

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

*NEW FOR 2018

Monster Door Prizes at All Breaks!

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

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

CONFERENCE AT-A-GLANCE

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

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

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

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



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



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

