99th Annual Conference

Game on

Moving forward in the water game

Raleigh Convention Center
Raleigh, NC
November 3-6, 2019
Welcome from Our Chair

Welcome to the 99th Annual Conference of the North Carolina Section of the American Water Works Association and the North Carolina Water Environment Association (NC AWWA-WEA). This year’s theme, “GAME ON - Moving forward in the water game,” will set the stage for our Organization’s transformation into our second century as a trusted resource provider for all of North Carolina’s water industry professionals.

More than 1,400 water professionals will gather in North Carolina’s capital city to share ideas, network, and fellowship. Visit over 180 vendors in our exhibit hall, choose from 120 technical sessions, watch or participate in operational competitions, enter the Best Tasting Water contest, tour Raleigh’s breweries, join a committee, and socialize with other water professionals. Participate, learn, share, observe, and have fun!

The full “Conference at-a-Glance” schedule is provided on page 9. Note that activities begin on Sunday morning, November 3, with golf at 9:00 a.m. The exhibit hall opens in the Raleigh Convention Center at 4:00 p.m., and the Welcome Reception begins in the same location at 4:30 p.m. We will recognize our new 5S inductees at 6:00 p.m. during the reception. We are excited to announce that this year during the reception we will be honoring NC’s own Jackie Jarrell as incoming WEF President, and we will have our first ever Women of Water event, hosted by the DMIC. This year, we have activities planned throughout Monday and Tuesday in the exhibit hall, so check back there often. Our exhibitors have embraced our board game theme this year.

We look forward to spending time with you! The educational opportunities are top notch, the networking opportunities are rich, and the opportunity to have fun is abundant!

David Saunders, PE
HDR, Inc.
2019 NC AWWA-WEA Chair
Welcome from Our Chair

GENERAL INFORMATION

Conference At-A-Glance
2020 Confluence Conference
Convention Center Map
General Information
Charging Stations
Mobile App
2018-19 Board of Trustees
Visiting National Officers
2018-19 Council and Committee Chairs
Committee Meeting Schedule
Silent Auctions
Golf Tournament
Water for People Activities
Headshot Lounge
Students and Young Professionals
Game On! Interactive Game
Jackie Jarrell Social
Opening Session
Ad Hoc DMIC Activities
11th Annual Photo Contest
19th Annual Operations Challenge
33rd Annual Pipe Tapping Contest
Hydrant Hysteria Competition
Facility Tour
Wednesday Forum
19th Annual Spring Symposium

EXHIBIT HALL

Exhibit Hall Information and Events
Exhibit Hall Map
Exhibitors

TECHNICAL PROGRAM

Contact Hours/PDH Credits
Technical Program

AWARDS

Welcome/Jackie Jarrell Reception
Awards Ceremony - Monday
Exhibitors Social
Gavel Gala
Awards Banquet

SCHOLARSHIPS

NC Safewater Endowment
2020 Scholarships
2019 Scholarship Recipients

100th Annual Conference
2019 Corporate Sponsors
Conference At-A-Glance

ALL EVENTS TAKE PLACE IN THE EXHIBIT HALL UNLESS OTHERWISE NOTED

Sunday, November 3, 2019

8:00 a.m.-3:30 p.m.
Exhibit Hall Set-up

8:00 a.m.-11:00 a.m.
Operations Challenge: Process Control Setup
ROOM 205

9:00 a.m.-3:00 p.m.
Golf Tournament
Lochmere Golf Club, Cary

2:00 p.m.-6:00 p.m.
Committee Display Tables

2:00 p.m.-6:00 p.m.
Conference Registration Desk Open

3:00 p.m.-5:00 p.m.
Board of Trustees Meeting

3:15 p.m.-3:45 p.m.
Exhibitor Meeting

4:00 p.m.-6:30 p.m.
Exhibit Hall Open

4:00 p.m.-6:30 p.m.
Endowment Committee Silent Auction

4:00 p.m.-6:30 p.m.
Water For People Silent Auction

4:30 p.m.-6:30 p.m.
Welcome Reception/Jackie Jarrell Reception
(1st door prize drawing)

4:30 p.m.-6:30 p.m.
Women of Water Event Hosted by Ad Hoc DMIC
WEFTEC VIP Lounge

5:30 p.m.-6:00 p.m.
Moderators Meeting

6:00 p.m.
Presentation of 5S Awards

Monday, November 4, 2019

7:00 a.m.-5:30 p.m.
Conference Registration Desk Open

7:00 a.m.-6:30 p.m.
Committee Display Tables

7:00 a.m.-6:30 p.m.
Endowment Committee Silent Auction

7:00 a.m.-6:30 p.m.
Water For People Coat Check

7:00 a.m.-6:30 p.m.
Water For People Silent Auction

7:00 a.m.-6:30 p.m.
WEFTEC VIP Lounge
ALL EVENTS TAKE PLACE IN THE EXHIBIT HALL UNLESS OTHERWISE NOTED

7:40 a.m.-9:05 a.m. Opening Session

8:00 a.m.-5:00 p.m. Student Poster Contest
Students should be present for poster judging from 1:45–2:45 p.m.

9:15 a.m.-10:15 a.m. Ad Hoc DMIC Mission Exhibitor Networking Event

9:00 a.m.-6:30 p.m. Exhibit Hall Open

9:15 a.m.-4:00 p.m. Operations Challenge: Collection System, Pump Maintenance, Laboratory, and Safety

9:30 a.m.-5:00 p.m. Technical Sessions
3rd FLOOR

10:00 a.m.-4:00 p.m. Headshot Lounge

10:00 a.m.-4:00 p.m. Pipe Tapping Contest

11:15 a.m.-12:50 p.m. Student Lunch

11:15 a.m.-1:20 p.m. Lunch
(2nd door prize drawing)

3:05 p.m.-3:55 p.m. Afternoon Networking Break
(3rd door prize drawing)

4:00 p.m.-5:00 p.m. Awards Ceremony

4:00 p.m.-5:00 p.m. NCWaterWARN Membership Meeting
Room 402

5:15 p.m.-6:30 p.m. Exhibit Social
(4th door prize drawing)

Tuesday, November 5, 2019

7:00 a.m.-8:00 a.m. 5S Breakfast (5S Members Only)
ROOM 303

7:00 a.m.-1:30 p.m. WEFTEC VIP Lounge

7:00 a.m.-12:00 p.m. Water For People Coat Check

7:00 a.m.-12:00 p.m. Water For People Silent Auction

7:30 a.m.-12:00 p.m. Committee Display Tables

7:30 a.m.-5:00 p.m. Conference Registration Desk Open

7:30 a.m.-1:20 p.m. Exhibit Hall Open
CONFERENCE AT-A-GLANCE

ALL EVENTS TAKE PLACE IN THE EXHIBIT HALL UNLESS OTHERWISE NOTED

8:00 a.m.-5:10 p.m.  
Technical Sessions  
3rd FLOOR

9:00 a.m.-12:00 p.m.  
Operations Challenge: Process Control Event  
ROOM 205

9:00 a.m.-12:30 p.m.  
Hydrant Hysteria

9:05 a.m.-10:10 a.m.  
Morning Networking Break (5th door prize drawing)

11:15 a.m.-1:05 p.m.  
Lunch (6th door prize drawing)

11:30 a.m.  
Best Tasting Water Contest

12:30 p.m.  
Facility Tour: Raleigh Breweries

1:30 p.m.  
Exhibit Hall Tear down

2:55 p.m.-3:30 p.m.  
Afternoon Networking Break

5:30 p.m.-7:15 p.m.  
Gavel Gala

7:15 p.m.-10:00 p.m.  
Awards Banquet

Wednesday, November 6, 2019

8:00 a.m.-11:00 a.m.  
Conference Registration Desk Open  
3rd FLOOR

9:00 a.m.-11:00 a.m.  
Forum: Not Your Grandfather’s Storm: Mitigating the New Normal  
ROOM 306 B/C

11:30 a.m.-2:30 p.m.  
Board of Trustees Meeting  
ROOM 305 A

SAVE THE DATE!
Confluence Conference  
May 28-29, 2020  
Asheville, NC
General Information

**WIFI**
Free wireless internet access is available inside the Raleigh Convention Center. A password is not required to connect.

**Conference Photographer**
In an effort to document the Annual Conference, and especially the award winners, a photographer will be present at most events taking photos. They will be identifiable by a “Press Pass” note on their name tag. Pictures taken may be used in print or online to publicize NC AWWA-WEA activities and future conferences. Award winners should be aware that they will be directed to a photo area during or after the event at which they receive their award. Photos may be used on our website, social media, and/or in print.

**Your Feedback is Important!**
NC AWWA-WEA puts on this conference for YOU! While the conference contains many traditions, we are interested in continually evolving the event to meet the needs and interests of our attendees. A survey is available through the mobile app to provide feedback. Please take a few minutes to share your experience!

**Thirsty?**
Water dispensers are available at the top of the escalator leading into the exhibit hall, and on the exhibit hall floor. Water fountains may also be found on the 300 level, Mezzanine-200 level and two locations within the Exhibit Hall.

**Charging Stations**
Power up! For your convenience you will find charging stations located around the exhibit hall. Charging stations include adaptors for Apple and Android devices.

---

**Sponsors 2019**

---

Thank you!
Mobile App

View technical session info and presentations!
Take conference notes!
Find exhibitors!
Network with your peers!
Share your experience through social media!
Vote on poster, photo, and exhibitor competitions!
AND SO MUCH MORE!

To download:

**iPhone**
- Type https://crowd.cc/s/3fsVC in web browser
- Click “Download iPhone/iPad App” to load Apple’s App Store and download the app
- Use password “ac19ncsw”

**Android**
- Type https://crowd.cc/s/3fsVC in web browser
- Click “Download Android App” to load the Google Play Store and download the app
- Use password “ac19ncsw”

---

**Sponsors 2019**

KENNEDY VALVE
PLANT AND INDUSTRIAL GROUP

Thank you!
2018-'19 Board of Trustees

CHAIR
David Saunders, P.E.
HDR, Inc.

CHAIR-ELECT
Jeff Coggins, P.E.
Black & Veatch

VICE CHAIR
Kenny Waldroup, P.E.
City of Raleigh

PAST CHAIR
(James) Ray Cox, P.E.
HIGHFILL

SECRETARY
Steve Hamilton
Wayne Water Districts

TREASURER
Brian Tripp, P.E., BCEE
W.K. Dickson & Co., Inc.

WEF DELEGATE
Betsy Drake
Town of Cary

WEF DELEGATE
Chris Belk, P.E.
Freese and Nichols, Inc.

AWWA DIRECTOR
Ron Hargrove
Charlotte Water

TRUSTEE
Courtney Driver, P.E.
Winston-Salem/Forsyth County Utilities

TRUSTEE
Rachel Monschein
Town of Cary

TRUSTEE
Tom Bach, P.E.
City of Concord

TRUSTEE
Kevin Irby, P.E.
CDM Smith

PROFESSIONAL WASTEWATER OPERATORS REPRESENTATIVE
Anthony Mencome
Heyward Inc

PROFESSIONAL WATER OPERATORS REPRESENTATIVE
Ben Kearns
Cape Fear Public Utility Authority
Visiting National Officers

Dr. Joe Jacangelo
*International Council Chair (2017-2020)*
*American Water Works Association*

Dr. Jacangelo is a Vice President and Director of Research for MWH Americas. Dr. Jacangelo has over 30 years of experience in the field of environmental health engineering, and he has specialized in the areas of water quality and treatment, water and wastewater disinfection, membrane technology and public health. He has served as Technical Director, Principal Investigator, Project Manager or Engineer for over 80 water and wastewater projects, and he has published over 100 papers. He has been an active member of AWWA since joining in 1983.

Joe is the current Chair of the International Council. He is also a past Board Member, past Chair of the Technical and Education Council and Member of the Executive Committee for the American Water Works Association (AWWA), and he has served as either chair or member of 26 of that organization’s various committees. He has participated on over 30 advisory or conference planning committees for various water and wastewater organizations. Joe is also the past Chair of the Board of Directors of the WateReuse Research Foundation, and he was a member of the editorial advisory board for the Journal of Water Reuse and Desalination.

In addition to his role at MWH, Dr. Jacangelo is an adjunct faculty member at the Johns Hopkins University Bloomberg School of Public Health. He is a past recipient of the AWWA Golden Spigot Award, the AWWA Volunteer of the Year Award, and the AWWA Best Paper Award in water quality for his work on low pressure membranes for removal of protozoa and viruses. Finally, Dr. Jacangelo served for three years as a Peace Corps Volunteer in the Republic of the Congo.
Jacqueline A. Jarrell, P.E.
President (2019-2020)
Water Environment Federation

Jackie Jarrell, P.E., is the current President of the Water Environment Federation (WEF), an international organization of water quality professionals headquartered in Alexandria, VA.

Jackie has been with Charlotte Water for more than 29 years. For the past 18 years, she has been responsible for the overall management of the operation and maintenance of five wastewater treatment facilities consisting of a total capacity of 123 million gallons per day (MGD), with the largest plant permitted at 64 MGD. She is also responsible for the related Residuals Program, producing more than 90,000 wet tons/year, and the Industrial Pretreatment Program, with more than 60 significant industrial users. Currently, Jackie serves as the Operations Chief responsible for wastewater operations, and includes oversight of regulatory functions, process control, industrial pretreatment and continuous improvement programs within the operations areas.

As a WEF member, Jackie has held multiple leadership and committee roles, including serving as the chair of the Utility Management Program Symposia and the first vice chair of the Utility Management Committee.

Also an active member of the North Carolina Section of the American Water Works Association and the North Carolina Water Environment Association (NC AWWA-WEA), Jackie has chaired the Public Education Committee, the Annual Conference Committee, and the Program Committee. In 2013, Jackie served as the NC AWWA-WEA chair and worked on related subcommittees such as Water For People, the Wastewater Schools Committee, the Endowment Committee, and the Plant Operations and Maintenance Committee. She is actively involved with the NC Water Quality Association, a regulatory advocacy organization of utilities in NC, and is a past chair and a current board member.

Jackie is a registered Professional Engineer in the state of North Carolina and holds a Biological Wastewater Grade II OIT. She received a B.S. in engineering from the University of North Carolina-Charlotte. Jackie is the 2014 recipient of the Arthur Sidney Bedell Award. In 2015, Jackie, along with her colleagues Darrell DeWitt and David L. Wagoner, was awarded the Gascoigne Wastewater Treatment Plant Operational Improvement Medal.
# 18-'19 Council and Committee Chairs

**Board Committees**

**Nominating Committee**  
Angela Lee, City of Charlotte

**Executive Committee**  
David Saunders, HDR, Inc.

**Ad Hoc Committees/Task Forces**

**Leadership Task Force**  
Nick Dierkes, Stantec

**Ad Hoc - Service**  
John McLaughlin, Merrick & Company

**Ad Hoc - Diversity of Membership & Inclusion**  
Erin Gallimore, Erin Gallimore Worldwide

---

**Conference Coordinating Council**

**Council Chair**  
Tina Whitfield, HDR, Inc.

**Exhibits Subcommittee**  
Matt Mancuso, Mission Communications

**AC Local Arrangements Subcommittee**  
Janeen Goodwin, City of Raleigh

**Operations Challenge**  
Greg Morgan, Union County

**Pipe Tapping**  
Josh Bennett, City of Raleigh

**AC Program Subcommittee**  
Mike Koser, WithersRavenel

**Spring Conf Subcommittee (2019)**  
Mona Ellum, Ellum Engineering

---

**Sponsorship**  
Julie Taylor

**Awards Committee**  
Rebecca Hutchinson, Merrick & Company

**External Affairs Council**

**Council Chair**  
Erika Bailey, City of Raleigh

**Communication**  
Steve Hilderhoff, Dewberry

**Constitution & Bylaws**  
Chuck Willis, Willis Engineers

**Endowment**  
Linnell Stanhope, Crowder Construction

**Membership Engagement**  
Kara English, Charlotte Water

**Public Education**  
Brian White, Freese and Nichols, Inc.

**Water for People**  
Lamya King, Hazen and Sawyer

**Students & Young Professionals**  
Michael Galin (Charlotte), Black & Veatch  
Matt Edds (Raleigh), Veolia

**Technical Program Council**

**Council Chair**  
Jana Stewart, City of Greensboro

**Seminars and Workshops**  
Stephanie Holloman, Stantec

**Automation**  
Dan McLaughlin, Rovisys

**Collection & Distribution**  
Corey King, Kimley-Horn

**Regulatory Affairs**  
Jaime Robinson, Jacobs

**Biosolids Resource Recovery**  
Jean Creech, Charlotte Water

**Water Resources**  
Adam Sharpe, HDR, Inc.

**Risk Management**  
Perry Gayle, AECOM

**Utility Management**  
Chip Harris, Westin Technology Solutions

**Schools Coordinating Council**

**Council Chair**  
Greg Morgan, Union County

**Wastewater Schools**  
Mark Drake, Veolia
Committee Meeting Schedule

Sunday, November 3, 2019
1:00 p.m.  
Ad Hoc Committee, Exhibit Hall

4:00 p.m.  
Water For People Committee, Room 201

Monday, November 4, 2019
9:00 a.m.  
Collection and Distribution Schools Committee, Room 201

10:00 a.m.  
Membership Engagement Com., Room 201

12:00 p.m.  
Public Education Committee, Room 201

2:00 p.m.  
Awards Committee, Room 201
Automation Committee, Room 202

3:00 p.m.  
Wastewater Operator Schools Committee, Room 201

5:00 p.m.  
Biosolids Committee, Room 201

Tuesday, November 5, 2019
9:00 a.m.  
Water Resources Committee, Room 201

Wednesday, November 6, 2019
8:00 a.m.  
Plant Operation and Maintenance Committee, Room 201
LAC Wrap Up Meeting, Room 202
Silent Auctions

Endowment Committee
Sunday, November 3, 5:00 p.m.-Monday, November 4, 6:30 p.m.
Exhibit Hall

The NC Safewater Endowment Fund Committee is holding their annual silent auction to benefit the NC AWWA-WEA endowment fund. In previous years, this fun and popular event has added significant contributions to the endowment fund. Additions to the fund increase the number of scholarships to be given in the future and the dollar amount of the scholarships.

Available auction items and their bid sheets will be on display Sunday through Monday. Bidding will remain open until 6:30 p.m. on Monday with the highest bid winning.

Your interest and participation in this event are greatly appreciated. More information to follow online at ncsafewater.org and in NC AWWA-WEA eNews emails.

About the NC AWWA-WEA Safewater Endowment

The Endowment Fund is a sustainable funding source geared towards expanding NC AWWA-WEA's support of scholarships for students and operators seeking education, as well as educators important to the industry. It is an opportunity for NC AWWA-WEA members and supporters to support the development of young people with an interest in the water and wastewater industry, as well as assist with furthering the education of those established in the water and wastewater industry.

Silent Auctions Note

TWO silent auctions will take place during the Annual Conference. One benefiting the NC SAFEWATER ENDOWMENT and the other benefiting the NC WATER FOR PEOPLE. Both silent auctions will be located close to each other and will have similar hours. When placing a bid, please take notice of the specific auction and that auction’s timeline and contacts.
Silent Auctions

NC Water For People Committee
Sunday, November 3, 4:00 p.m.-Tuesday, November 5, 12:00 p.m.
Exhibit Hall

The NC Water For People Committee will be holding their annual silent auction to raise funds for Water For People projects. Visit the NC Water For People table all day on Sunday, and until 12:00 p.m. on Tuesday to bid on items. Winners will be called to pick up their items after 12:00 p.m. on Tuesday. All proceeds from this auction will go to Water For People.

Display a Piece of History
During auction, the committee is offering hanging rights to a unique 400-year-old framed print that shows a hand pump and well system designed by renowned 17th century scientist Athanasius Kircher, a contemporary of Descartes and Galileo. The item itself was printed first on a Gutenberg type press, and then to place the graphic, a wood block engraving was used for the illustration. It has been dealer verified as being printed circa 1676 and was donated by John Carman. This historical artifact is being offered on a lending basis. The winning bidder will own the rights to display the piece for one year and then pass it on to the winning bidder the following year.

Bidding Process
The NC Water For People Committee will make it easier than ever to participate in the silent auction! Simply download the app or find the auction at handbid.com.

About Water For People
Water For People is an international nonprofit organization dedicated to providing access to improved water and sanitation systems and services in developing countries. By working with local governments, the private sector, and partners, Water For People ensures that everyone in a specific region has these basic needs met forever. This innovative approach reaches every family, every school, and every clinic, catalyzing transformative change for better health and economic development to occur.
Golf Tournament

Sunday, November 3
Lochmere Golf Club
2511 Kildaire Farm Rd., Cary, NC 27518
Chipping and putting area available
Driving range, chipping, and putting will be available prior to the start of the tournament.
9:00 a.m. Check In, 10:00 a.m. Shotgun Start

Fees
$85.00 per person. Fee includes entry fee, tee prize, light breakfast, lunch, prizes for 1st place, long drive, and closest to the hole prizes. Gross and net winners. Other prizes will be given by random drawing. All prizes distributed after the golf tournament is over. Winners will be announced at the Welcome Reception.

General Questions
Paul Briggs at paul.briggs@kennedyvalve.com, Eddie Sasser at esasser@hiepc.com, or Kevin Irby at IrbyKC@cdmsmith.com.

Sponsors 2019

Atlantic Valve & Equipment

Kennedy Valve

Thank you!
Water For People Activities

College Flag Competition
Exhibit Hall

Keep an eye out for your alma mater flag in the exhibit hall! The NC Water For People Committee will be hosting a college flag competition by hanging college flags one at a time. Can’t stand to see your rival’s flag waving about in the exhibit hall? Come visit the Water For People table to have it taken down and replaced with your alma mater. All proceeds will go directly to Water For People.

Coat Check
Exhibit Hall

Tired of carrying your coat around the exhibit hall year after year? Look for the Water For People coat check from which all proceeds will go directly to Water For People.

Headshot Lounge

NEW THIS YEAR! We welcome our Annual Conference attendees to our Headshot Lounge located in the exhibit hall. Be sure to visit the lounge to sign up for your appointment slot to get professional headshots taken during the networking breaks. Cost is $5. Appointments preferred. Walk-ins will be taken as time allows. All photographs will be uploaded to a website for individuals to download. Money raised will be used to help competition teams travel for 2020. SAY CHEESE!
Several activities are planned for Monday to get students involved in the Annual Conference and to introduce them to NC AWWA-WEA.

PLEASE NOTE: The Students and Young Professionals will have a designated area in the exhibit hall. This area will be the location for ALL technical sessions, lunch, networking opportunities, and the Student Poster Exhibit!

**Young Professional Technical Session**
This technical session track on Monday provides students and young professionals with an overview of a broad range of topics within the water and wastewater industry. It gives students and young professionals the opportunity to present in a comfortable atmosphere. Refer to pages 53-64 to see the list of scheduled presentations.

**Student Poster Contest**
The poster contest will take place on Monday with posters displayed from 8:00 a.m.-5:00 p.m. in the exhibit hall. Students should plan to be available for poster presentation and judging from 1:45 p.m.-2:45 p.m. Monetary prizes will be awarded for first, second, and third place posters. The first place winner will also be awarded the opportunity to present their poster at the National AWWA ACE conference in 2020! There will be three categories for attendees to vote for their favorite poster in each category on the mobile app. Smaller prizes will be awarded for these winners.

**Student Lunch**
Make connections with other students and industry professionals during a reserved lunch on Monday from 11:15 a.m.-12:50 p.m.

**Service Project**
The Students & Young Professionals Committee will be hosting a service project to give back to their community. This year they will be collecting school supplies for the Daniel Center for Math and Science, based out of Raleigh, NC.
Game On! Wateropoly

How to Win

Become the **wealthiest** player through purchasing properties and collecting money by performing chance cards.

Game Play

- All attendees are able to participate in the **game**.
- You will start out with a set amount of money that can be used to buy **properties**.
- The game will run all day **Monday**, at the end of the day 1st, 2nd, and 3rd place winners will be announced.
- Exhibit booths will act as **properties**, and committee tables as **railroads**.
- There will be volunteers walking around with buckets of **Chance Cards** that you can draw from at any time.

Buying Properties

- **Each exhibitor booth** represents a property, which is able to be purchased up to 3 times (they have 3 property vouchers).
- **At any of the “Property Bucket” stations** you can draw a property card and decide if you want to purchase it. Each property card will indicate the amount that the property costs. If you want to purchase the property, please visit the matching **exhibitor booth** and let them know you are purchasing their property. They will then give you a voucher.
- **Take the voucher to the Bank** to complete the purchase.

Completing Chance Cards

- **Each Chance Card** has an opportunity for you to earn money.
- At any time, you can pull a **Chance Card** from a volunteer’s bucket.
- Complete the action listed on the **Chance Card** and take proof of completion to the Bank to collect your earnings.
Join us for a special social honoring WEF President

Jackie Jarrell

Sunday, November 3
4:30 p.m.
Exhibit Hall
Special thank you to our

Wavemaker
Presidential Sponsorship

Platinum Sponsor

Huber Technology
Waste Water Solutions
Emergency Preparedness Success Lies in What Doesn’t Happen
Dusti Lowndes, RS
Director, Emergency Management
District of Columbia Water and Sewer Authority

The threats and hazards facing the water sector continue to evolve and come from all angles within a utility. It is important for all water and wastewater utilities to mitigate, prepare for, and respond to disruptive events in order to provide a resilient and vital service to their customers. DC Water has implemented several innovative measures to notify customers, collaborate with partners, and manage special events and emergencies. From being the first utility to receive an Emergency Management Accreditation through EMAP to establishing a Type 3 Incident Management Team (IMT) and sponsoring an IMT academy with response partners, DC Water is building a culture of preparedness which includes a robust training and exercise program and enhancing employee engagement through the Incident Command System. The success in many of these programs and measures lies in what doesn’t happen and in how quickly recovery occurs.

This presentation will highlight:
- Preparedness and mitigation measures
- Response capabilities
- Internal and external collaboration with partners and critical customers
- Training and exercises with multiple funding sources
- Examples of response activations

0.5 contact hour for the Opening Session. You must be present for the ENTIRE Opening Session in order to receive credit.
About Dusti

Dusti serves DC Water as Director, Emergency Management. Along with managing the Authority’s emergency response and planning activities, she reviews and writes response plans, is responsible for external citywide planning to enhance Public Works Emergency Support Function (ESF 3), facilitates DC Water’s portions of the District’s Response Plans, develops an annual training calendar, and serves as a coordinator and Planning Section Chief for DC Water’s Incident Management Team.

Previously she was a member of the Planning Section for NorthWest Montana Type 3 Incident Management Team for eight years and worked for Montana Department of Environmental Quality - Public Water Supply for ten years as the program’s security and emergency preparedness specialist and as a technical assistance specialist/inspector. As a registered sanitarian (RS), Dusti previously worked for Flathead City-County Environmental Health Division for four years after receiving her bachelor’s degree in Environmental Quality from the Salish Kootenai College of Montana and the College of Charleston in South Carolina.

Dusti has numerous certifications and a variety of experience in incident management, critical infrastructure protection, contamination monitoring, vulnerability assessments, water system operations and maintenance, drinking water quality regulations, public health, emergency planning, training and exercises, and response. She enjoys instructing courses and leading workshops and exercises. In her free time, she volunteers with the American Red Cross and works with animal rescue groups. She enjoys being outside, camping, and fishing with her family and friends. Dusti is a fifth generation Montanan who grew up in Belgrade, Montana.
Ad Hoc DMIC Activities

Women of Water Networking Event
Sunday, November 3
4:30 p.m.-6:30 p.m.

Looking to connect with other women in the water industry?

Join us for the Women of Water networking event happening during the evening social. Look for our name!

Coordinated by the Ad Hoc Diversity of Membership and Inclusion Committee.

Diversity of Membership and Inclusion Committee presents... Mission Exhibitor: A Networking Event
Monday, November 4
9:15 a.m.-10:15 a.m.

Are you a master sleuth with a competitive spirit? Do you have a knack for gathering intel, analyzing data, and interpreting clues? Are you an unofficial, pseudo member of the BAU, NCIS, IMP, or Men of Letters?

The Diversity of Membership and Inclusion Committee is looking for a few good operatives to put their detective skills to work, for a chance to win a prize and meet some awesome new people during this networking event.

Your mission, should you choose, would be to team up with other specialists and work together to complete the assigned mission. Think you and your team have what it takes to get the job done? Simply come to the exhibit hall at 9:15 a.m. to participate in this exciting event. Everyone is welcomed and encouraged to participate.
The Communication Committee members have selected the top photo in each category. Winning photos from the NC AWWA-WEA Communication Committee’s 11th Annual Photo Contest will be on display, and you can participate in the judging. During the Annual Conference you will be able to vote on the mobile app to select the overall top Members’ Choice photo. Vote for your favorite on the Mobile App!

**Critters Around Us Winner**  
_Sunbathing_  
by Michael Lamping, City of Sanford

**Structures Winner**  
_Doorway to Water_  
by Tonia Barton, CMT

**Environment Winner**  
_Refection_  
by Jonathan Williams, HDR, Inc.

**Our Members at Work Winner**  
_Devoted_  
by Jim Dotson, Southern Corrosion, Inc.
Monday, November 4
8:00 a.m. Pre-Competition Meeting
9:00 a.m.-4:00 p.m. Maintenance, Safety, Collections, and Laboratory Events
Exhibit Hall

Tuesday, November 5
9:00 a.m.-12:00 p.m. Process Control Event
Room 205

In the Operations Challenge events, four-person teams, along with their coach, compete in events that challenge their skills in various wastewater related activities. The winner is determined by a weighted point system. At the national WEFTEC competition, there are five events in the Operations Challenge: collection system event, laboratory event, process control event, pump maintenance event, and the safety event. The 2019 North Carolina Operations Challenge Competition will include all five of these events.

The Collections System Event simulates the repair of a damaged 8-inch PVC sewer pipe, and the connection of a 4-inch sewer lateral, using an Inserta Tee fitting, while the 8-inch pipe remains in service. The event also simulates the installation and programming of an automated Hach AS950 composite sampler, to collect a composite sample of the “flow” in the 8-inch pipe.

The Maintenance Event simulates the failure of one pump in a duplex lift station, and the full servicing of a trailer mounted Godwin DriPrime NC80 pump. Once the pump service is complete, the Godwin Pump is temporarily connected to the lift station, and programmed for automatic operation with the use of a level probe.

The Laboratory Event simulates analyzing a series of process control samples for pH, alkalinity, and ammonia using Orion instruments. Once the samples have been analyzed, the teams must perform process control calculations to determine if sufficient alkalinity is in the treatment system to sustain nitrification.

The Safety Event simulates a confined space entry to repair a check valve. During the confined space entry, a worker collapses in the confined space, and a confined space rescue must also take place. The repairs to the check
valve must continue on, while the rescue of the collapsed worker is carried out. This event uses a XTRIPA system to facilitate the confined space entry and rescue.

The **Process Control Event** is a timed event giving the teams an opportunity to demonstrate their accumulated knowledge and skill in the areas of laboratory procedures, collections system operation, maintenance, safety, and troubleshooting. The process control event will split the teams into two-person groups, with one group completing a thorough written test including multiple choice questions and short math questions, while the other group uses Hydromantis simulation software to complete complex operational scenarios on a simulated wastewater treatment plant. The Process Control Event will take place in Room 205.

**For Questions Contact**
Greg Morgan, Operations Challenge Committee Chair, gregmorgan@unioncountync.gov, 704-289-3288 or Billy Allen, Operations Challenge Committee Vice Chair, ballen@charlottenc.gov, 704-553-2124.

**THANK YOU TO THE FOLLOWING COMPANIES FOR THEIR GENEROUS DONATIONS:**

- **American Pipe and Supply**
- **Consolidated Pipe & Supply**
- **Ferguson Waterworks**
- **Mars Company**
- **Mueller Co.**
- **Preferred Sources Inc**

**Sponsors 2019**
The **Pipe Tapping Contest** is a competition of skill in which teams compete for the best time in opening a cement-lined, ductile iron pipe and installing a tap. Pipe tapping teams consist of a maximum of four persons including three workers and one coach. The competition is open to both men’s teams and women’s teams. Winners from this year’s NC Pipe Tapping Contest will be eligible to compete in the 2020 National AWWA contest at ACE.

**For Questions Contact**
Josh Bennett, Pipe Tapping Committee Chair, joshua.bennett@raleighnc.gov, 984-202-6873.

**THANK YOU TO THE FOLLOWING COMPANIES FOR THEIR GENEROUS DONATIONS:**

- American Pipe and Supply
- Consolidated Pipe & Supply
- Ferguson Waterworks
- Mars Company
- Mueller Co.
- Preferred Sources Inc

---

**Sponsors 2019**

---

NC AWWA-WEA 99th Annual Conference
We are excited to host our inaugural Hydrant Hysteria Competition!

Hydrant Hysteria is a fast-paced competition that measures a team’s ability to completely assemble a commonly utilized utility hydrant as quickly and accurately as possible. Teams, comprised of no more than two competitors and one coach, compete head to head in a race against the clock for the lowest assembly time. Both men and women are eligible to compete. The winning team(s) will receive a trophy and proclaim their victory as NC AWWA-WEA’s first ever Hydrant Hysteria champions!

Let’s make Hystery!

For Questions Contact
Jonathan Smith, competition coordinator, Jonathan.Smith@unioncountync.gov, (704) 320-6758.

THANK YOU TO THE FOLLOWING COMPANY FOR THEIR GENEROUS DONATIONS:

Kennedy Valve
Downtown Raleigh Breweries
Tuesday, November 5
1:00 p.m.-3:00 p.m.
Please plan to arrive at the first brewery no later than 1:00 p.m.
OR meet at Salisbury Street Exit by 12:30 p.m.
Little City Brewing + Provisions Co. and Crank Arm Brewing
$10 Registration fee; additional fees apply for samples; limited to 50 people

A double gold-medalist at the 2018 Carolinas Championship of Beer. A brewery that hosted “The Bachelor” watch parties with Raleigh’s own Bachelor contestant in attendance. A brewery/rickshaw service inspired by a combined passion of bikes and beer.

What do they all have in common? They are all downtown Raleigh breweries that are conveniently located near stops on Raleigh’s free circulatory bus service: the R-LINE! Hop on one of the hybrid electric buses at the Salisbury St. side of the Convention Center (one every 15 minutes) and join us for a tour of several downtown Raleigh breweries, where the professional brewers will discuss their processes. Topics to be covered include chemical interactions with the public water supply, the importance of a clean and consistent public water supply, and any special precautions taken prior to discharge into the city’s public sewer system. “Samples” will be available for purchase.

1 contact hours for the Facility Tour.
You must be present for the ENTIRE event in order to receive credit.

Special thank you to our

Waveyaker
GOLD SPONSORS

BLACK & VEATCH
The Wednesday forum is titled “Not Your Grandfather’s Storm: Mitigating the New Normal.” The forum will consist of multiple mini-sessions followed by a discussion.

Grandpa’s Storm and the New Normal  
Sean Heusen, NC State Climate Office  
Mr. Heusen will describe the history of weather data collection, forecasting, and communication from the rain gauge and the farmer’s almanac to today’s instantaneous data collection and prediction models and how today’s databases improve severe weather prediction and response, weather forecasts, and natural resource management.

Establishing a New Design  
Bill Hunt, Adjunct Professor (Retired) NC State University  
Dr. Hunt will discuss changes observed in the frequency and duration of our storms with the growing realization such events have become the new norm. We will learn how storms are measured and monitored, new forecast tools, and predictive modeling to adequately compute flood levels.

The Disconnect: Stormwater and Wastewater Sewer Implications  
Hunter Freeman, WithersRavenel and Ken Orie, McKim & Creed  
Stormwater design tools haven’t kept the pace with current information. As the newly available data streams in, we must use the right tools to better predict floods that impact our communities. Stormwater models are typically only used to evaluate the effectiveness of proposed developments and not to determine how existing stormwater systems are performing. It is time that the stormwater and sanitary sewer predictive tools become integrated with all the available data Bill Hunt speaks of and allow our utilities to make real time operational decisions from actual data.

Mitigation in Action: What Can You Do?  
Panel Discussion on Lessons Learned  
Robert Daughtry, Utilities Collection Systems Manager, CFPUA  
Troy Perkins, Water Resources Systems Superintendent, GUC  
J. Elliott Thomas, Water Plant Supervisor, Craven County  
Each panelist will tell their story of their event. Their preparation, what would/could they have done differently, solutions to their flooding issues, and the changes made so it doesn’t happen again (i.e. change height of manholes, intake structure changes, berms, dikes surrounding the plant).

Q&A Session

2 contact hours for the Wednesday Forum. You must be present for ALL SESSIONS in order to receive credit.
19th Annual NC AWWA-WEA Spring Symposium

April 5-7, 2020
Renaissance Asheville Hotel
Asheville, NC
Registration Desk Hours
Registration desk will be located in the center of the exhibit hall. Tentative hours are:

- **Sunday, 2:00 p.m.-6:00 p.m.**  
  Exhibitors - Please note that representatives from the Exhibits Committee will be available Sunday morning beginning at 8:00 a.m. to distribute registration packets to exhibitors.
- **Monday, 7:00 a.m.-5:30 p.m.**
- **Tuesday, 7:30 a.m.-5:00 p.m.** (After lunch registration will move to the 3rd floor.)
- **Wednesday, 8:00 a.m.-11:00 a.m.** (Registration will be on the 3rd floor.)

Exhibit Hall Schedule
The exhibit hall will be open during the following hours. Please note that the exhibit hall closes on Tuesday at 1:20 p.m. before the conclusion of the conference.

**Sunday**
8:00 a.m.-3:30 p.m. Exhibit hall set-up  
3:15 p.m.-3:45 p.m. Exhibitor meeting  
4:00 p.m.-6:30 p.m. Exhibit hall open for social

**Monday**
9:00 a.m.-6:30 p.m. Exhibit hall open serving lunch and evening refreshments  
5:15 p.m.-6:30 p.m. Social

**Tuesday**
7:30 a.m.-1:20 p.m. Exhibit hall open serving lunch  
1:30 p.m.-4:00 p.m. Exhibit break-down  
5:00 p.m.-7:15 p.m. Gavel Gala  
7:15 p.m.-10:00 p.m. Awards Banquet (ticketed event)

Exhibitor Best in Show Voting
**Sunday, November 3-Tuesday, November 5**  
Keep your eyes open for the booth that wins BIG with their display and use the mobile app to vote for them in the Best in Show Competition. The winner will be announced during lunch on Tuesday and will receive $500 off the purchase of an exhibit booth at the 2020 Annual Conference. Congratulations to our 2018 winner, HDR, Inc!
Door Prize Drawings
Drawings for door prizes donated by the exhibitors will take place throughout the conference in the exhibit hall. Attendees will automatically receive door prize tickets in their registration packets. The number of tickets received is determined by registration type. Additional door prize tickets are not available for purchase. Attendees must be present to enter tickets into a drawing and to claim their prize.

Schedule
1st Drawing:
   Sunday Welcome Reception, 4:30 p.m.-6:30 p.m.
2nd Drawing:
   Monday Lunch, 11:15 a.m.-1:20 p.m.
3rd Drawing:
   Monday Afternoon Break, 3:05 p.m.-3:55 p.m.
4th Drawing:
   Monday Social, 5:15 p.m.-6:30 p.m.
5th Drawing:
   Tuesday Morning Break, 9:05 a.m.-10:10 a.m.
6th Drawing:
   Tuesday Lunch, 11:15 a.m.-1:05 p.m.

Food/Drinks
- **Lunch, Monday, November 4 (tickets required)**
  11:15 a.m.-1:20 p.m.
- **Lunch, Tuesday, November 5 (tickets required)**
  11:15 a.m.-1:05 p.m.

On both Monday and Tuesday, lunch will be served buffet-style in the exhibit hall. Pick up a plate and visit exhibit booths as you eat, or utilize one of the seating areas that will be available throughout the exhibit hall. On Tuesday, the exhibit hall will close after lunch.

Drink stations and food will be located around the exhibit hall. Tables will be stationed along the outer perimeter and in a few other open areas. Cash bars will be available during the Sunday and Monday social events. Thanks to our generous exhibitors, each attendee will receive one complimentary beverage ticket in their registration packet.
Wavemaker Social Honoring Jackie Jarrell and Welcome Reception  
Sunday, November 3  
4:30 p.m.-6:30 p.m.  
Join us Sunday for the unofficial opening of the conference. Get a jump on visiting exhibitors before sessions start, and take time to honor the new WEF President, Jackie Jarrell. Let volunteers help you download the mobile app and start mapping out your session attendance and networking schedule. As the reception is wrapping up be sure to stick around to congratulate our 2019 Select Society of Sanitary Sludge Shovelers (5S) Inductees. They will be easy to spot as they roam the conference on Monday collecting donations for the NC Safewater Endowment Fund.

Best Tasting Water Contest  
Tuesday, November 5  
11:30 a.m.  
On your way to or from the exhibit hall for lunch, swing by the Best Tasting Water Contest to see who has the best tasting water in the state. Submissions are welcomed from any water system in the state and should be turned in at the conference registration desk on Sunday, November 3, between 2:00 p.m.-5:00 p.m.

Guidelines for Sample Submissions:  
- Samples must be in one-liter clear glass, narrow-mouth bottles.  
- Bottles should be washed, rinsed with sample and then bottles should be filled and capped, leaving no head space.  
- Samples should be kept on ice or refrigerated at 4 degrees Celsius.  
- Clearly mark your organization name on ALL bottles, coolers, and boxes using tags or removable tape. DO NOT use permanent markers to label bottles.  
- 2 Liter water samples must be drawn from the organization’s own distribution system.  

Individual judges will rank samples, and the individual results will be combined to establish overall rankings. Awards will be given for first, second, and third place. Questions about the contest should be directed to Don Garbrick, Labella Associates at 704-376-6423 ext. 120.
Exhibit Hall Map
### Exhibitors
(current as of 10/10/2019)

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Booth(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>540 Technologies</td>
<td>324</td>
</tr>
<tr>
<td>A &amp; W Electric, Inc</td>
<td>423</td>
</tr>
<tr>
<td>ADS Environmental Services</td>
<td>434</td>
</tr>
<tr>
<td>Aegion-InsituForm Technologies, LLC and Underground Solutions, Inc</td>
<td>422</td>
</tr>
<tr>
<td>American Flow Control/American Ductile</td>
<td>313</td>
</tr>
<tr>
<td>Backflow Solutions, Inc</td>
<td>612</td>
</tr>
<tr>
<td>BECK - Harold Beck &amp; Sons, Inc</td>
<td>637</td>
</tr>
<tr>
<td>Belden Industrial</td>
<td>217</td>
</tr>
<tr>
<td>Bio-Nomic Services, Inc</td>
<td>317</td>
</tr>
<tr>
<td>Carolina Civilworks Inc</td>
<td>327</td>
</tr>
<tr>
<td>Carolina Management Team</td>
<td>501</td>
</tr>
<tr>
<td>Carolina Pumpworks, LLC</td>
<td>738, 736</td>
</tr>
<tr>
<td>Carotek, Inc</td>
<td>522, 524, 526, 528</td>
</tr>
<tr>
<td>CB&amp;I Storage Tank Systems, LLC</td>
<td>221</td>
</tr>
<tr>
<td>Charles R. Underwood, Inc</td>
<td>513</td>
</tr>
<tr>
<td>CHEMTRADE</td>
<td>228</td>
</tr>
<tr>
<td>CLEARWATER, INC</td>
<td>701, 703, 705, 602, 604, 606, 608</td>
</tr>
<tr>
<td>Combs &amp; Associates, Inc</td>
<td>515, 517</td>
</tr>
<tr>
<td>Compliance EnviroSystems, LLC</td>
<td>733</td>
</tr>
<tr>
<td>Covalen</td>
<td>718</td>
</tr>
<tr>
<td>Createx Specialty Products</td>
<td>118</td>
</tr>
<tr>
<td>Crom</td>
<td>632</td>
</tr>
<tr>
<td>Crowder Construction Company</td>
<td>403</td>
</tr>
<tr>
<td>CTRcoatings</td>
<td>734</td>
</tr>
<tr>
<td>CUES, INC</td>
<td>436</td>
</tr>
<tr>
<td>Custom Controls Unlimited, Inc</td>
<td>605</td>
</tr>
<tr>
<td>Daparak, Inc</td>
<td>621, 623, 625</td>
</tr>
<tr>
<td>Data Flow Systems, Inc</td>
<td>318</td>
</tr>
<tr>
<td>Dewberry</td>
<td>615</td>
</tr>
<tr>
<td>Dixie Electro Mechanical Services Inc</td>
<td>628, 626</td>
</tr>
<tr>
<td>Dorsett Technologies, Inc</td>
<td>128</td>
</tr>
<tr>
<td>Ductile Iron Pipe Research Association</td>
<td>323</td>
</tr>
<tr>
<td>Duke's Root Control, Inc</td>
<td>737</td>
</tr>
<tr>
<td>Dun-Right Services, Inc</td>
<td>332</td>
</tr>
<tr>
<td>EMA Resources, Inc</td>
<td>624</td>
</tr>
<tr>
<td>Enthalpy Analytical</td>
<td>321</td>
</tr>
<tr>
<td>EV2 Environmental, Inc</td>
<td>412, 414, 416, 418</td>
</tr>
<tr>
<td>Extherm / Q-Hilgroup</td>
<td>715</td>
</tr>
<tr>
<td>Ferguson Waterworks</td>
<td>232</td>
</tr>
<tr>
<td>FLW Southeast/Beck Sales and Engineering</td>
<td>617</td>
</tr>
<tr>
<td>Fortech, Inc</td>
<td>331</td>
</tr>
<tr>
<td>Fortline Waterworks</td>
<td>333</td>
</tr>
<tr>
<td>Frazier Engineering P.A.</td>
<td>312</td>
</tr>
<tr>
<td>Freese and Nichols, Inc</td>
<td>601</td>
</tr>
<tr>
<td>Gavel &amp; Dorn Engineering, PLLC</td>
<td>722</td>
</tr>
<tr>
<td>Greybar Electric Company</td>
<td>427, 328</td>
</tr>
<tr>
<td>Hach</td>
<td>402, 404</td>
</tr>
<tr>
<td>HDR</td>
<td>533</td>
</tr>
<tr>
<td>Heritage Water Systems, Inc</td>
<td>433, 431</td>
</tr>
<tr>
<td>Heyward Incorporated</td>
<td>502, 504, 506, 508</td>
</tr>
<tr>
<td>Hydra-Stop LLC</td>
<td>457</td>
</tr>
<tr>
<td>Hydromax USA</td>
<td>518</td>
</tr>
<tr>
<td>Hydrostructures, P.A.</td>
<td>112</td>
</tr>
<tr>
<td>Innovyzeme</td>
<td>634</td>
</tr>
<tr>
<td>Interstate Utility Sales, Inc</td>
<td>405, 407</td>
</tr>
<tr>
<td>James River Equipment</td>
<td>338, 336</td>
</tr>
<tr>
<td>Jet-Vac Equipment Company, LLC</td>
<td>735</td>
</tr>
<tr>
<td>Kemp Construction Inc</td>
<td>505</td>
</tr>
<tr>
<td>Kennedy - Clay - M&amp;H</td>
<td>238</td>
</tr>
<tr>
<td>Kimley-Horn</td>
<td>523</td>
</tr>
<tr>
<td>Lord &amp; Company, Inc</td>
<td>728</td>
</tr>
</tbody>
</table>
### Exhibitors

(current as of 10/10/2019)

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Booth</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. B. Kahn Construction</td>
<td>811</td>
</tr>
<tr>
<td>Madrid's Maintenance Management Solutions, Inc.</td>
<td>314</td>
</tr>
<tr>
<td>MBD Consulting Engineers, P.A.</td>
<td>322</td>
</tr>
<tr>
<td>McGill Associates</td>
<td>527</td>
</tr>
<tr>
<td>Mechanical Equipment Company</td>
<td>417, 415, 413</td>
</tr>
<tr>
<td>Midas Utilities, LLC</td>
<td>727</td>
</tr>
<tr>
<td>ms consultants, Inc.</td>
<td>511</td>
</tr>
<tr>
<td>Oracle Utilities</td>
<td>316</td>
</tr>
<tr>
<td>Pace Analytical Services</td>
<td>633</td>
</tr>
<tr>
<td>Pete Duty and Associates Inc.</td>
<td>432, 535, 526</td>
</tr>
<tr>
<td>Phoenix Contact</td>
<td>426</td>
</tr>
<tr>
<td>PICA - Pipeline Inspection &amp; Condition Analysis</td>
<td>326</td>
</tr>
<tr>
<td>Precon Corporation</td>
<td>311</td>
</tr>
<tr>
<td>Preferred Sources</td>
<td>222</td>
</tr>
<tr>
<td>Premier Water, LLC</td>
<td>532, 536, 538, 534</td>
</tr>
<tr>
<td>Press Rentals</td>
<td>621</td>
</tr>
<tr>
<td>PVC Pipe Association</td>
<td>603</td>
</tr>
<tr>
<td>Rain for Rent</td>
<td>406</td>
</tr>
<tr>
<td>Rangeline Tapping Services, Inc.</td>
<td>315</td>
</tr>
<tr>
<td>Red Bud Supply Inc.</td>
<td>334</td>
</tr>
<tr>
<td>RIVERS &amp; ASSOCIATES, INC.</td>
<td>637</td>
</tr>
<tr>
<td>S&amp;ME, Inc.</td>
<td>712</td>
</tr>
<tr>
<td>Salmon's Dredging Diving &amp; Marine Construction</td>
<td>611</td>
</tr>
<tr>
<td>SAMR, PLLC</td>
<td>236</td>
</tr>
<tr>
<td>SEL Inc.</td>
<td>631</td>
</tr>
<tr>
<td>SEPI Inc.</td>
<td>337</td>
</tr>
<tr>
<td>Sherwin Williams Coatings</td>
<td>411</td>
</tr>
<tr>
<td>SKA Consulting Engineers</td>
<td>636</td>
</tr>
<tr>
<td>Smart Water Smart City, LLC</td>
<td>438</td>
</tr>
<tr>
<td>Source Technologies LLC.</td>
<td>635</td>
</tr>
<tr>
<td>SR&amp;R Environmental, Inc.</td>
<td>401</td>
</tr>
<tr>
<td>Sterling Water Technologies LLC</td>
<td>408</td>
</tr>
<tr>
<td>STEWART</td>
<td>514</td>
</tr>
<tr>
<td>Swan Analytical USA</td>
<td>732</td>
</tr>
<tr>
<td>Synagro Technologies, Inc.</td>
<td>627</td>
</tr>
<tr>
<td>T. A. Loving Company</td>
<td>721, 622</td>
</tr>
<tr>
<td>Tencarva Machinery Company</td>
<td>326</td>
</tr>
<tr>
<td>The Haskell Company</td>
<td>613</td>
</tr>
<tr>
<td>The Perkins Company, Inc.</td>
<td>728</td>
</tr>
<tr>
<td>Thompson Pipe Group</td>
<td>335</td>
</tr>
<tr>
<td>Timmons Group, Inc.</td>
<td>211</td>
</tr>
<tr>
<td>TITUS® Industrial Group Inc.</td>
<td>435</td>
</tr>
<tr>
<td>Themec Inc.</td>
<td>116</td>
</tr>
<tr>
<td>Trihedral Engineering Limited</td>
<td>717</td>
</tr>
<tr>
<td>TT Technologies Inc</td>
<td>308</td>
</tr>
<tr>
<td>Ullman Schütte</td>
<td>607</td>
</tr>
<tr>
<td>USABLEBOOK</td>
<td>711</td>
</tr>
<tr>
<td>Vand Solutions LLC</td>
<td>618, 616, 614, 612</td>
</tr>
<tr>
<td>Vaughn &amp; Melton Consulting Engineers</td>
<td>713</td>
</tr>
<tr>
<td>W. K. Hille Company, Inc.</td>
<td>421</td>
</tr>
<tr>
<td>Wachs Utility Products</td>
<td>212</td>
</tr>
<tr>
<td>Water Guard, Inc.</td>
<td>638</td>
</tr>
<tr>
<td>Watkins Supply</td>
<td>725, 723</td>
</tr>
<tr>
<td>WVC Equipment Sales</td>
<td>426, 424, 428</td>
</tr>
<tr>
<td>Wharton-Smith, Inc.</td>
<td>718, 714</td>
</tr>
<tr>
<td>Willis Engineers</td>
<td>503</td>
</tr>
<tr>
<td>WithersRavenel</td>
<td>516</td>
</tr>
<tr>
<td>Xylem</td>
<td>302, 304</td>
</tr>
<tr>
<td>Xylem - Decision Intelligence</td>
<td>306</td>
</tr>
</tbody>
</table>
Requirements
NC AWWA-WEA uses an electronic system to track attendance. Continuing education credits cannot be reported unless you give appropriate license/certification numbers to NC AWWA-WEA. Please be sure to do EACH of the following to ensure the accurate reporting of your continuing education credits:

- Submit your license numbers during registration using the registration form or online registration system.
- Bring your certification card issued by the NCWTFOCB and/or the NCWPCSOCC.
- Be scanned as you enter each session.
- Be present for the entire session for which you want credit.

How to Ensure You Get Your Credits

- Be sure your badge is scanned as you enter each session.
- IF YOUR BADGE DOES NOT SCAN: Be sure your name is recorded by the moderator and make sure to come by the Registration Desk during your next break.
- Be on time to each session. If you are late, you may not receive credit.
- Do not leave sessions early. If you leave early, you will not receive credit.
Tracking Procedures

- NC AWWA-WEA uses an electronic system to track attendance at all of its events. Attendees’ contact hours/PDHs are based on the number of individual sessions they attend. Attendees must be registered for the day(s) on which they attend sessions to receive contact hours/PDHs. Each session is approved for Professional Engineers and may be approved for water operators, wastewater operators, and/or maintenance technologists. A schedule indicating approvals for specific sessions is provided on the following pages.
- This year we are exclusively utilizing an onsite scanning system.
- At the beginning of each session, moderators will scan attendees’ name badge into our onsite system. Moderators will no longer be collecting paper CEU cards.
- Five minutes after a session has begun, moderators will no longer scan any attendee who comes in late. It is very important that you arrive on time for sessions because once the scanning has stopped, attendees will no longer be eligible to receive credit for the session. If an attendee leaves early, the moderator will record the attendee name and the attendee will not receive credit for the session. In the event that a badge will not scan, the moderator will write down the attendee name and company.
- After the conference, staff will verify all scanned information and produce a contact hour/PDH record for attendees. Records will be sent to each attendee who received contact hours/PDHs at this conference approximately 4 weeks after the conference. Records will be emailed for attendees who provide an email address and mailed to attendees without an email address on file.
Monday, November 4

9:30 a.m. - 10:00 a.m.

**COLLECTION & DISTRIBUTION (Room 305A)**
How to Marie Kondo a Major 30-inch Gravity Sewer Line into the Heart of the Crowded but Still Rapidly Growing South Park Area in Charlotte
Ryan LeBlanc
Charlotte Water
**WW, MT, PE**

**POLICY & MANAGEMENT (Room 306C)**
Making a Case for Asset Management
Seth Robertson
WithersRavenel
**W, WW, MT, PE**

**SPECIAL TOPICS (Room 305B)**
Education, Collaboration, and Building the Next Generation of Water Leaders
Jimmy Bagley
City of Rock Hill
**W, MT, PE**

**WASTEWATER (Room 306B)**
Demonstration of RAS Fermentation and Advanced Aeration Control Strategies at Charlotte Water’s Largest Wastewater Management Facility
Mark Miller
Brown and Caldwell
**WW, MT, PE**

**WATER (Room 306A)**
Construction and Startup of a New 20 mgd Water Treatment Plant with Ozone, UV and GAC Biofiltration
Bill Dowbiggin
CDM Smith
**W, MT, PE**

**YOUNG PROFESSIONALS (EXHIBIT HALL)**
Get Your Hands Dirty: Wastewater Treatability Testing as a Hands-On Learning Experience
Leah-Ann Dudley
Dewberry Engineers
**WW, MT, PE**

10:05 a.m. - 10:35 a.m.

**COLLECTION & DISTRIBUTION (Room 305A)**
“Between a Rock and a Hard Place,” “You Can’t Make Everyone Happy All of the Time,” and Other Euphemisms: OWASA’s Historic Rogers Road Area Sanitary Sewer Extension
Krista Paredes-Toledo
AECOM
**WW, MT, PE**

**POLICY & MANAGEMENT (Room 306C)**
Make Your Data Work For You
Rishi Immanni
Dewberry
**W, WW, MT, PE**

**SPECIAL TOPICS (Room 305B)**
Design-Build Delivery of a Regional Water Supply
Christopher Petree
Timmons Group
**W, MT, PE**

**WASTEWATER (Room 306B)**
Unlocking the Mysteries of RAS and Mixed Liquor Fermentation for Bio-P Intensification
David Wankmuller
Hazen and Sawyer
**WW, MT, PE**

**WATER (Room 306A)**
How Green is My Water? Addressing Harmful Algal Blooms through Ozone and Peroxone
Samantha Black
HDR, Inc.
**W, MT, PE**

**YOUNG PROFESSIONALS (EXHIBIT HALL)**
Pilot Study Operations as an Entry Level Engineer
Kara DeGroote
CDM Smith
**WW, MT, PE**
**Monday, November 4**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Presenter</th>
<th>Affiliation</th>
<th>CEU Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:40 a.m. - 11:10 a.m.</td>
<td><strong>COLLECTION &amp; DISTRIBUTION</strong> <em>(Room 305A)</em></td>
<td>Assessing DIP Corrosion at the North Durham Water Reclamation Facility with Bracelet Probe</td>
<td>James Perotti</td>
<td>CDM Smith</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>POLICY &amp; MANAGEMENT</strong> <em>(Room 306C)</em></td>
<td>Old School Wisdom Meets A New Generation of Programs: A Succession Plan for Greensboro’s Rehabilitation Program</td>
<td>Robbie Bald</td>
<td>WithersRavenel</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>SPECIAL TOPICS</strong> <em>(Room 305B)</em></td>
<td>The Impact of a Water Effect Ratio Study on Dissolved Metals Criteria Implementation in NPDES Permits</td>
<td>Mary Sadler</td>
<td>Hazen and Sawyer</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>WASTEWATER</strong> <em>(Room 306B)</em></td>
<td>Head to Head with Sidestream Nitrogen Removal Superpowers</td>
<td>Nicole Stephens</td>
<td>Stantec</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>WATER</strong> <em>(Room 306A)</em></td>
<td>Developing Plant-Specific Models to Predict DBP Formation: Two North Carolina Case Studies</td>
<td>Chuck McCall</td>
<td>CDM Smith</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>YOUNG PROFESSIONALS (EXHIBIT HALL)</strong></td>
<td>Fundamentals of Biological Nutrient Removal Technologies and Their Evolution in Wastewater Industry</td>
<td>Deepthi Kalyanam</td>
<td>HDR, Inc.</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td>11:15 a.m. - 11:45 a.m.</td>
<td><strong>COLLECTION &amp; DISTRIBUTION</strong> <em>(Room 305A)</em></td>
<td>Reducing the Risk: A Force Main Inspection Program to Mitigate High Consequence Events before Your Utility Makes the News</td>
<td>Tina Whitfield</td>
<td>HDR, Inc.</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>POLICY &amp; MANAGEMENT</strong> <em>(Room 306C)</em></td>
<td>Of the People, By the People, For the People: Data Democratization at Newport News Waterworks</td>
<td>Aditya Ramamurthy</td>
<td>Hazen and Sawyer</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>SPECIAL TOPICS</strong> <em>(Room 305B)</em></td>
<td>Water Age Abatement Part I: How the City of Durham Developed an Innovative Plan that Transformed the Flushing Process During Temporary Water Disinfection Changeover</td>
<td>Corrie Bondar</td>
<td>City of Durham</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>WASTEWATER</strong> <em>(Room 306B)</em></td>
<td>Recovering Energy and Nutrients From Organic Solids and Removing Contaminants of Concern Via Hydrogen Reduction: A Game Changer for Wastewater Treatment</td>
<td>Chris Hertle</td>
<td>GHD Inc.</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>WATER</strong> <em>(Room 306A)</em></td>
<td>Mason Jars are not Just for Moonshine: An Aged Water Quality Control Program</td>
<td>Joseph Pearce PE CFM</td>
<td>Aqua North Carolina</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td></td>
<td><strong>YOUNG PROFESSIONALS (EXHIBIT HALL)</strong></td>
<td>How Environmental Permitting and Potential Contamination Can Affect Your Utility Project</td>
<td>Kyle Pohle</td>
<td>WithersRavenel</td>
<td>WW, WW, MT, PE</td>
</tr>
</tbody>
</table>
### Technical Program

**Monday, November 4**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
<th>Organization</th>
<th>CEU KEY: W, Approved for Water; WW, Approved for Wastewater; PE, Approved for PE; MT, Approved for Maintenance Tech</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:15 a.m. - 1:20 p.m.</td>
<td>LUNCH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15 a.m. - 12:50 p.m.</td>
<td>STUDENT LUNCH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:50 a.m. - 12:30 p.m.</td>
<td>COLLECTION &amp; DISTRIBUTION (Room 305A) Planning for Improved Resiliency and Reliability in Charlotte Water’s Distribution System</td>
<td>Kevin Laptos</td>
<td>Black &amp; Veatch</td>
<td>W, MT, PE</td>
</tr>
<tr>
<td>12:50 p.m. - 1:20 p.m.</td>
<td>POLICY &amp; MANAGEMENT (Room 306C) Developing Emergency Response Plans in Accordance with the America’s Water Infrastructure Act and Industry Guide and Best Practices</td>
<td>Jack Moyer</td>
<td>AECOM</td>
<td>W, WW, MT, PE</td>
</tr>
<tr>
<td>1:25 p.m. - 1:55 p.m.</td>
<td>COLLECTION &amp; DISTRIBUTION (Room 305A) Where’s the Water Coming From? Planning for Current and Future Water Supply and Distribution for Mount Pleasant, SC</td>
<td>Meredith Miller</td>
<td>CDM Smith</td>
<td>W, MT, PE</td>
</tr>
<tr>
<td>1:25 p.m. - 1:55 p.m.</td>
<td>POLICY &amp; MANAGEMENT (Room 306C) Lessons Learned by Cape Fear Public Utility Authority (CFPUA) During and After Hurricane Florence</td>
<td>Eric Hatcher</td>
<td>Cape Fear Public Utility Authority</td>
<td>W, WW, MT, PE</td>
</tr>
<tr>
<td>1:25 p.m. - 1:55 p.m.</td>
<td>SPECIAL TOPICS (Room 305B) There’s an App for That: AGOL Contractor Management</td>
<td>Kelly Alexander</td>
<td>HDR, Inc.</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td>1:25 p.m. - 1:55 p.m.</td>
<td>WASTEWATER (Room 306B) So, Your PAA Pilot Says it's a go...</td>
<td>Lauren Frei</td>
<td>Stantec</td>
<td>WW, MT, PE</td>
</tr>
<tr>
<td>1:25 p.m. - 1:55 p.m.</td>
<td>WATER (Room 306A) Complete Water Treatment Plant Simulation Prior to Startup: Control Logic Functional Acceptance Testing using Dynamic Simulation</td>
<td>Michelle Mayes</td>
<td>Jacobs</td>
<td>W, MT, PE</td>
</tr>
<tr>
<td>1:25 p.m. - 1:55 p.m.</td>
<td>YOUNG PROFESSIONALS (EXHIBIT HALL) Hydraulic Modeling: Determining the Right Level of Calibration</td>
<td>David Gustafson</td>
<td>AECOM</td>
<td>W, WW, MT, PE</td>
</tr>
</tbody>
</table>
Monday, November 4

2:00 p.m. - 2:30 p.m.

**COLLECTION & DISTRIBUTION (Room 305A)**
Carpentry, Computers, and Water: The Role of Physical Hydraulic Models and Computer Modeling Software in Pump Station Expansions
Zachary Trammel, PE
McKim & Creed, Inc.
WW, MT, PE

**POLICY & MANAGEMENT (Room 306C)**
Lessons Learned Conducting Risk and Resilience Assessments in Accordance with the America's Water Infrastructure Act of 2018
Perry Gayle
AECOM
W, WW, MT, PE

**SPECIAL TOPICS (Room 305B)**
Living in the Cloud: A Discussion on Privacy and Data Ownership in a Modern World
Kevin Garton
LaBella Associates
W, WW, MT, PE

**WASTEWATER (Room 306B)**
Construction and Start-Up Challenges of MSD's Screening and Grit Facility
Hunter Carson
Metropolitan Sewerage District of Buncombe County
WW, MT, PE

**WATER (Room 306A)**
Chemical System Optimization for Plant Expansions
Sara Gibson
Hazen and Sawyer
W, MT, PE

**YOUNG PROFESSIONALS (EXHIBIT HALL)**
Flushing: It’s Not Just for Wastewater Anymore
Emily Murawski
WithersRavenel
W, MT, PE

2:35 p.m. - 3:05 p.m.

**COLLECTION & DISTRIBUTION (Room 305A)**
Monitoring Effectiveness of Corrosion Control Programs in the Distribution System
Leigh Jester
HDR, Inc.
W, MT, PE

**POLICY & MANAGEMENT (Room 306C)**
A Case Study in Utility Viability: Implementing North Carolina's Statewide Water and Wastewater Infrastructure Master Plan in Small Rural Communities
Francine Durso
NC Division of Water Infrastructure
W, WW, MT, PE

**SPECIAL TOPICS (Room 305B)**
Keeping Water Insight with Agua Vista: How OWASA is Engaging Customers with Hourly Water Use Data
Mary Tiger
Orange Water and Sewer Authority (OWASA)
W, MT, PE

**WASTEWATER (Room 306B)**
Between a Rock and a Hard Place: High Rate Primary Clarification at MSD's French Broad Water Reclamation Facility
Jonathan Lapsley
CDM Smith
W, MT, PE

**WATER**
Current Challenges from Unregulated Contaminants and the Path to Their Regulation
Paul Nyffeler
AquaLaw PLC
W, MT, PE

**YOUNG PROFESSIONALS (EXHIBIT HALL)**
Asset Management 101: How You Can Help Utilities Manage Risk
Nisha Thuruthy, PE
McKim & Creed, Inc.
W, WW, MT, PE
Monday, November 4

3:05 p.m. - 3:55 p.m.
BREAK

3:55 p.m. - 4:25 p.m.
COLLECTION & DISTRIBUTION (Room 305A)
Pump Station Cycling Analysis
Adam Haggerty
City of Raleigh Public Utilities
WW, MT, PE

POLICY & MANAGEMENT (Room 306C)
DWI, CDBG, CWSRF, DWSRF, USDA, WiFi, Oh My!
Catherine Renbarger
WithersRavenel
W, WW, MT, PE

SPECIAL TOPICS (Room 305B)
Saving Money and Improving Operations Through RO Plant Automation
Mike Stoup, PE
McKim & Creed, Inc.
W, MT, PE

WASTEWATER (Room 306B)
Integrating Resiliency with Recovery: Repairs & Mitigation Post Hurricane Florence
Angela Mettlen
WK Dickson
WW, MT, PE

WATER (Room 306A)
A Summary of North Carolina’s Groundwater Quality
Craig Caldwell
NC DEQ / Division of Water Resources
W, MT, PE

YOUNG PROFESSIONALS (EXHIBIT HALL)
The Greatest Lesson of my Career has Nothing to do With Water
Nicole Stephens
Stantec
WW, MT, PE

4:30 p.m. - 5:00 p.m.
COLLECTION & DISTRIBUTION (Room 305A)
Isolating Infiltration and Inflow Using Micromonitoring
Joe Herman
Stantec
WW, MT, PE

POLICY & MANAGEMENT (Room 306C)
Fair Market Value Legislation: A New Alternative for Local Governments in Water and Wastewater Utility Ownership
Ruffin Poole
Aqua North Carolina
W, WW, MT, PE

SPECIAL TOPICS (Room 305B)
Do’s, Don’ts, Trends, and Hacks for Writing the Perfect RFQ
Amanda Murphy
Murphy Marketing
W, WW, MT, PE

WASTEWATER (Room 306B)
Planning for the Future: Impacts of Wet Weather Flow for the Durham WRFs
Patricia Drummey Stiegel
Hazen and Sawyer
WW, MT, PE

WATER (Room 306A)
The Fundamentals of High-Quality Design: Failure Modes and Effects Analysis
JD Solomon
Jacobs
W, MT, PE

YOUNG PROFESSIONALS (EXHIBIT HALL)
Data Management in the Digital Age: Utilizing GIS to Enhance Data Collection and Management Strategies and Streamlining Data Analysis and Reporting
Tammy Wehking
AECOM
W, WW, MT, PE
Tuesday, November 5

8:00 a.m. - 8:30 a.m.

COLLECTION & DISTRIBUTION (Room 305A)
Old Man River vs Pipes! Fluvial-Geomorphology Inputs into Pipeline Planning
Stephanie Coffman
Stantec
WW, MT, PE

POLICY & MANAGEMENT (Room 306C)
Legislative and Regulatory Update
Paul Nyffeler
AquaLaw PLC
W, WW, MT, PE

SPECIAL TOPICS (Room 305B)
SRF Loans for Green Infrastructure Projects
Todd St. John
WithersRavenel
W, WW, MT, PE

WASTEWATER (Room 306B)
Addressing New North Carolina Metal Limits in NPDES Permits
Elizabeth Thompson
Shealy Consulting, LLC
W, WW, MT, PE

WATER (Room 306A)
Iron and Manganese Removal in Community Water Systems
Marco Menendez
KCI Associates of North Carolina, P.A.
W, MT, PE

8:35 a.m. - 9:05 a.m.

COLLECTION & DISTRIBUTION (Room 305A)
Wastewater PS Upgrades: It’s Easy, Right?
Eddie Sasser
HIGHFILL
WW, MT, PE

POLICY & MANAGEMENT (Room 306C)
Just Don’t use the Word “Impact”
Carl Scharfe
The Wooten Company
W, WW, MT, PE

SPECIAL TOPICS (Room 305B)
Implementation and Analysis of Water and Wastewater Affordability Criteria
Jennifer Haynie
NC Department of Environmental Quality / Division of Water Infrastructure
W, WW, MT, PE

WASTEWATER (Room 306B)
A Tale of Two Waters: The Importance of Influent Wastewater Characterization and Whole Plant Modeling
Thomas Johnson
Jacobs
WW, MT, PE

WATER (Room 306A)
Thirsty for Controversy: Water Supply Watershed Development
Jay Johnston
WithersRavenel
W, MT, PE

9:05 a.m. - 10:10 a.m.

BREAK

10:10 a.m. - 10:40 a.m.

COLLECTION & DISTRIBUTION (Room 305A)
Running Downhill: Charlotte Water’s Steele Creek Pump Station and Force Main Provides Innovative Solution to Complex Sewer System Capacity Challenges
Jay Fulmer
Brown and Caldwell
WW, MT, PE

POLICY & MANAGEMENT (Room 306C)
YQ2: A Collaborative Partnership for Long-range Water Quantity and Quality Planning in the Yadkin-Pee Dee River Basin
Bill Brewer
City of Winston-Salem/Forsyth County Utilities
W, WW, MT, PE
**Technical Program**  
*(Subject to change.)*

### Tuesday, November 5

**SPECIAL TOPICS (Room 305B)**  
Hydraulic Modeling: A Look Behind the Curtain and a Look into the Future  
Kevin Plemmons  
*HDR, Inc.*  
*W, WW, MT, PE*

**WASTEWATER (Room 306B)**  
An Innovative Process for Granulation of Conventional Activated Sludge for BNR Infra-stretching  
Beverley Stinson  
*AECOM*  
*WW, MT, PE*

**WATER (Room 306A)**  
Considerations for Selecting a WTP Residuals Management Strategy  
Ruth Borgmann  
*Hazen and Sawyer*  
*W, MT, PE*

**COLLECTION & DISTRIBUTION (Room 305A)**  
Predicting the Future: Forecasting Collection System Cleaning Operations  
Jacob Mueller  
*HDR, Inc.*  
*WW, MT, PE*

**SPECIAL TOPICS (Room 305B)**  
Now I See Clearly! Using Federated Models to Communicate Design  
Andrew Swirsky  
*Stantec*  
*W, WW, MT, PE*

**WASTEWATER (Room 306B)**  
Two (or More) Birds in One Stone: Process Intensification, Resiliency, and Energy Savings with Membrane Aerated Biofilm Reactor Technology  
Amit Kaldate  
*Suez Water Technologies & Solutions*  
*WW, MT, PE*

**WATER (Room 306A)**  
Using Zeta Potential to Achieve Optimum Water Treatment Performance  
Christopher Andres  
*Stantec*  
*W, MT, PE*

**WATER (Room 306A)**  
Water Age Abatement Part II: Implementing a Hydraulic Model to Support Water Age Abatement  
Wesley Hutchins, EI  
*McKim & Creed, Inc.*  
*W, MT, PE*
### Tuesday, November 5

**11:15 a.m. - 1:00 p.m.**

**LUNCH**

**11:50 a.m. - 12:30 p.m.**

**SPECIAL TOPICS (Room 305B)**
Casswell Beach Dune Infiltration System: An Innovative Approach to Address Road Flooding for Coastal Towns  
Marc Horstman  
*WK Dickson*  
*WW, MT, PE*

**COLLECTION & DISTRIBUTION (Room 305A)**
Charlotte Water Sewer Capacity Upgrade Project using Progressive Design Build - Case Study and Lessons Learned  
Chip Smith  
*WSP USA*  
*WW, MT, PE*

**12:30 p.m. - 1:00 p.m.**

**POLICY & MANAGEMENT (Room 306C)**
Partnering for Success: Using Finance and Asset Management to Build Resiliency and Lower Costs at your Utility  
David Gordon  
*Blue Cypress Consulting*  
*W, WW, MT, PE*

**WASTEWATER (Room 306B)**
Supercritical Water Oxidation (SCWO) Technology for Sludge and Micropollutants Treatment  
Kobe Nagar  
*Duke University*  
*WW, MT, PE*

**WATER (Room 306A)**
As the River Flows: Catawba-Wateree’s Innovative Model for Building Water Loss Control  
Steve Cavanaugh  
*Cavanaugh & Associates, P.A.*  
*W, MT, PE*

**1:05 p.m. - 1:40 p.m.**

**COLLECTION & DISTRIBUTION (Room 305A)**
Find and Fix with Finesse: Managing Sewer Rehab in Wilmington’s Busiest Roadways  
Carter Hubard  
*WK Dickson*  
*WW, MT, PE*

**POLICY & MANAGEMENT (Room 306C)**
Trigger Based Utility Planning: Capital Expenditure Timing Analysis for Noman Cole Pollution Control Plant Improvements  
Tim Devine  
*Hazen and Sawyer*  
*W, WW, MT, PE*

**SPECIAL TOPICS (Room 305B)**
On the Road Again, When Fleet and Field Operations are the Best of Friends  
John Evans  
*Blue Cypress Consulting*  
*W, WW, MT, PE*

**WASTEWATER (Room 306B)**
Balancing Operator Input and Cost: A Case Study for Dewatering Technology Selection  
Charles Goss  
*AECOM*  
*WW, MT, PE*

**WATER (Room 306A)**
A Long & Winding Road Finally Ends in Water...How the Yadkin River Water Supply Project Secured Union County’s Water Supply Future  
Tracy Randazzo  
*HDR, Inc.*  
*W, MT, PE*

**1:45 p.m. - 2:15 p.m.**

**COLLECTION & DISTRIBUTION (Room 305A)**
Highlights and Lessons Learned from the City of High Point’s Sanitary Sewer Master Plan  
Christine Nesbit  
*CDM Smith Inc*  
*WW, MT, PE*
Tuesday, November 5

POLICY & MANAGEMENT (Room 306C)
Addressing Everything at Once: ONWA-SA’s Joint Strategic and Financial Planning Process
Catherine Carter
Raftelis
W, WW, MT, PE

SPECIAL TOPICS (Room 305B)
Planning for Resiliency in Coastal Communities
Molly Williams
Stantec
W, WW, MT, PE

WASTEWATER (Room 306B)
Conversion of Conventional Aerobic Digesters to an Autothermal Thermophilic Aerobic Digestion (ATAD) Process for Class A Biosolids
John Cannon
GHD
WW, MT, PE

WATER (Room 306A)
The Big Year: 2,000 Dam Inspections Later!
Stephen Whiteside
CDM Smith
W, MT, PE

2:20 p.m. - 2:55 p.m.

COLLECTION & DISTRIBUTION (Room 305A)
Studying and Upgrading Charlotte Douglas International Airport’s (CLT) Water and Sewer Infrastructure for the Future “Destination CLT”
Martin Deng
STV Engineers, Inc.
WW, MT, PE

POLICY & MANAGEMENT (Room 306C)
Asset Management Plan Preparation: Lessons Learned
John Akers
WithersRavenel
W, WW, MT, PE

SPECIAL TOPICS (Room 305B)
Change Management
Larry Mitchell
Dewberry
W, WW, MT, PE

WASTEWATER (Room 306B)
Struvite Control: Selecting the Right Preventative Approach
Margaret (Meg) Nelis
CDM Smith
WW, MT, PE

NC AWWA-WEA 99th Annual Conference Page 63
Technical Program

(Subject to change.)

Tuesday, November 5

CEU KEY: W, Approved for Water; WW, Approved for Wastewater; PE, Approved for PE; MT, Approved for Maintenance Tech.

**WATER (Room 306A)**

No Sweat! Aerogel-Infused Insulating Coating for Condensation Control in Waterworks
Michael Anderson
Tnemec Company
W, MT, PE

4:05 p.m. - 4:35 p.m.

**COLLECTION & DISTRIBUTION (Room 305A)**

Shelby’s Bear of a Water Project: Expedited Schedule, EDA Funding, and Creating Jobs at an Industry Codenamed “Grizzly”
Corey King
Kimley-Horn & Associates, Inc.
W, MT, PE

**POLICY & MANAGEMENT (Room 306C)**

How a Progressive Design-build Project Successfully Managed Budget, Inclusivity, and Effectiveness in the Face of Schedule Changes
Grant Sharpe
Brown and Caldwell
WW, MT, PE

**SPECIAL TOPICS (Room 305B)**

From Chickens to Concrete: A Brownfield/Utility Success Story
J.D. Freeman
WithersRavenel
W, WW, MT, PE

**WASTEWATER (Room 306B)**

Alternative Delivery Approach for Startup and Commissioning a B6-4 Thermal Hydrolysis System and Auxiliary Facilities
Drew Zirkle
HDR, Inc.
WW, MT, PE

**WATER (Room 306A)**

Rigorous Assessment of System Risks to Future Extreme Events: Examples from the TN River Basin
Katie van Werkhoven
RTI International
W, MT, PE

4:40 p.m. - 5:10 p.m.

**COLLECTION & DISTRIBUTION (Room 305A)**

Gastonia’s New Standard for WWPS Reliability and O&M Simplicity
Brian Houston
LaBella Associates
WW, MT, PE

**POLICY & MANAGEMENT (Room 306C)**

Bracing for the Grey Tsunami: Professional Organizations Working with Utilities to Offer Workforce Development Options
Kristin O’Neill
Stantec
W, WW, MT, PE

**SPECIAL TOPICS (Room 305B)**

Mixed Reality Is Changing the Way We Work
Scott Aldridge
CDM Smith
W, WW, MT, PE

**WASTEWATER (Room 306B)**

Design, Startup and Operation of New Effluent Filters, UV and Lime Stabilization Processes at an ENR WWTP
Peter Schuler
Brown and Caldwell
WW, MT, PE

**WATER (Room 306A)**

Prepare for the Next Catastrophe: Hydraulic Modeling to Support Resiliency Planning
Kristen Cartwright
Freese and Nichols, Inc.
W, MT, PE

Wednesday, November 6

9:00 a.m. - 11:00 a.m.

**FORUM (ROOM 306)**

Not Your Grandfather’s Storm: Mitigating the New Normal
W, WW, MT, PE
Welcome / Jackie Jarrell Reception

Sunday, November 3
4:30 p.m.-6:30 p.m.
Exhibit Hall

PROGRAM ORDER

Golf Tournament
Winners of the tournament will be announced immediately after it ends and recognized again during the Sunday Reception.

Select Society of Sanitary Sludge Shovelers (5S)
The 2018 5S inductees are listed below. The 2019 inductees will be announced during the Sunday Reception.
Lisa Edwards, NC DEQ
Ron Hargrove, Charlotte Water
Tony Mencome, Heyward, Inc.
Jana Stewart, City of Greensboro
Kenny Waldroup, City of Raleigh

Honoring of Jackie Jarrell, WEF President
Congratulations to Jackie Jarrell, P.E., of Charlotte Water, WEF President 2019-2020!
And a special thank you to all our Wavemaker Sponsors who made her Presidential Reception at WEFTEC a huge success!
PROGRAM ORDER

**Student Poster Contest Results**
Winners of this contest will be announced immediately after the contest and recognized during the Monday Awards Ceremony.

**AWWA Service**
*Ron Hargrove, Charlotte Water*

**Collection System of the Year**
*Small System Winner - Town of Smithfield Public Utilities Department*
*Large System Winner - Town of Cary*
*Overall Winner - City of Concord*

**Distribution System of the Year**
*Small System Winner - Town of Smithfield Public Utilities Department*
*Large System Winner - Town of Cary*
*Overall Winner - Town of Cary*

**Wastewater Collections Operator of the Year Award**
*Donald Smith, Town of Cary*

**Water Distribution Operator of the Year Award**
*Davis Reynolds, Town of Cary*

**NC Stockholm Junior Water Prize Winner**
*Aneesha Manocha, North Carolina School of Science and Mathematics*
**AWWA Member Tenure Awards**
Recognizes individual members who have provided valuable service and support for AWWA programs and goals through their long standing Association membership.

**Silver Water Drop**
25 cumulative years of membership
Stephen Chambers, Chambers Engineering
Rosemarie Pindilli
Chris Henderson-Lincoln County Public Works
Michael Dowd, McGill Associates
Marion Noland, Fayetteville Public Works Commission
Lee Smith, Hendersonville Water and Sewer
John Wise
Ricardo Espinosa
Alana Loughlin, Hazen and Sawyer
Glendon Fetterolf

**Life Members**
30 cumulative years of membership and at least 65 years of age
Richard Haugen, Rockingham Public Works
Steve Scruggs, AECOM
Randy Gould, Moore County Public Works
John Grey, Grey Engineering, Inc.
Ed Kerwin, OWASA
Dan Boone, The Wooten Company
Charles Shue, McKim & Creed
Arthur White

**Golden Manhole Award**
Recognizes individuals who are significant contributors to the advancement of the systems design, education, training, certification, construction, operations, maintenance, and management of water distribution systems or wastewater collection systems.
*James Perotti, CDM Smith*
*Barry Shearin, HDR, Inc.*

**WWTP Operations & Maintenance Excellence Award**
Awarded for outstanding plant operation and maintenance efforts, according to the best use of the resources available to that facility.
*Western Region - City of Hickory*
*Eastern Region - Fayetteville PWC - Rockfish Creek Water Reclamation Facility*
*Central Region - Neuse River Resource Recovery Facility*
Monday, November 4
5:15 p.m.-6:30 p.m.
Exhibit Hall

2019 Scholarship Recipients Recognition

Raftelis Environmental Education Grant - $1,500
Michelle McDuffie, The Expedition School

NC Safewater/GHD Scholarship - $1,000
Heather Oakes, UNC-Charlotte

NC Safewater/Carol Bond Scholarship - $2,000
Heather Oakes, UNC-Charlotte

Clearwater, Inc.-
Robert M. Wilkinson Scholarship - $1,000
Heather Oakes, UNC-Charlotte

Les and Elaine Hall Water Environment
Stewardship Fund Scholarship - $1,000
Jeremy Lowe, NC State University

Rivers & Associates
Clean Water Fund Scholarship - $1,000
Amanda Karam, NC State University

Raftelis Financial Consultants Environmental
Finance and Management Scholarship - $1,000
Kathleen Elizabeth Balaze, NC State University

NC Safewater Fund Scholarship - $2,000
Mikayla Armstrong, UNC-Chapel Hill

Crowder Construction Co. Scholarship - $2,000
Tyler Sebastian Brown, NC State University

Frank & Susan Stephenson Scholarship - $1,250
Mitchell Blalock, UNC-Charlotte

One AWWA Operator Scholarship - $500
Vera Allen, Kerr Lake Regional Water
Douglas Carter, Kerr Lake Regional Water
Shawn Davis, Durham County Government
Frederick West, City of Havelock
Gavel Gala

Tuesday, November 5
5:30 p.m.-7:15 p.m.
Exhibit Hall

Join NC AWWA-WEA Board members and committee representatives to learn more about NC AWWA-WEA during the Gavel Gala Reception. The reception will be followed by the Annual Business Meeting, which includes the installation of the 2019-2020 Board of Trustees, the formal Passing of the Gavel to the new Chair, and the presentation of several well-deserved awards.

PROGRAM ORDER

Hydrant Hysteria

Operations Challenge Contest

Pipe Tapping Contest

Best Tasting Water Contest

Communication Committee Photo Contest Winners
Michael Lamping, Critters Around Us Category
Jim Dotson, Members at Work Category
Jonathan Williams, Environment Category
Tonia Barton, Structures Category

Annual Business Meeting
Agenda to be provided on site
Outgoing Chair’s Remarks
David Saunders, P.E., HDR, Inc.

Recognition of Out-going Board of Trustee Members

2019 Outgoing Board Members
Ray Cox, Highfill - Past Chair
Brian Tripp, W.K. Dickson - Treasurer
Steve Hamilton, Wayne Water Districts - Secretary
Betsy Drake, Town of Cary - WEF Delegate
Courtney Driver, Winston-Salem/Forsyth County Utilities - Trustee
Rachel Monschein, Town of Cary - Trustee
Ben Kearns, Cape Fear Public Utility Authority - Professional Water Operator Representative

Installation of Officers

Passing of the Gavel

Incoming Chair’s Remarks
Jeff Coggins, P.E., Black & Veatch
After two busy conference days, it’s time for a break and Tuesday evening will let you unwind as we honor more outstanding people in NC AWWA-WEA and the industry. Plan to join us for the chance to relax and catch up with old friends and meet new ones. For awards marked with an *, the recipient is kept confidential until the announcement of the 2019 recipient during the banquet, the 2018 winner is listed.

**PROGRAM ORDER**

**Invocation**

**Recognition of Sponsors**

**Dinner**

**Kasey Monroe Outstanding Service Award***
Given to a member of NC AWWA-WEA whose efforts and contribution demonstrated outstanding service to NC AWWA-WEA

David Heiser, CDM Smith (2018 Recipient) (Pictured to the right)

**Special Recognition***
Given to a member of NC AWWA-WEA whose efforts and contribution demonstrated outstanding service to NC AWWA-WEA

Erin Gallimore, Erin Gallimore Worldwide (2018 Recipient)

John McLaughlin, Merrick & Company (2018 Recipient)

Frank Stephenson, Stephenson Consulting Engineering (2018 Recipient)

**2018 - 2019 Leadership Appreciation Awards**

David Saunders, P.E., HDR, Inc.
Walter J. Courmon Safety Award
Encourages an active and effective safety program in municipal water facilities, and stimulates the collecting and reporting of injury data.
Roanoke Rapids Sanitary District

George Warren Fuller Award*
Presented to a member of AWWA for distinguished service to the water supply field in commemoration of sound engineering skill, brilliant diplomatic talent, and the constructive leadership which characterized the life of George Warren Fuller.
Jack Moyer, AECOM (2018 Recipient) (Pictured right)

George W. Burke, Jr. Safety Award
Encourages an active and effective safety program in municipal and industrial wastewater facilities, and stimulates the collecting and reporting of injury data.
Greenville Utilities Commission

Wastewater Laboratory Analyst Excellence Award
Recognizes an individual for outstanding performance, professionalism and contributions to the water quality analysis profession.
Anna Leroux, Brunswick County

William D. Hatfield Award
Recognizes an individual who pursues the advancement of the art and knowledge of wastewater treatment.
Damon Forney, Town of Cary

Safe Water Maintenance Technologist of the Year Excellence Award
Recognizes the hard working maintenance professionals involved in the day-to-day maintenance and upkeep of our state’s plant assets.
Gerard Badz, Charlotte Water

Arthur Sidney Bedell Award*
Acknowledges extraordinary personal service to the WEF member association based on organizational leadership, administrative service, membership activity, stimulation of technical functions or similar participation.
Mark Wessel, City of Raleigh

Kenneth J. Miller Water For People Award
Honors an individual for outstanding service to Water For People.
Ruth Borgmann, Hazen and Sawyer
Raymond E. “Red” Ebert Award
Presented to a member who has made significant contributions to the practice of operating a water distribution or wastewater collection system.
*Russ Lane, Brunswick Regional Water and Sewer H2GO*

Donald E. Francisco Educator of the Year Award
Given annually to a member who demonstrates outstanding service to NC AWWA-WEA and industry through education and training of water and wastewater professionals.
*William Allen, Jr., Charlotte Water*

Chair’s Remarks
*Jeff Coggins, Black & Veatch*
Thank you volunteers!
WHO WILL REPLACE YOU WHEN YOU RETIRE?
Baby-boomers are retiring at a quick pace, and there is an unmet need to grow the ranks of the water and wastewater professionals who will follow in their footsteps.

Since 1923 NC AWWA-WEA has been a leading force in the field of water and wastewater education through the seminars, schools, and conferences conducted by our volunteers. The work of NC AWWA-WEA serves to support and train our existing workforce, but sustaining the water/wastewater profession in North Carolina also requires the cultivation and development of future generations of water/wastewater professionals.

NC AWWA-WEA’s Solution - the NC Safewater Endowment Fund
In September 2009, the NC AWWA-WEA Board of Trustees established the NC Safewater Endowment Program for the purpose of promoting safe water, increasing knowledge and understanding of safe water, and preserving and enhancing the water environment. Since the inception of the Endowment Program, the Endowment Committee and other volunteers have worked diligently to solicit donations to fund it. As a result of these efforts, the NC Safewater Endowment Program plans to award a total of $17,000 in scholarships and grants in 2019.

You Can Help!
Make a donation, of any amount, to the NC Safewater Endowment Fund. Intangible benefits of your donation include personal satisfaction in knowing that your contribution will make a difference in the lives of students as they are awarded scholarships to assist them in pursuing a degree that will qualify them to be a water/wastewater professional, and thereby help to maintain a well-educated workforce into the future. Grants awarded to teachers will enable them to teach future generations of students more about the water environment and its importance in sustaining a good quality of life for existing and future generations.

Spread the word about available scholarships to anyone that may be considering a career in a water/wastewater, environmental, or engineering field.
DONATIONS

How the NC Safewater Fund Works
The NC Safewater Fund is an endowment comprised of donations made to a funding pool with the intent that the original value of the donations (the principal) will be invested and never spent, and a portion of the investment earnings (the distribution) will be used to fund the mission of the endowment, in the case of the NC Safewater Fund, awarding scholarships and grants for water/wastewater education.

The NC Safewater Fund is comprised of one general and several ‘Named Funds’. All the funds are used to award scholarships and grants but the ‘Named Funds’ have additional qualifications that must be met before an award is made. The NC Safewater Fund allows donors to make donations to the general endowment fund, or to a specific restricted fund.

Make a Donation
Anyone can donate. All donations are helpful. The current donation form is available on the Scholarship or NC Safewater Endowment Fund page of www.ncsafewater.org. You may also contact NC AWWA-WEA staff at (919) 784-9030 to have a donation form sent to you.

Both NC AWWA and NC WEA (commonly referred to as NC AWWA-WEA) are 501(c)(3) non-profit corporations, therefore donations made to the NC Safewater Fund are fully tax deductible. Consult your tax professional.

2020 Scholarships

WHAT IS AVAILABLE?
We have scholarships available for students, educators, wastewater operators and water operators!

WANT TO LEARN MORE?
Look online for application materials, lists of past recipients, descriptions of named funds, detailed history of the program, and answers to Frequently Asked Questions.

DONORS MAKE THESE STORIES POSSIBLE
While many of our funds were started by substantial corporate or individual gifts, when combined with existing funds and other donations, contributions of any size can have an impact. If every NC AWWA-WEA member donated $3 per month - the cost of a couple movie rentals, some coffee, a vending machine visit - that would be $100,800 per year!
Clearwater, Inc.-Robert M. Wilkinson Scholarship
$1,000 - Awarded to a student pursuing a degree in engineering, environmental science, construction management or business at any state supported four-year college.

Heather Oakes, UNC-Charlotte
After rearing four girls as a stay-at-home mom, I returned to complete my education at age 38. I knew I wanted to be involved in potable water projects overseas, but had no idea where to begin. I sought out anyone and everyone who would listen, including the organizations that I supported in my past. It was my brother, with a Master’s in Microbiology, that asked the most pertinent question: “Do I want to be the one who tests the water and tells them what the problem is or the one who fixes it?” The answer was clear. I enrolled at UNC Charlotte and began to pursue a Bachelor’s in Civil and Environmental Engineering, with a concentration in Water Resources. I minored in Geology so I could understand the sourcewaters of different areas.

At the time, I was a single mother and was commuting from over an hour away. It was no easy row to hoe, however, I found a natural aptitude for the subjects and a passion for who my school was allowing me to become. I discovered the NC AWWA-WEA Student Chapter and attended the meetings with a notebook, voraciously jotting down every unfamiliar term and concept in an attempt to connect the dots. I got involved as a volunteer and began to grow as an officer soon after. I had the pleasure of serving as President and connected with so many water professionals that have inspired and guided my focus. I have since remarried and have added two additional daughters to my family. I never would have imagined my life would develop into what I once only held as a dream and a promise to myself.

I owe my internships with Duke Energy and Charlotte Water to AWWA, I owe my overall comprehension of the diversity in our field to AWWA, and now I owe a tremendous relief of financial burden to AWWA, to GHD, to Carol Bond, and to Robert M. Wilkinson. Many names go unmentioned, making dreams happen, one step at a time, but know that in your honor I will be a legacy to seeds you have sown. I strongly feel that being chosen goes deeper than financial support; it is a testament to a network of people who see what you are doing and believe in the finished product. That kind of safety net is irreplaceable.

“You reap what you sow, you reap more than you sow, you reap later than you sow.” -C. Stanley
2019 Scholarship Recipients

Crowder Construction Co. Scholarship
$2,000 - Awarded to a student who is pursuing an undergraduate or graduate degree with a concentration in a construction related program such as: construction management, construction science, construction technology or engineering with an emphasis in construction at an accredited institution of higher education.

Tyler Sebastian Brown, NC State University
I am currently a Junior at North Carolina State University studying Mechanical Engineering. The past semester I started a co-op program where I work full time with a Mechanical Engineering company and I do three full rotations. During the program, I have gained a lot of real life work experience, helping me decide on what I want to do when I grow up. While at school, I am a member of Alpha Sigma Phi. During the last election, I was elected as brotherhood director, and this upcoming election I plan on running for President of the fraternity. Every month we have a community service event where we do things such as clean up our adopted highway, volunteer at the boys and girls club, help with a kings and queens basketball tournament, or help build a house for Habitat for Humanity.

Frank & Susan Stephenson Scholarship
$1,250 - The Stephenson Scholarship Fund was committed this year to the stewardship of the Foundation of the University of NC at Charlotte, Inc. The Foundation will administer the award of the scholarship annually to a full time incoming freshman majoring in engineering or other science major with a concentration in the water and/or environmental field.

Mitchell Blalock, UNC-Charlotte

Les and Elaine Hall Water Environment Stewardship Fund Scholarship
$1,000 - Awarded annually to the recipient through their Junior and Senior years and for up to two years of postgraduate studies in the water environment.

Jeremy Lowe, NC State University
My name is Jeremy Lowe and I am from the town of Pikeville, North Carolina. There, I grew as a person in countless ways and ultimately discovered a love for running, being outside, and the environment. Upon coming to NC State, I discovered many new pathways to explore my passions and self. My love for people grew in addition to my love for service and leadership. I sought to incorporate my service-oriented mindset into my education, and ultimately decided on majoring in environment engineering. I have been able to explore the vast connections between people and water, in addition to how to be of service to others through a career in environmental
engineering. In my time at NC State, I have been heavily involved with Engineers Without Borders, The Caldwell Fellows, and research. Each have contributed to my growth and passions in incredible ways and I look forward to what the future holds.

This scholarship is truly empowering to me as a first generation college student. In Pikeville, my dreams of higher education were distant. Now, through the humbling support of so many people, I have access to an incredible education and am forever grateful for it. My life has forever changed by my education, and it is because of this scholarship that I will be able to continue my pursuit of being of service to others.”

**NC Safewater/Carol Bond Scholarship**
$2,000 - Awarded to a first year graduate student who is studying engineering with a concentration in the water environment in an ABET accredited engineering curriculum at a North Carolina University.

Heather Oakes, UNC-Charlotte (see page 81)

**NC Safewater Fund Scholarship**
$2,000 - Awarded to a student pursuing a degree in a curriculum that emphasizes the protection of public health by providing healthful drinking water and/or protecting the quality and integrity of the water environment at an institution of higher education located in North Carolina.

Mikayla Armstrong, UNC-Chapel Hill

After Mikayla D. Armstrong read Save Our Planet: 750 Everyday Ways You Can Help Clean Up the Earth by Diane MacEachern during high school, she knew she wanted to have a positive influence on the environment. Now a PhD student in the Environmental Sciences and Engineering Department at the University of North Carolina at Chapel Hill, Mikayla is passionate about sustainable water and energy resources and membrane technology. “Receiving the NC Safewater Scholarship fills me with gratitude knowing that I have the confidence of an entire organization supporting my education and my passion for water, energy, and membranes.” Mikayla thanks NC AWWA for their continued support.

**NC Safewater/GHD Scholarship**
$1,000 - Awarded to a first year graduate student who is studying engineering with a concentration in the water environment in an ABET accredited engineering curriculum at a North Carolina University.

Heather Oakes, UNC-Charlotte (see page 81)
One AWWA Operator Scholarship
$500 - AWWA’s The Water Equation Campaign and the NC Section of AWWA, award the One AWWA Operator Scholarship for water operator training and education.

Vera Allen, Kerr Lake Regional Water
Vera Allen is new to the Kerr Lake Regional Water staff. She has recently attended the C-Surface Operator School and is taking her test in August. She enjoys spending time with her grandson and family. Vera looks forward to attending other schools to further her career in water treatment.

Douglas Carter, Kerr Lake Regional Water

Shawn Davis, Durham County Government
I have been working in the environmental industry for more than twenty-five years. I worked on the private, industrial and municipal sides of the industry and have held numerous roles from wastewater treatment plant operator, lead operator, back-up ORC and Industrial Pretreatment Program-FOG Coordinator. I currently serve as Durham County’s Utility Division Operations Manager, WWTP ORC and Reclaimed Water System ORC. I have numerous certifications including: Pretreatment Program Specialist Grade I, Laboratory Analyst Class I, Grade II Collection System Operator, Physical/Chemical System Operator Grade I, Surface Irrigation Operator, Grade IV Biological System Operator and a C-Well Facility Operator. I also hold a Certificate of Achievement for completing the Durham County Government Leadership Academy Program, where I also served as the Leadership Academy President. I am currently enrolled at Durham Technical Community College in pursuit of an associate’s degree.

The passion that I have for what I do has helped maintain my interest in the environmental industry for several years. Winning the One AWWA Operator Scholarship Award has allowed me to be able to invest more into my future of self-improvement and the overall goal of obtaining an associate degree. This scholarship motivates me to continue my journey of improvement for myself and for our Utility Division. This scholarship has planted a seed that will allow me to further my growth and development in this industry. I would like to sincerely thank NCAWWA-WEA for selecting me as one of the 2019 recipients of the One AWWA Operator Scholarship Award.
Frederick West, City of Havelock

I’m Fred West and I currently work at the Wastewater Treatment Plant for the City of Havelock. I just transferred over to the plant 2 months ago and before I worked as a Utility Services Worker on the Lines department. I made this move hoping to better my career in the field of Wastewater. I currently have a C – Distribution and Collections I license. And I hope to continue obtaining licenses for the next few years. I have a wife, Tara, and a three year old son, Frederick who support me in all my career choices and drive me to succeed.

This scholarship is very important to myself to make this field my career and to have the ability to advance to the top. Using this scholarship will help me obtain all the goals stated above and more. It will help me be a better qualified professional operator that is always ready for advancement. And in attaining more licensure, I will be able to ensure the public that proper procedures are being used to operate and maintain their water distribution and wastewater collection systems.

Raftelis Environmental Education Grant

$1,500 - Awarded to an educator in elementary or middle school whose major objective is to educate students on clean water and environmental preservation.

Michelle McDuffie, The Expedition School
Raftelis Financial Consultants Environmental Finance and Management Scholarship

$1,000 - Awarded to a student who is pursuing an undergraduate or graduate degree with a concentration in environmental finance, environmental management, or related disciplines, in an accredited institution of higher education.

Kathleen Elizabeth Balaze, NC State University

After earning a bachelor’s from Michigan State University, I worked for 5 years as an environmental consultant in Michigan in the residential development sector. I am currently pursuing my master’s in Biological and Agricultural Engineering at North Carolina State University with a focus on stormwater management. After graduating, I plan to pursue an engineering consulting career in North Carolina. Economics is often a common ground of communication for policy and resource management. This scholarship will help me pursue a graduate plan of work that not only focuses on hydrology and water quality, but also the economic, human, and ecosystem factors that are influenced by stormwater management. I hope to utilize the skills I gain from my graduate training to emphasize to developers the economic and environmental benefits of green infrastructure and effective stormwater management.

Rivers & Associates Clean Water Fund Scholarship

$1,000 - Awarded to a rising Junior student who is pursuing a degree at one of the UNC college campuses and resides in the northeastern portion of our state.

Amanda Karam, NC State University

Amanda Karam, a North Carolina native, completed her Bachelor of Science with honors in environmental science and a minor in computer science from the University of North Carolina at Chapel Hill. After completing her master’s degree at North Carolina State University, she has continued to pursue her research interests in environmental process engineering as a PhD student. Amanda is actively involved in the NC-AWWA Student Chapter at NC State, where she has a passion for organizing stream clean-ups and has routinely volunteered to help involve Raleigh Boys & Girls Club kids in NC-AWWA’s Model Water Tower Competitions. Upon completion of her PhD, which will be aided with this scholarship, Amanda hopes to continue to pursue her passion for research and clean water.
100th Annual Conference

November 1-4, 2020
Raleigh, North Carolina
2019 Conference Corporate Sponsors

AECOM  ARCADIS
BLACK & VEATCH  FRESESE NICHOLS
GHD  HDR  Hazen  HIGHFILL
Heyward
mckim & CREED
mcgill
STV
Withers Ravenel
WK Dickson

Thank you for your support!

NC AWWA-WEA
2841 Plaza Place, Suite 130 • Raleigh, NC 27612
www.ncsafewater.org