporating Water Quality into Drainage
Improvement Projects

Lisa Jeffrey, Hazen and Sawyer (*ljeffrey@hazenandsawyer.com*)

Fran Geissler, James City County

2:30 PM – 3:00 PM

Updating BMP Databases in the District of Columbia & Anne Arundel
County: Comparing & Contrasting
the Data Needs and Goals of Two Local Governments

Tim Schmitt, LimnoTech (*tschmitt@limno.com*)

3:00 PM – 3:30 PM

Meeting Evolving Stormwater Management Goals with Innovative
Designs: Ashburton Water Tanks, City of Baltimore

Leying Zhang, AECOM (*Leying.Zhang@aecom.com*)

Robert Ainslie, AECOM

Remi Urbonas, Baltimore City DPW

Mohammed Rahman, Baltimore City DPW

ROOM 206 • WATER TREATMENT/QUALITY

4:00 PM – 4:30 PM

Identification and Remediation of Perfluorinated Compounds in Drinking Water

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

Pierre Kwan, HDR

Pete D'Adamo, HDR

4:30 PM – 5:00 PM

Cost-Effectively Improving Distribution System Water Quality Using
Chlorine Dioxide

John Civardi, Mott MacDonald (*john.civardi@mottmac.com*)

5:00 PM – 5:30 PM

Removing Arsenic from Groundwater at Calvert County's Marley Run Station

Douglas Morton, RK&K (*dmorton@rkk.com*)

Andrew Hipski, Calvert County DPW

John Moore, RK&K

TECHNICAL PROGRAM SCHEDULE

FRIDAY SEPTEMBER 1, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

ROOM 201 • ASSET/UTILITY MANAGEMENT

9:00 AM – 9:30 AM

Best Practices for Enterprise CCTV Management

Erin Steinwachs, *City of Baltimore DPW*

(erin.steinwachs@baltimorecity.gov)

9:30 AM – 10:00 AM

It's all About Risk: Capital Planning For Trunk Sewers Using The RAMCAP J100 Risk Standard

David Kerr, *GHD Inc. (david.kerr@ghd.com)*

Imran Motala, Region of Peel

Roop Lutchman, GHD Inc

Aman Singh, GHD Inc

10:00 AM – 10:30 AM

Defining Affordability

Michael Maker, *Municipal & Financial Services Group*

(michael.maker@mfsgllc.com)

10:30 AM – 11:00 AM

Potomac Interceptor Odor Control Facilities Optimization

Eyasu Yilma, *DC Water (eyasu.yilma@dcwater.com)*

11:00 AM – 11:30 AM

Developing Metrics for Evaluating Attributes of Community Outreach/
Public Engagement Programs

Bruce "Biff" Corning, *Arcadis (Bruce.Corning@arcadis.com)*

Amy Santos, *Arcadis*

ROOM 202 • WASTEWATER

9:00 AM – 9:30 AM

Use of Physical Hydraulic Modeling in the Evaluation of Options for
Upgrading Reclaimed Final Effluent Pumping Systems

Edmund Doku, *AECOM (edmund.doku@aecom.com)*

Paul Moulton, *AECOM*

Ian Camper, AECOM

David Werth, Clemson Engineering Hydraulics

Rouben Derminassian, DC Water

9:30 AM – 10:00 AM

Physical Modeling for New and Existing Pump Stations

James O'Shaughnessy, *Arcadis (james.o'shaughnessy@arcadis.com)*

10:00 AM – 10:30 AM

What is WSSC's mysterious "Project F"?

Dennis Clough, *Energy Systems Group*

(dclough@energysystemsgroup.com)

FRIDAY SEPTEMBER 1, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

10:30 AM – 11:00 AM

Assessing the Value of Microgrids for Water and Wastewater Utilities

Teresa DiGenova, Black & Veatch (digenovatm@bv.com)

Jon Doane, Black & Veatch

Ajay Kasarabada, Black & Veatch

Jagmeet Khangura, Black & Veatch

11:00 AM – 11:30 AM

Upgrading Existing Electrical and Control Systems at Operating Water & Wastewater Treatment Facilities

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

ROOM 203 • ENGINEERING ETHICS/SUSTAINABILITY

9:00 AM – 10:00 AM

Ethics for the Maryland PE

Samuel Grant, Gannett Fleming, Inc. (sgrant@gfnet.com)

10:00 AM – 10:30 AM

How Bad Will It Get? When Should You Cut back? Using Water Supply Forecasts and Water Shortage Triggers to Manage Droughts

Reed Palmer, Hazen and Sawyer (rpalmer@hazenandsawyer.com)

Casey Caldwell, HydroLogics Inc.

Kenneth Waldroup, City of Raleigh

10:30 AM – 11:00 AM

Groundwater Depletion: Alternative Water Supply Options for the Coastal Mid-Atlantic

Ben Wright, Hazen and Sawyer (bwright@hazenandsawyer.com)

Aaron Duke, Hazen and Sawyer

Stephanie Ishii, Hazen and Sawyer

Joe Sowinski, Hazen and Sawyer

11:00 AM – 11:30 AM

Environmental Sustainability for a Cultural History

Elford Jackson, RK&K (ejackson@rkk.com)

Rachel Richardson, RK&K

ROOM 204 • COLLECTION SYSTEM

9:00 AM – 9:30 AM

Design of 36-Inch Quad Avenue Wastewater Pumping Station Force Main: Challenges and Complexities

Richard (Dick) Berich, EBA Engineering, Inc.

(dick.berich@ebaengineering.com)

Michael Hallman, Baltimore City DPW

Khalid Qadwai, EBA Engineering, Inc.

TECHNICAL PROGRAM SCHEDULE

FRIDAY SEPTEMBER 1, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

9:30 AM – 10:00 AM

Sewer Emergency Containment Plan Unveiling Seminar and SECP Game
Dusti Lowndes, DC Water (Dusti.Lowndes@dcwater.com)

Monique Mirabeau, Arcadis

Jonathan Reeves, DC Water

Daniel Frechette, DC Water

Getachew Melsew, DC Water

10:00 AM – 10:30 AM

Optimization of Baltimore County's Preventive Maintenance Cleaning Program
Eric Ritter, Louis Berger (eeritt@gmail.com)

10:30 AM – 11:00 AM

Monitoring Combined Sewers to Establish the Baseline for the Effectiveness of Green Infrastructure

Nikolaos Apsilidis, Greeley and Hansen (napsilidis@greeley-hansen.com)

Bethany Bezak, DC Water

Caitlin Feehan, DC Water

11:00 AM – 11:30 AM

Best Consultant of the Year Goes to: Client's Perspective of Design Management Priorities in Baltimore City's \$500M Consent Decree Sewer Collection Systems Improvements

Daniel Jeon, Louis Berger (hyoungdo@hotmail.com)

Mohamad Alkhatib, Baltimore City DPW

Arthur Jones-Dove, Louis Berger

ROOM 205 • WATER SYSTEM INFRASTRUCTURE

9:00 AM – 9:30 AM

Case Study: Inspection and Assessment of a Large-Diameter PCCP Main in the City of Baltimore

Mike Jacobson, Pure Technologies (mike.jacobson@puretechltd.com)

Bill Frankenfield, Louis Berger

LaTasha Peele, Pennoni Associates

Jorge Rodriguez, Pure Technologies

9:30 AM – 10:00 AM

Preparation and Design of a Physical and Electronic Inspection of a 66-inch Steel Water Main along 8th Street, N.E. in Washington, DC

Mandy LeBlanc, DC Water (mandy.leblanc@dcwater.com)

Louis Ragozzino, OBG

Sonia Oton, Mott MacDonald

Chelsea Gress, OBG

FRIDAY SEPTEMBER 1, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

10:00 AM – 10:30 AM

Analysis and Verification of PCCP Stiffness Testing Using
Non-Invasive Acoustics

John Marciszewski, Echologics LLC (*JMarciszewski@echologics.com*)

Russell Titus, New Jersey American Water

Rasko Ojdovic, Simpson Gumpertz & Heger

10:30 AM – 11:00 AM

Large Water Valve Inspection and Rehabilitation in the WSSC

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

Jenny Gomez, WSSC

11:00 AM – 11:30 AM

Design-Build Replacement of Prince William County Service Authority's
Distribution and Collection SCADA System

Joshua Gelman, CDM Smith (*gelmanjl@cdmsmith.com*)

Paul Hood, Prince William County Service Authority

ROOM 206 • WATER TREATMENT

9:00 AM – 9:30 AM

Corrosion Control and the Impact that Coagulants Have –
Balancing DBP Compliance with Lead and Copper Compliance

Jeremy Hise, Hazen and Sawyer (*jhise@hazenandsawyer.com*)

Meric Selbes, Hazen and Sawyer

Becki Rosenfeldt, Hazen and Sawyer

Bill Becker, Hazen and Sawyer

9:30 AM – 10:00 AM

The Need for More Time: Settling and Disinfection Upgrades to Charles
Town Water Treatment Plant

Douglas Morton, RK&K (*dmorton@rkk.com*)

Jane Arnett, Charles Town Utility Board

John Cole, RK&K

John Moore, RK&K

10:00 AM – 10:30 AM

How Big Does It Need to Be? Analyzing Raw Water Data to Develop
Design Basis for Solids Handling Facilities

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

Gary Weil, CH2M

Amy Gao, CH2M

Bob Buglass, WSSC

TECHNICAL PROGRAM SCHEDULE

FRIDAY SEPTEMBER 1, 2017

Speakers' names are bold italics. Co-speakers' are bold. Co-authors' are italics.

10:30 AM – 11:00 AM

Tough as Iron: Optimizing Water Treatment & Residual Recycle at Water Treatment Plants with High Levels of Iron

Andrew Thron, GHD Inc. (andrew.thron@ghd.com)

11:00 AM – 11:30 AM

Optimizing Clearwell Performance – Lessons Learned from Computational Fluid Dynamics (CFD) Analyses and Tracer Testing

Jamie Shambaugh, Gannett Fleming, Inc. (jshambaugh@gfnet.com)

Benjamin Israel-Devadason, Gannett Fleming, Inc.

Lori Kappen, Gannett Fleming, Inc.



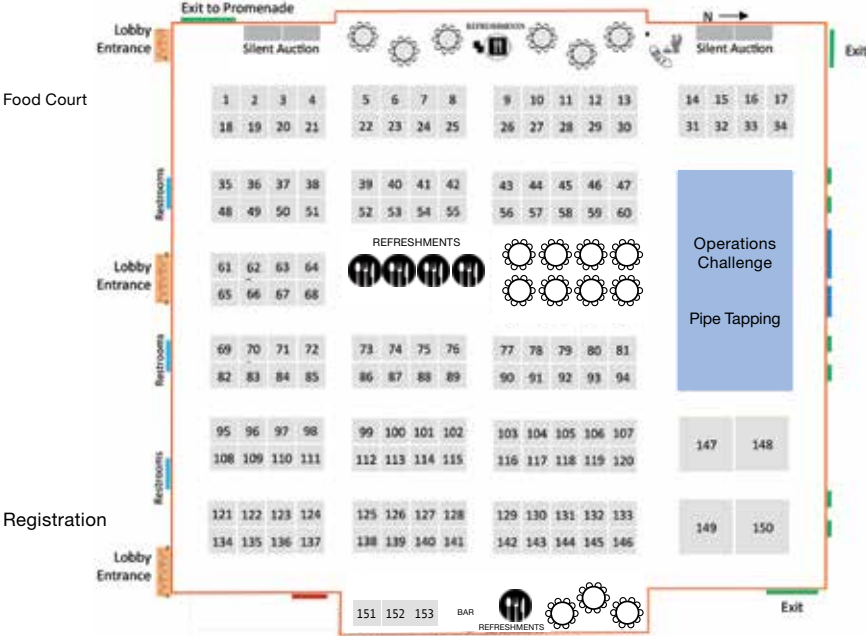


EXHIBIT HALL HOURS:

- Tuesday, August 29
Exhibitor Move-In
8:00 AM – 5:00 PM
- Tuesday, August 29
5:30 PM – 7:30 PM
- Wednesday, August 30
7:30 AM – 6:00 PM
- Thursday, August 31
7:30 AM – Noon
- Thursday, August 31
Exhibitor Move-Out
Noon – 4:00 PM

EXHIBITOR LIST

Company Name	Booth No.	Company Name	Booth No.	Company Name	Booth No.
A.C.Schultes, Inc.....	117	Barton & Loguidice.....	116	Clow Valve Company	20
A.W. Rose Associates	114	Best Blower Sales and Service.....	5	Coyne Environmental Services	90
ADS LLC.....	72	Bingham & Taylor Corp.....	42	Coyne Environmental Services	91
AECOM	15	Borger Pump	149	Dixon Engineering, Inc.....	71
Airvac VeloDyne	135	Bowen.....	101	DN Tanks.....	98
Alfa Laval	134	C&D Municipal Sales, Inc.....	94	DSI, Inc.....	93
American.....	6	CB&I Inc.....	108	Ductile Iron Pipe Research Association	19
American Contracting		Charles Morrow and Associates	80	Duke's Root Control, Inc.	1
& Environmental Services, Inc.....	41	Chesapeake Environmental Equipment	139	Dutchland Inc.....	138
Ames, Inc.	58	Chesapeake Environmental Equipment	140	e3 Environmental LLC	106
AP/M Permaform	38	Chesapeake Environmental Equipment	141	EA Engineering, Science,	
Arkema Inc.....	92	Chlorine Chemistry Division		and Technology, Inc., PBC.....	95
Atkins.....	145	of the American Chemistry Council.....	8	Eastern Controls, Inc.	36
Badger Meter, Inc.....	34	Cla-Val Co.....	109	EBA Engineering	86

EXHIBIT HALL LAYOUT

Company Name	Booth No.	Company Name	Booth No.	Company Name	Booth No.
Engineering America	113	Kershner Environmental Technologies, LLC	77	Rural Water	151
Envirep/TLC	65	Keystone Engineering Group, Inc.	59	Sanexen Water Inc.	97
Environmental Solutions-CBR, Inc.	143	LB Water / Sensus	56	Savin Engineers, P.C.	66
Evoqua	52	LB Water / Sensus	57	Sekisui SPR Americas, LLC	125
Exeter Supply Co. Inc.	45	Lonza Microbial Control	120	Shannon Chemical Corporation	29
Ferguson Waterworks	13	Madewell Products Corp.	128	Sherwin-Williams Company	105
Filter Magic	79	Magyar and Associates	37	Sherwood-Logan and Associates	121
Flow Assessment Services, LLC	69	Malvern Instruments	14	Southern Design	64
FlowWorks, Inc.	87	Maryland Industrial Trucks Inc.	102	Southern Design	68
Fluid Solutions Inc.	152	McKim & Creed	84	STH Inc.	50
Fluid Solutions Inc.	153	Microbac Laboratories, Inc.	28	StormTank	32
Flygt (Xylem)	122	Mid-Atlantic Storage Systems	63	Suez GE Zenon	124
Ford Hall	53	Milliken Infrastructure Solutions	144	SUEZ Water Advanced Solutions	30
Franklin Miller	54	MLK & Assoc.	131	Swan Analytical USA	12
Freemire & Associates, Inc.	40	MLK & Assoc.	132	Sydnor Hydro, Inc.	61
Gage Environmental		MLK & Assoc.	133	Tank Industry Consultants	35
Products and Services, LLC	17	MLK & Assoc.	150	Thompson Pipe Group - Flowtite	43
Gardner O'Connor	27	Mr. Rehab, Inc.	104	Tidewater Support Operations Services	23
Garney Construction	49	Mueller Co.	11	Trojan Technologies	75
Geiger Pump & Equipment Co.	51	Mueller Systems	10	Trumbull Mfg.	31
General Industries, Inc.	142	Mumford-Bjorkman Assoc.	82	U.S. Pipe, A Forterra Company	81
George, Miles & Buhr, LLC	111	National Metering Services, Inc.	118	U.S. Pipe, A Forterra Company	148
Hach Company	4	Neptune Technology Group	96	UGSI Solutions	33
Harrington Industrial Plastics	18	North American Pipe	146	Ulliman Schutte	24
Haskell	112	North East Technical Sales, Inc.	83	Underground Solutions Inc.	115
Heyward, Inc.	73	Northwest Pipe Co.	85	Univar	9
HOBAS Pipe USA	47	OMI Industries	67	URECON - Pre-Insulated Pipe	130
Huber Technology	76	Parkson Corporation	78	Vaughan Company	74
Hungerford & Terry, Inc.	110	Pittsburg Tank & Tower Maintenance Co.	3	Vaughan Company	147
Hydra-Stop, LLC	21	Pleasants Construction	99	Virginia Public Works Equipment	26
HydroCorp	129	Preload	16	Vogelsang	123
Hydrostructures	89	Pure Technologies	48	Wachs Utility Products	70
Induron Protective Coatings	7	Pyrz Water Supply Co., Inc.	22	Water Loss Systems, Inc.	88
Insight, LLC	46	RDP Poly Processing	136	Water Management Solutions, Inc.	44
Intercoastal Trading Inc.	60	Reed Manufacturing Company	25	Xylem Dewatering Solutions, Inc.	
Invent	137	RePipe 4710, Inc.	119	(Godwin Pumps)	2
Jet Blast Inc.	107	Riordan Materials	55		
Kamstrup Water Metering	39	Rockacy and Associates Inc.	126		
Kappe Associates, Inc.	62	Rockacy and Associates Inc.	127		
Kemira Water Solutions Inc.	103	Rotork Controls, Inc.	100		

BOARD MEMBERS & COMMITTEE CHAIRS

CSAWWA 2016–2017 Officers & Committee Chairs

Chair, Awards Chair, Finance Chair	Sophia Liskovich
Past Chair, Nominations, Strategic Planning, CTA Board Liaison	Graeme Lake
Chair Elect, Conference Mgmt. Co-Chair, Program Chair	Andy Cooper
Secretary/Treasurer	Teresa DiGenova
Asst. Secretary/Treasurer, By-Laws Chair	Rob Penman
Trustee – Events and Communications	Jim Newbold
Trustee – Community Relations and Partnerships	Jonathan Madagu
Trustee – Membership and Demographics	Radhika Wijetunge
Trustee – Technical Committees	Russ Dalton
Director, 2017–2020	Gary Geck
Executive Director	Rachel Ellis
Students	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	Ann McPherson
Spring Meeting	Zainab Nejati
Strategic Outreach	Aaron Duke
Tri-Association Conference Voting Member	Andy Cooper
Tri-Association Conference Voting Member	Eric Held
Tri-Association Conference Voting Member	Jay Kirk
Utility Management Chair	Craig Daly
Water Distribution Chair, Tri-Association Conference Voting Member	Raj Arora
Water Distribution Vice Chair	Nick Lewis
Water Quality	Jeremy Hise
Water Quality Vice Chair	Eric Wolminski
Website and Social Media	Angela Perry
Young Professionals Chair	Lawrence Latour
MDE Liaison, US EPA Small Systems Training	Jay Price
Water For People	Carrie DeSimone
DE Events	Joe Nattress
Utilities	Chein-Chi Chang



BOARD MEMBERS & COMMITTEE CHAIRS

CWEA 2016–2017 Officers & Committee Chairs

President.....	Kraig Moodie
President-Elect	Jennifer Moore
Vice President.....	Ellen Frketic
Past-President	Chein-Chi Chang
WEF Delegate	Burt Curry
WEF Delegate	Tim Wolfe
Trustee – DC	Gian Cossa
Trustee – DE.....	James Shelton
Trustee – MD.....	Laura Oakes
Secretary.....	Alan Will
Treasurer.....	Jane Bayer
PWO Representative	Rob Roff
Business Practices Chair	Amah Binde
Bylaws Chair.....	Alan Will
Charity Events Chair	Eric Held
Collection Systems Chair	Andy Fitzsimons
Collection Systems Vice Chair	Maya Sathyandhan
CWEA Short Course Committee	Scott Harmon, Bill Farrell, Noelle Anuszkiewicz, Darryl Noakes, Wayne Reed
CWEA Tri-Association Conference Committee Reps.....	Jane Bayer, Kristi Perri, Gian Cossa, Aaron Hughes
CWEA CTA Director	Alan Will
Government Affairs Chair.....	J. Scott Shipe
Laboratory Practices Chair.....	Clarence Beverhoudt
Laboratory Practices Vice Chair.....	Dale Baker
MAMWA Liason	Jon Doane
MDE W/WW Board Liason	Scott Harmon
Membership Chair	Rob Koechert
Mentorship Chair	Anna Santino
Mentorship Vice Chair	Moalie Jose
Nominations Chair.....	Jennifer Moore
Plant Operations & Maintenance Chair	Prabhushankar Chandrasekeran
Plant Operations & Maintenance Vice Chair	Laurel Xiao
Public Education Chair	Marlou Gregory
Publications Chair	Aaron Hughes
Safety & Security Committee	Kenrick St. Louis
Safety & Security Vice Chair.....	Sorin Schwartz
Sponsorship Chair.....	John Fletcher
Spring Meeting Chair	Anna Santino
Spring Meeting Vice Chair	Laura Oakes
Stormwater Chair.....	Rebecca Winer-Skonovd
Stormwater Co-Vice Chair	Turgay Dabak
Stormwater Co-Vice Chair	Charles Poskas
Strategic Planning & Implementation.....	Ted DeBoda
Student & Young Professionals Chair	Cece Nguyen
Student & Young Professionals Vice Chair	Pono Hanson
Technical Education Chair.....	Edward Shea
Technical Education Vice Chair.....	Steve Skripnik
Training, Review, & Evaluation Chair	Marshall Phillips
Water Reuse Chair	Zohreh Movahed
WERF Liason	Paresh Sanghavi
CWEA Executive Administrator	Cheryl Paulin

BOARD MEMBERS & COMMITTEE CHAIRS

WWOA 2016–2017 Officers & Committee Chairs

President	Kevin Quinn
Past President	Jeff Deats
President-Elect	Steve Fox
Vice President.....	Mark Kondelis Sr.
Secretary.....	Tara L. Modisette
Treasurer.....	Michael Emery
Assistant Treasurer.....	Karl L. Ott
Maryland Trustee	Kristy McAndrew
Delaware Trustee	Steve Fox
District of Columbia Trustee	James McWillis
Eastern Shore Section Director.....	Richard Plack
Central Section Director.....	Wanda Proctor
Southern Section Director.....	Brad Washington
Western Maryland Section Director	Bruce Darner
District of Columbia Certification Liaison	Gregory Stephens
Delaware Certification Liaison	Sarah Smith
Maryland Certification Liaison	Bruce Darner
Awards Committee Chair	Steve Fox
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
WWOA Administrator.....	Rachel Ellis
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	Karl L. Ott, Michael Emery, Bob Stenger, Kevin Quinn
TRE Committee Representative	Ed Hogan
Webmaster	Anthony Rocco



BOARD MEMBERS & COMMITTEE CHAIRS

CSAWWA 2017–2018 Slate of Officers

Past Chair (automatic advancement)	Sophia Liskovich
Chair (automatic advancement)	Andy Cooper
Chair Elect (automatic advancement)	Teresa DiGenova
Secretary Treasurer (automatic advancement)	Rob Penman
Assistant Secretary Treasurer	Jonathan Madagu
Director	Gary Geck
Trustee (continuing in office)	Russ Dalton
Trustee (continuing in office)	Radhika Wijetunge
Trustee	Jay Kirk
Trustee	Ann McPherson

CWEA 2017–2018 Slate of Officers

The following list shows the CWEA Board-approved slate of nominees for Board Officer positions to be filled for terms beginning in 2017. The membership will have an opportunity to add nominees to the slate prior to the election. This year for the first time, *all CWEA members will have the opportunity to vote electronically for their Officers*. Publication of the original slate of nominations, electronic “floor” nominations by members, and the actual voting will all be accomplished online, prior to the Annual Conference. Newly elected Officers will begin their terms at the Annual Business Meeting to be held on August 31, 2017 at the Tri-Association Conference in Ocean City, MD.

Vice President	Aaron Hughes (1-year term, automatic advancement to President-Elect)
Secretary	Alan Will (2 years)
Treasurer	Cece Nguyen (2 years)
WEF Delegate	James Shelton (3 years)
Delaware Trustee	Prabhu Chandrasekeran (3 years)
Utility Member Representative	Rob Roff (2 years)

WWOA 2017–2018 Slate of Officers

President (automatic advancement)	Steve Fox
Past President (automatic advancement)	Kevin Quinn
President Elect (automatic advancement)	Mark Kondelis Sr.
Vice President	TBA
Treasurer	Michael Emery
Maryland Trustee	Kristy McAndrew
Delaware Trustee	Richard Plack
District of Columbia Trustee	James McWillis



HOTEL INFORMATION

The following summarizes the information provided to us by hotels that have established specially-priced room blocks for conference attendees. To obtain the Conference rate, you must call the hotel directly and ask for the “Tri-Association Conference” rate. **Please reserve your rooms early to assure conference rates still apply – most blocks are only held through July 31, 2017.**

Hotel & Location	Miles to Convention Center	Room Type*	Conference Rates	Hotel Phone Number & Website
Atlantic Oceanfront Inn 46th Street	0.7	H	\$190-\$275	800-641-0011 www.carouselhotel.com
Best Western Ocean City Hotel & Suites 55th Street	1.0	H	\$110	443-664-4001; 866-664-4004 www.bestwesternocsuites.com
		S	\$130	
Bonita Beach Hotel 82nd Street	2.6	H	\$185-\$215	800-641-0011 www.carouselhotel.com
Carousel Oceanfront Hotel and Condos 117th Street	4.2	H, C	\$185-\$295	800-641-0011 www.carouselhotel.com
Clarion Resort Fontaine- bleau Hotel 101st Street	3.4	H	\$135-\$185	410-524-3535; 800-638-2100 www.clarionoc.com
		C	\$175-\$340	
Coastal Palms Inn & Suites 121st Street	4.4	H, S	\$160-\$180	800-641-0011 www.carouselhotel.com
Comfort Inn Gold Coast 112th Street	4.1	H	\$149	410-524-3000 www.comfortgoldcoast.com
Crystal Beach Ocean- front Hotel 25th Street	1.4	H	\$195-\$250	800-641-0011 www.carouselhotel.com
Dunes Manor Hotel 28th Street	1.0	H	\$219	1-800-523-2888 OR 410-289-1100 phone reservations only
Flagship Oceanfront Hotel 26th Street	1.1	E	\$89-\$99	410-289-3384; 800-837-3585 www.flagshipoceanfront.com
Grand Hotel 21st Street	1.4	E	\$129-\$199	410-289-6191; 800-447-6779 www.grandhoteloceancity.com
Holiday Inn Oceanfront Hotel 67th Street	1.6	E	\$204	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
*H - Hotel, E - Efficiency, S - Suite, C - Condominium				

HOTEL INFORMATION

Hotel & Location	Miles to Convention Center	Room Type*	Conference Rates	Hotel Phone Number & Website
Princess Royale (Host Hotel) 91st Street	3.0	S	\$139	410-524-7777; 800-4ROYALE www.princessroyale.com
		C	\$299	
Quality Inn Oceanfront 54th Street	1.0	H	\$149-\$174	410-524-7200; 800-827-3586 www.qualityinn.com
Quality Inn Suites Beachfront 33rd Street	0.8	S	\$139-\$169	410-289-1234 www.qualityinn.com
Sea Bay Hotel 60th Street	1.0	H	\$80	410-524-6100; 800-888-2229 www.seabayhotel.com
Tidelands 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				



REGISTRATION INFORMATION

All attendees must register for the 2017 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 4, 2017** at 11:59 PM)

Registration Options	Member	Certified Operator	Non-Member	Full-Time Student
Full Conference: Complete Package	\$290	\$240	\$340	N/A
Full Conference: No Ticketed Events	\$240	\$195	\$270	\$65
One-Day Registration: Wednesday	\$190	\$140	\$240	\$25
One-Day Registration: Thursday	\$190	\$140	\$240	\$25
One-Day Registration: Friday	\$90	\$90	\$140	\$25

Early Bird Registration (\$50 savings) Ends: **August 4, 2017 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 29, 2017

- **Legionella and Cross Connection Controls Workshop – Legionella Basics – Philly, Flint and Beyond:**
Noon to 5:00 PM, includes a box lunch
Early Bird Registration Cost: \$30 / Standard Registration Cost \$40
- **Emergency Management Planning Workshop – Developing an Effective Emergency Response Plan for Small and Medium Utilities:**
Noon to 5:00 PM includes a box lunch
Early Bird Registration Cost: \$30 / Standard Registration Cost \$40

5K Water For People Fun-Run/Walk – Wednesday, August 30, 2017

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 30, 2017

Note: Seacrets® tickets must be purchased by Tuesday August 29, 2017.

No individual tickets will be sold at the conference on wednesday or at the door. Must be 21 years or older to enter. *Cost: \$60 per ticket.*

Business Luncheons/Meetings – Thursday August 31, 2017

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.*

Golf at the Ocean City Golf Club

The Pre-Conference Golf Outing will be held on Tuesday August 29, 2017 at the Ocean City Golf Club. Golf Registration is handled separately from Conference Registration. 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 31, 2017. 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.

REGISTRATION INFORMATION

Free Rides on Ocean City Buses!

All conference attendees, exhibitors, and registered guests (with a name badge) can ride the Ocean City buses free of charge by showing their 2017 Tri-Association Conference Name Badge between Tuesday August 29, 2017 at 2 PM and Friday September 1, 2017 at Noon.

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” below for email address) and received by the Registrar no later than August 11, 2017 at 11:59 PM. Refunds will be issued minus a 20% administrative fee for cancellations received before August 11, 2017 at 11:59 PM. No refunds will be issued for requests received after August 11, 2017 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. Technical Session Attendance Forms, Conference Brochure, and any updates to conference information will be available at the Information Desk.

Contact the Registrar

If you have questions about the online registration process or systems, please contact RCS at tricon2017@rcsreg.com or (805) 654-0171.

For all other general conference information, please contact Rachel Ellis at info@ChesapeakeTricon.org or (443) 924-4671.

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

CONFERENCE NOTES

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