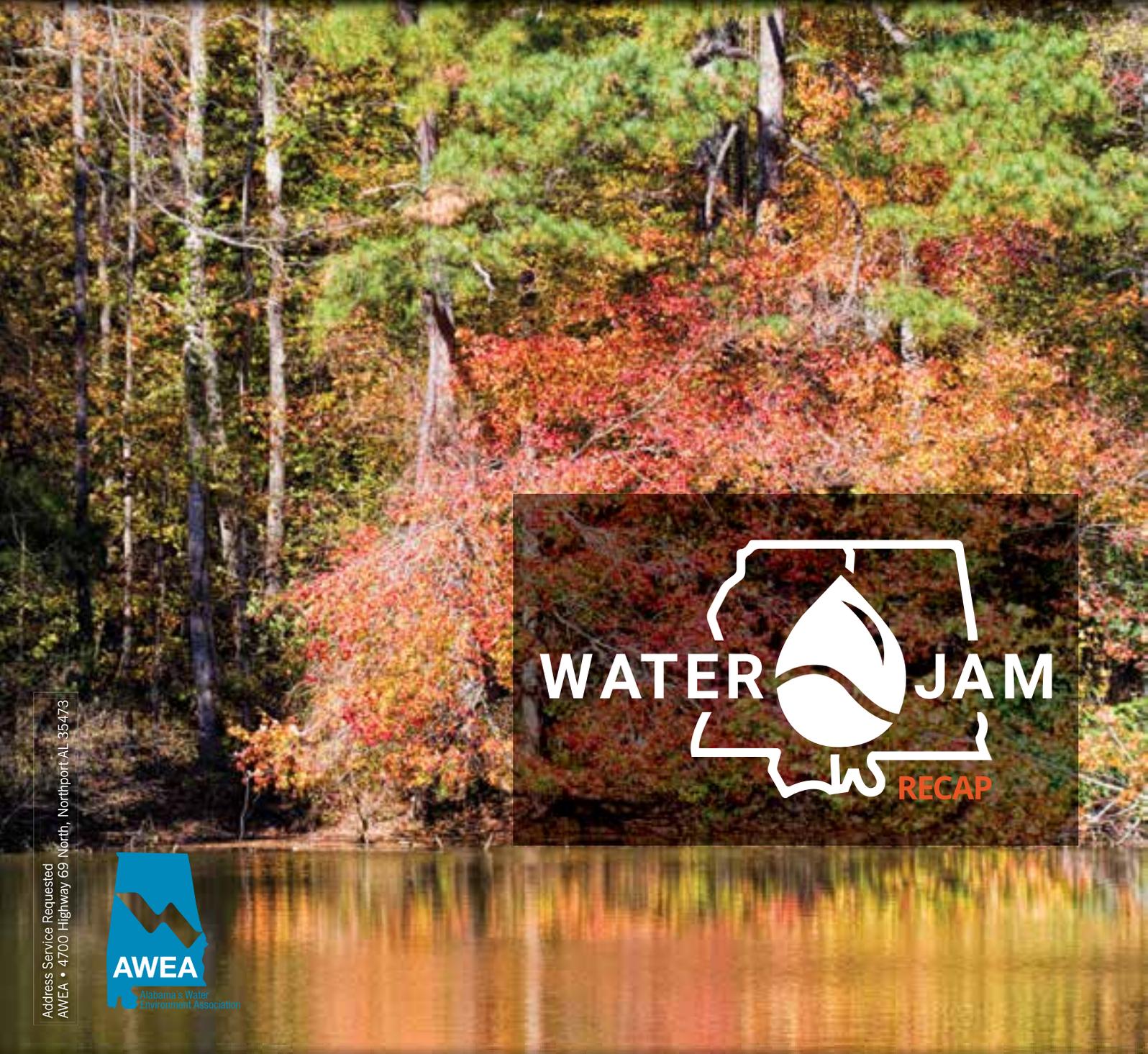


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# Wave

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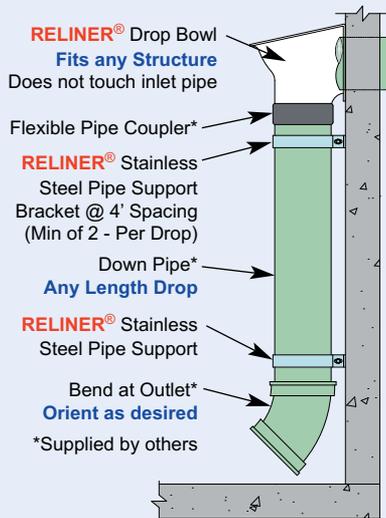
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The official magazine of Alabama's Water Environment Association

VOLUME 40 • NO. 2 • FALL 2019

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Matt Alpaugh  
AWEA President

## BE A PART OF OUR GROWTH PROCESS WITH YOUR PARTICIPATION

I am honored to accept the role of President of AWEA this year. The past three years serving on the board have been intense, and dynamic changes within the organization have been made. The most substantial change was the development of the joint annual conference. The partnership between AWEA, AWWA and MWEA has brought water and wastewater resources together in a one-stop shop for educational outreach and networking in Alabama.

The annual conference, formerly known as WaterJAM, was successful beyond our expectations. There were 910 participants in attendance. The Mobile Convention Center hosted 146 exhibits, 137 technical tracts and various competitions. The partnering organizations created a substantial impact for our industry and economic impact to the community. At the close of the meeting, a new planning committee was established, and work is already underway for the next AL/MS Water Joint Annual Conference in April 2020. Financials are being finalized

and we are looking at ways to make future conferences more economical to encourage even greater participation.

A survey was sent out for comments about the annual conference and we encourage all of those who attended to participate. As a board, we value the comments from meeting participants. It is a constant struggle to please everyone, but we want our conferences to be viewed as a success in all aspects. As vice president, and part of the joint conference planning committee, I spent much of my time at the conference talking to attendees and collecting feedback. Coupled with logistical analysis of flow within the exhibit hall, the new conference committee is already implementing ideas for a more successful second annual meeting.

Prior to becoming a board member, I had no idea about the amount of work involved in setting up and running a conference. Compound that with moving to a new location and developing a structure for future conferences, the work involved has been an endeavor.

As such, I would like to thank everyone that took an active role in conference development and implementation.

AWEA operates primarily through volunteer work. If there are changes you feel passionate about, the board encourages you to participate. We are constantly looking for new members, even more so, people who will take an active role on a committee. This is how AWEA exists, grows and survives.

As of today, our membership count stands at 513. When we reached 500 members, a second delegate was added to AWEA, increasing our presence on a national level with WEF. AWEA again offered Cubs tickets for the Sunday game during WEFTEC. Many enjoyed this opportunity to engage with the board and Alabama members while in Chicago.

My email and phone doors are always open for questions and comments. Please don't hesitate to contact me directly for any issues related to the future success of AWEA. x



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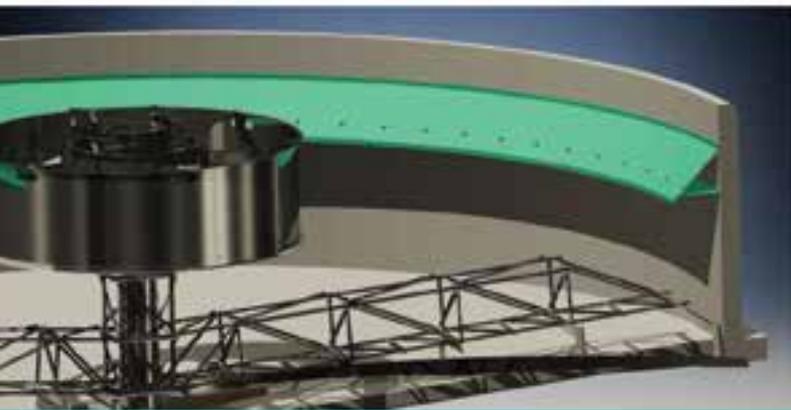


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# YOU

## Should Advocate for Water Resources Research

Are you engaged in rigorous water resources science and research?  
If so, ask your elected representatives to fund it robustly and predictably.

By Denise Hills<sup>1</sup> and Bennett Bearden<sup>2</sup>

<sup>1</sup> Director of Energy Investigations, Geological Survey of Alabama. Member of 2018 AGU Voices for Science-Policy Track program.

<sup>2</sup> Chief of Staff and Assistant State Geologist, Geological Survey of Alabama. Member of 2019 AGU Voices for Science-Policy Track program.

### Introduction

Now, it is more important than ever to inform government policymakers and the public about the importance of water resources. Regulatory requirements, aging infrastructure, and continued economic pressures have put unprecedented stress on federal, state, and local governments and agencies that provide essential water services. The value of water to economic development, environmental protection, and job creation should be communicated to all of Alabama's senators and representatives and those in other states.

Many professional water resources and geosciences organizations have advocacy programs in which you can advocate as a citizen scientist, citizen engineer, or just as a citizen constituent. For example, members of the Alabama Water Environment Association (AWEA) have access to the Water Advocates program through the Water Environment Federation. Another such program is the American Geophysical Union's (AGU) Voices for Science – Policy Track (VfS-PT) program. AGU's VfS supports and fosters a network of exceptional science-communication and science-

policy advocates based in the U.S. to amplify the voice of science, including water resources issues, and to build valuable dialogues and relationships with policymakers, communities, journalists, and other stakeholders.

Water resources science and geoscience (which includes surface water hydrology and hydrogeology (groundwater) embodied in geoscience research) research advocacy is pretty simple. You just have to ask – in Congressional parlance – for what you want. The idea of such an ask may seem strange, but it is key to getting

heard on Capitol Hill (the Hill). And it isn't wholly unfamiliar. After all, every time we write a water resources research grant proposal, we're embarking on an ask.

After taking time to learn and practice how to craft our asks, we now have an ask of you: As a citizen scientist, citizen engineer, or constituent, contact your elected representatives and ask them to fund water resources science and geoscience research robustly and predictably (including appropriations for water resources science funding agencies) and to oppose policies that impede scientific progress. Seek to talk to people at all levels of government: local, state, and national.

Why should you become an advocate for water resources science and geoscience research? Because those engaged in rigorous water resources science and geoscience research are the best advocates for it. What's more, many of you will travel to Washington D. C. sometime this year or in the future. Wouldn't that be the perfect opportunity to take the time to advocate for water resources science and geoscience research on the Hill?

**A Pathway for Your Ask:  
AGU's Voices for Science-  
Policy Track Hill Visits and  
Congressional Visits Days**

Over the past two years, we were among some AGU members from Alabama who congregated in Washington, D. C., for one of AGU's VFS-PT Hill visits or Congressional Visits Days (CVDs) (Figure 1). CVDs can be sponsored by many different groups, e.g., other water resources and scientific organizations such as the American Association for the Advancement of Science and the Geological Society of America hold several a year. AGU-sponsored CVDs (currently, three or more per year) provide an opportunity for AGU members to meet their legislators and their staffers in D. C. During visits, participants discuss the importance of federally funded science and its influence on their research. Similarly, WEF sponsors the National Water Policy Fly-In, an opportunity for you to engage directly with Members of Congress, the EPA, and other federal agencies on the most important federal legislative and regulatory matters. You can join with other water professionals from across the nation to make the National Water Policy Fly-In – which is



Figure 1. Team Alabama with Representative Mike Rogers (R-AL 3rd District) at the 2017 AGU member-only CVD in Washington, DC. (L-R, Adam Kobelski, Rep. Rogers, Prabhakar Clement, Denise Hills, and Lexi Schultz (AGU, Vice President of Public Affairs). Photo courtesy of Adam Kobelski.

part of Water Week – the largest annual grassroots advocacy event for water resources science and policy issues.

Some AGU CVDs include nearly 100 AGU members; others, like the third annual AGU members-only day, are smaller, allowing for more direct training and preparation of the participants. CVDs are a great way to start advocating for water resources science and geoscience. Participants all had different, diverse reasons for attending Vfs Hill visits, CVDs or Fly-Ins. Some want to inform their congressional representatives of the critical importance of federal funding for water resources infrastructure; others wish to emphasize the value of supporting water resources science and geosciences research; still others want to highlight water resources science, technology, engineering, and policy education for community groups and stakeholders.

In the Vfs-PT program, the AGU Public Affairs staff briefs the cohort with information about the budget and appropriations process, along with what topical and timely legislative issues are of highest importance to discuss. But most important of all, they gave us guidance on how to craft our asks for water resources science and geoscience funding. Vfs-PT visits and CVDs aren't just a day on the Hill, AGU's Public Affairs team informed us. They're about building long-term relationships with legislators and becoming valuable resources about water and geoscience issues moving forward.

**Understanding Pitfalls**

To appreciate the challenging decisions that members of Congress face, the AGU Public Affairs staff had the Vfs-PT cohort work through a mock budget allocation exercise covering such diverse water resources issues as stream gaging and river basin models in the U.S. Geological Survey (USGS) budget to flood and drought forecasting and the National Water Model in the National Water Center-Office of Water Prediction at the National Oceanic and Atmospheric Administration (NOAA) by way of examples. In the budget exercise, the overall funding was modestly increased, although at sub-inflationary levels, from the previous fiscal year.

The Vfs-PT cohort was asked: How would we prioritize which agencies got an increase? Which ones could be level funded or even decreased? Do we sacrifice justice reform efforts to increase spending elsewhere such as in water resources and geosciences? If a group of lawyers or police officers were asked to do the same task, what would have been the result? This task was a realistic representation of the scope of budget decisions handled by policy makers.

**Your Water Resources  
Science Is Your Asks Strength –  
But Have Patience**

Armed with context on budget appropriations, it is easy to see how water resources science and geoscience funding can fall by the wayside. Few members currently serving

in Congress have a background in water resources or natural science. With such limited science representation, policy makers often underestimate or overlook the value of scientific pursuits unless their staff is well versed in these issues. With limited time and resources, they may not fully comprehend the connection between federally supported scientific research and the value to their local communities. Therefore, advocacy, more often than not, for publicly funded water resources science and geoscience research falls to us, the practitioners.

The AGU Public Affairs team cautioned that success in water resources science and geoscience advocacy may take time, especially as legislation can move slowly through Congress. Keys to success include thorough policy analysis, effective communication, patience, persistence, sound science, good ethics, respect, politeness, finding champions, talking to the right staffers, good timing, and luck. Building relationships is of paramount importance. And, of course, a well-structured ask. Those of us who work in water resources policy know that progress is measured inch by inch, not by instantaneous sea changes.

**Honing Your Ask: Approach Is Key**

The AGU Public Affairs team's key advice: 'flip the pyramid' and put your ask up front. Instead of building on a broad foundation of facts, put your main point first and make it specific, contrary to how many scientists and water professionals have learned to communicate (Figure 2).

For example: 'Hi, my name is Dr. Bearden, please support increasing the USGS's budget to \$1.2 billion and NOAA's budget to \$6.2 billion in fiscal year 2020, a 4% real increase from fiscal year

2019.' Congressional staffers are acutely listening for that ask – if you don't make it, they're left guessing why you have come. They will ask you: 'What can my Boss do for you?'. The narrative details that support the ask come later, but the ask is key.

Initially, the ask approach feels a bit strange. It is opposite of how we typically talk about our research. The AGU Public Affairs staff provided some encouragement: To begin as an advocate, just show up and be heard. Senators and representatives so rarely hear from their constituents and citizen scientists that just being there to start the conversation is much of the goal.

Then, tell your story, make yourself available, and relate your ask to the state or district of the congressional member. Show how your water resources or geoscience issues will impact the people back home. The congressional member knows that an impact on the people they represent means an impact on potential voters. The congressional member also knows the importance of water resources, geoscience, energy, and other natural resources issues to his home district and state. Noteworthy is that although congressional members know these issues are important generally, you as a water resources or geosciences expert can help give them critical information to showcase how important it is to their constituents.

**Practicing the Ask**

On the morning of the Hill visits, everyone was ready for a long day of congressional engagements with each group of two to three AGU VFS-PT members paired with an AGU public affairs representative to help navigate the maze-like congressional office building's hallways. On that day, AGU's VFS-PT cohort met with more than 30 congressional offices and several members of Congress. Most meetings,

however, were with congressional staffers, a common occurrence whether in Washington, D. C., or back home in district offices.

Staffers are sometimes subject matter experts, tend to focus on policy specifics, and generally have more time to learn about your water resources and geoscience issues and concerns. They play a critical role in keeping members of Congress up to date on topics that matter to their constituents.

Between office meetings, we walked the halls of the House and Senate buildings. We saw staff members taking calls and meeting with constituents and other citizen scientists. One trip to the Hill verifies that Congress does not operate in a vacuum. Citizens like us bring their messages to their representatives, hoping to find a champion for their asks. It is always an eye-opening experience to lead with the ask – pens hit paper as soon as you start talking. Often, we were queried for additional supporting information, so we shared brief stories of water resources or geoscience research projects or transformative technologies enabled by federal research dollars.

We connected our stories to the community: how improved weather forecasting leads to more accurate storm prediction, saving lives; how federal investment in water resources and geoscience research enables matching funds from industry to provide

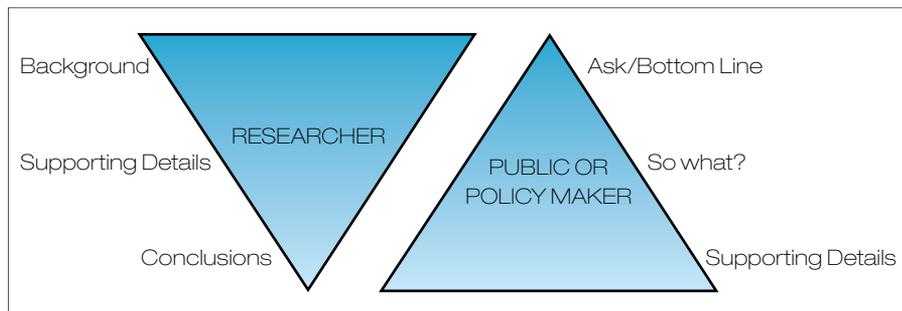


Figure 2. Water scientists and professionals tend to want to start with a broad foundation leading to a well-supported conclusion (left). Non-scientists, such as policy makers, want to know the Ask (or conclusion) first, so that they know why they should care about what's being said (right). (modified from Somerville and Hassol, 2011).

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jobs; how water research informs water resource and geoscience policy and management decisions; how student support encourages our best and brightest to remain in the United States to better our economy. We closed each meeting with invitations to visit us at our institutions and an offer to act as resources on water resources and geoscience issues in the future.

The work done on the Hill in the AGU VfS-PT program or in CVDs and Fly-Ins is just the starting point of ongoing communication with congressional staff; many of us have already followed up by attending local congressional home offices (Figure 3) and town hall events and sending emails or making phone calls to staffers. We know that water resources and geoscience policy and appropriations goals will be difficult to achieve, but our experience at AGU's VfS-PT Hill visits informed us that it all starts with a simple ask.

#### Our Asks of You

As participants of AGU's VfS-PT cohort we have an ask of you, our fellow constituents, citizen scientists, citizen

engineers, and water professionals: Engage with your elected representatives on water resources and geoscience issues – local, state, or federal. If you're not up to joining a cohort in Washington, D. C., contact your officials at their local offices. Discuss the importance of water resources science and geosciences funding support. Share your water resources and geoscience research in your community and with your neighbors. As they see how water resources and geoscience influences their lives, they may add their voices to the science advocacy chorus. Many drops make an ocean, and participatory democracy is not confined to a ballot booth – everyone can advocate. Won't you join us in being an advocate for water resources science research?

#### Acknowledgments

We are grateful for the efforts of the AGU Public Affairs staff to make the VfS-PT and CVDs programs a success and to provide ongoing support to our continued advocacy efforts. The authors appreciate the thoughtful reviews that improved this piece.



Figure 3. Senator Richard Shelby (R-Alabama), Chair of Appropriations, meeting with Dr. Bennett Bearden (right) as part of the follow up from a Capitol Hill visit for the AGU Voices for Science-Policy Track program. Dr. Bearden carried the message to Capitol Hill about the importance of strong, robust, and predictable investment in science as one of the surest ways to encourage economic growth, increase the safety of our nation, and advance understanding of the geosciences and water resources. Photo courtesy of Pam Blackwell.

#### Reference

- Somerville, R. C. J., and S. J. Hassol (2011), Communicating the science of climate change, *Phys. Today*, 64(10), 48–53, <https://doi.org/10.1063/PT.3.1296>. Honing Your Ask: Approach Is Key

This article does not represent the opinions of the American Geophysical Union (AGU), State of Alabama, or the Geological Survey of Alabama. The opinions are solely those of the authors.




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#### Bennett Bearden

is Chief of Staff and Assistant State Geologist at the Geological Survey

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#### Denise Hills

is Director of Energy Investigations at the Geological Survey of Alabama. She is a

member of the 2018 AGU Voices for Science-Policy Track program. ✖

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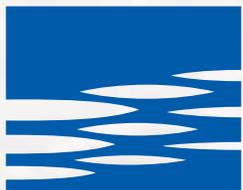


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# AL/MS WaterJAM

*Recap*



# AWEA Plant Excellence Awards

The AWEA Plant Excellence Awards are intended to recognize the tireless efforts put forth in our treatment facilities by our operations and maintenance staff. The following facilities were recognized at WaterJAM as AWEA Plant Excellence Award winners:

## CATEGORY 1: MUNICIPAL, < 1 MGD



**Award of Excellence:** Warrior WWTP,  
Jefferson County Environmental Services Department

## CATEGORY 2: MUNICIPAL, 1 MGD TO < 5 MGD



**Award of Excellence:** Scottsboro WWTP, Scottsboro, AL

## CATEGORY 2: MUNICIPAL, 1 MGD TO < 5 MGD



**Award of Recognition:** North Shelby WRRF,  
Southwest Water Company

## CATEGORY 3: MUNICIPAL, 5 MGD TO < 10 MGD



**Award of Excellence:** Northport WWTP, Northport, A

This program would not be possible without the efforts of our inspectors. These men and women volunteer their time to travel throughout the state to inspect each facility that enters. Without their commitment to this program as well as the commitment by their employers, this program could not achieve its goals. We extend our sincere thanks and gratitude to the following inspectors for the 2019 AWEA Plant Excellence Awards program:

Chet Musgrove  
David Jones  
Ed Fincher  
Gavin Butler  
Wade Sims

Robert Tyler  
Mike Sims  
Wes Cardwell  
Rob Coleman  
Virgil White

Tim Norman  
Wes Baugh  
Lakendrick Brown  
Jeremiah Caldwell  
Joshua Mims

Ryan Carroll  
Jeremy Creel  
Lee Garner  
Robson Copenhaver

**CATEGORY 3: MUNICIPAL, 5 MGD TO < 10 MGD**



**Award of Recognition:** Leeds WWTP,  
Jefferson County Environmental Services Department

**CATEGORY 4: MUNICIPAL, > 10 MGD**



**Award of Excellence:** Albertville WWTP,  
Municipal Utilities Board of Albertville

**CATEGORY 4: MUNICIPAL, > 10 MGD**



**Award of Excellence:** HC Morgan WPCF, Auburn, AL

**CATEGORY 6: TRICKLING FILTERS, ALL SIZES**



**Award of Excellence:** Wright Smith Jr., MAWSS

**CATEGORY 6: TRICKLING FILTERS, ALL SIZES**



**Award of Recognition:** Towassa WWTP, MWSSB

*Not Pictured:*

**CATEGORY 3: MUNICIPAL, 5 MGD TO < 10 MGD**

**Award of Recognition:** Turkey Creek WWTP,  
Jefferson County Environmental Services Department

**CATEGORY 4: MUNICIPAL, > 10 MGD**

**Award of Recognition:** Turkey Creek WWTP,  
Jefferson County Environmental Services Department

*Congratulations to all award winners!*

# WEA honors members at WaterJAM

Alabama's WEA honored the following members with awards at the recent Alabama Mississippi Water Joint Annual Meeting.

## HATFIELD AWARD



**John Beard**, Decatur Utilities  
 The Hatfield Award is presented to operators of wastewater treatment plants for outstanding performance and professionalism. The award was established in honor of Dr. William D. Hatfield, Superintendent of the Decatur, Illinois Sanitary District, who was President of the Central States Sewage Works Association in 1944-45 and served as President of the Federation in 1958-59.

## BEDELL AWARD



**Dana Raughton**, Jacobs  
 The Bedell Award was established to acknowledge extraordinary personal service to a WEF Member Association. The award is named for Arthur Sidney Bedell, WEF's second president, for his long devotion and service to the New York Sewage and Industrial Wastes Association, now the New York Water Environment Association. He was Chief of the Bureau of Sewage and Waste Disposal of the New York State Department of Health.

## DELEGATE SERVICE AWARD



**Rob Coleman**, Cahaba Water Solutions  
 The Delegate Service Award is rewarded in recognition of the outstanding work by Member Association Delegates in WEF's House of Delegates.

## OPERATOR INGENUITY



**Jimmy Segrest**, City of Auburn  
 This award recognizes work being done by operators in Alabama that is creative, innovative, or that simply makes the job easier. Jimmy and the City of Auburn developed a cost-effective solution to televising sewer lines. Their innovation will be featured at WEFTEC in 2019.

**GOLDEN MANHOLE AWARD**



**David Henson**, Anniston Water Works and Sewer Board  
 This award recognizes exceptional individual performance and service to and for municipalities and public utilities that have made significant contributions to their collection systems.

*Not Pictured:*

**AWEA SPECIAL SERVICE AWARD**

**Glenda Dean**, ADEM  
 AWEA promotes the fundamental knowledge of our water environment through laws, education, training, encouragement of policies, and the promotion of public understanding relating to the water quality control field. This award recognizes a WEF/AWEA member that is exemplary in their efforts to promote, follow, and live these water environment objectives in both their professional and personal lives.

**EMERGING LEADER AWARD**

**Dan Ballard**, City of Auburn  
 The emerging leader award is given to young professionals who have gone above and beyond normal responsibilities to promote the value of water in Alabama. Dan's passion for the one-water idea and inclusion of stormwater and stormwater professionals in AWEA is to be commended.



AWEA congratulates the award winners and encourages water professionals of all ages from across the state to get involved. Let us know about your innovative solutions, and help spread the value of water to all.

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# WaterJAM participants chase trophy fish at Dauphin Island Marina

The 2019 AL/MS WaterJAM Fishing Tournament did not disappoint with tight lines by numerous participants! Fishing teams gathered at Dauphin Island Marina at the crack of dawn to chase a variety of species in Mobile Bay and the northern Gulf of Mexico. The day started with some questionable wind, only to calm into quality fishing weather.

Fourteen boats and captains participated in the tournament with the targeted species of speckled trout, redfish and the elusive red snapper. Suzy Lindblom managed to snag the largest trout at over 22". The redfish bite was slow and the category proved to be a difficult one with Taylor Baker catching the largest of the species, and only a few being landed. The red snapper were not targeted by the majority of the teams with the wind up and the trout biting. However, several anglers had their hands full with a limit of snapper and the largest red snapper landed by Joby Polifka.

The tournament continues to be a tremendous way to enjoy other water professionals in the beautiful outdoors in the Alabama River delta, bay and northern gulf. The WaterJAM team was fortunate to have wonderful sponsors participate in the event including Cues, EDT, Gulf Coast Underground, Blue Herron Engineering, Municipal Consultants, Inc. and Mark Johnson Construction.

Many thanks to John Croom and the AUC Group, as well as Matt Alpaugh with Jefferson County for their assistance in putting on a first class event! Captain Jay O'Brian with Irish Wake Fishing continues to be a delightful partner and advocate for our water environment.

Thank you to all who participated! AL/MS WaterJAM will continue to work to improve the experience as we navigate this new territory of fishing tournaments! We look forward to seeing you in April 2020 where the fishing conditions will be prime!





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# Participants tee off for AL/MS WaterJAM Golf Tournament

The 2019 AL/MS WaterJAM Golf Tournament was held in Spanish Fort at the Timber Creek Golf Club. We had an extraordinary turnout for the first ever tournament with 17 teams of approximately 68 golfers.

All of the teams began their rounds at 9 a.m. with a shotgun start. As teams tried to scramble their way on the leaderboard, there were also several individual competitions to make things interesting. There was a putting contest between Hole #1 and Hole #18 sponsored by Hydra Service.

**Kody Walker** took home a brand new golf bag after being the only person to make the final putt. There were two Longest Drive competitions sponsored by Max Foote Construction, which were won by **Ty Patterson** and **Charles Claussen**.

Finally, VT Scada sponsored three Closest to the Pin competitions and the Hole in One shot for \$25,000. Unfortunately, there were no grand prize winners. **Ryan Bailey**, **Ron Kazmier**, and **Ty Patterson** were, however, the closest to the pin on the Par 3s.

As competitors played their rounds, Fluid Process & Pumps and Specification Rubber Products sponsored the beverage carts to keep all of the golfers hydrated on what turned out to be a very hot day. We even had a watering hole on #3, which was hosted by **Scott Todd** with HDR; our most creative sponsorship of the tournament.

Marty came all the way from Baton Rouge, Louisiana to cook pastalaya and red beans on the clubhouse patio. As everyone cooled off and ate lunch in the clubhouse, all of the winners were announced and are listed as follows:

## FIRST FLIGHT

**First Place:** Rob Coleman, Bill Dawson, Ty Patterson, and JJ Scott

**Second Place:** Chuck Chitwood, Mike Davis, Scott Emfinger, and Jeff Harrison

## SECOND FLIGHT

**First Place:** Scott Jernigan, Lance Raughton, David Stejskal, and Kevin Waddell

**Second Place** (tie): Josef Anderson, Christian Harwood, Tyler Noland, and Colton Wingard

**Second Place** (tie): Kevin Baker, Ricky Joiner, Ron Kazmier, and Robert Teem

Again, thank you to all that participated in this event. Most importantly, thank you to all of the gracious sponsors that helped make this event happen for all of the players. We had some creative sponsorships this year and are open to any suggestions for the next tournament. If anyone has any other ideas or would like to volunteer for next year, please feel free to reach out to Rob or Tyler.

The next tournament will be held on Sunday April 5, 2020. We look forward to seeing everyone then!



**Rob Coleman**, AWEA  
*rob@cahabawatersolutions.com*

**Tyler Noland**, MWEA  
*tyler.noland@arcadis.com*

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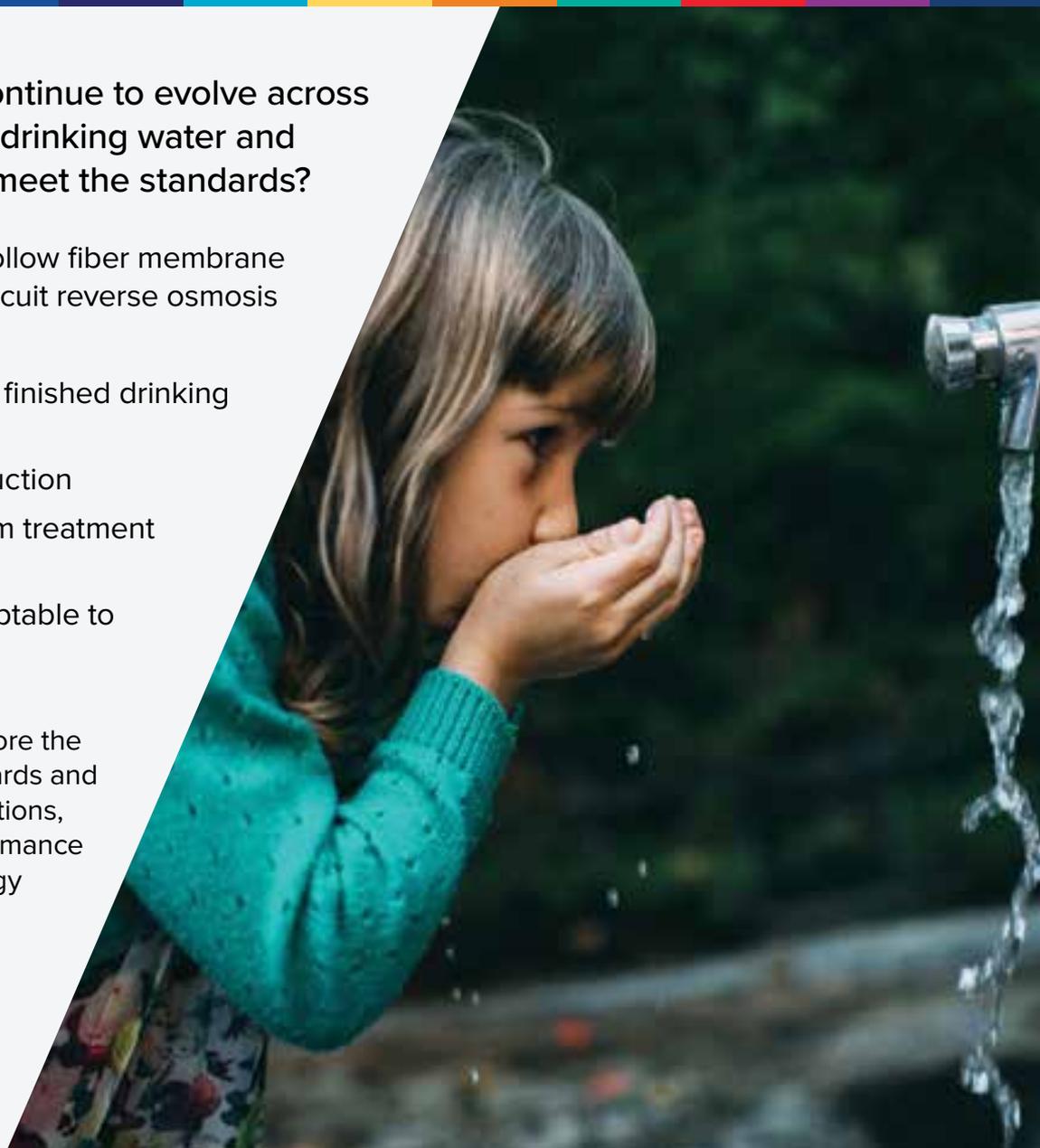
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Alabama/Mississippi Section  
American Water Works Association

# Thickening and Dewatering 101

## WEF Releases 10 Thickening and Dewatering Factsheets

Patrick Dube

Recently, the Solids Separation Subcommittee of the Water Environment Federation Residuals and Biosolids Committee began development on 10 factsheets focusing on biosolids thickening and dewatering. This preview examines the first set to have been released. Titled, *Thickening and Dewatering, Polymer/Flocculants 101*, and *Solids Capture in Dewatering Processes*, these factsheets can be downloaded by visiting [www.wef.org/factsheets](http://www.wef.org/factsheets).

### Thickening and Dewatering

In the wastewater treatment process, solids get separated via settling in primary and secondary clarifiers and need to be further processed before moving down the treatment train. Thickening and dewatering of solids help reduce the volume of the material in the system. Less volume benefits utilities by enabling smaller downstream facilities, which reduce energy and operating costs.

Thickening typically occurs after solids have been discharged from clarifiers, but before digestion or storage. Depending on the facility and characteristics of the solids, various types of equipment can be used to thicken the solids, including (but not limited to) gravity thickeners, centrifuge thickeners, and rotary drum/screw thickeners. After thickening, the solids can range from two to eight percent concentration and still can be pumped throughout the facility.

Dewatering typically occurs after biological and digestion processes and further removes water from the solids slurry. This process produces a material, which can be transported for disposal or beneficial use. The solids cake that is produced from dewatering is typically 15 to 40 percent solids and acts as a solid, i.e., it no longer can be pumped.

The benefits to dewatering are similar to those of thickening: Reducing the total volume of material reduces

transportation costs and the size of equipment (incinerators, digesters, drying beds) needed downstream. Dewatering typically is done using belt filter presses, screw presses, centrifuges, and other dewatering specific equipment.

### Polymer/Flocculants

To maximize thickening and dewatering efficiencies, polymers and flocculants often are used. These chemicals help clump, or flocculate, solids together and make water easier to remove.

Polymer comes in three forms: dry, solution, and emulsion. Dry polymer consists of 90 percent active polymer and requires a more extensive process to dissolve and activate it before use. Solution polymer, also called Mannich, is a viscous polymer with only four to eight percent active ingredient. Its low activity and difficulty in pumping has caused it to be less used in today's water resource recovery facilities. Both polymers must be activated and diluted onsite to between 0.1 and one percent active solution before using. The dilution process must be meticulously followed to prevent damaging the polymer and reducing its efficiency, and, thus, leading to a greater polymer demand, which increases costs.

Emulsion polymer is a pumpable polymer of gel emulsified in hydrocarbon oil with two to 55 percent activity. Due to its pumpability, it often is delivered to the system in-line, although its ease of use and higher activity come with a higher cost when compared to dry polymer.

### Solids Capture

Integral to optimizing biosolids efficiency and costs is paying attention to solids capture. This parameter is the amount of solids that are discharged, based on the percentage of solids in the feed. While the industry standard is 95 percent, onsite performance can get as low as 60 percent.

Low solids capture means a significant portion of solids are being returned to the head of the facility with the extracted water. By increasing solids capture, you reduce costs associated with retreatment, prevent excess wear and tear on equipment, and help improve overall facility performance.

Solids capture percentage can be determined using an equation (outlined in the factsheet, *Solids Capture in Dewatering Processes*), which incorporates sludge flow, washwater and polymer water flow, discharge cake, feeds solids and filtrate, or centrate solids. Establishing a baseline enables improvement to be measured.

To improve solids capture, a step-by-step approach is advised.

First, identify all settings and parameters used in the dewatering process (feed solids, flow rate, cake solids, polymer flow, etc.). Then, change one setting at a time; let it reach steady-state, and evaluate the effect on solids capture.

### More Information Available

Thickening and dewatering biosolids is an intricate topic. This article only touches on a few of the important considerations with polymer/flocculants and solids capture. For a more in-depth discussion of these topics and more, visit [www.wef.org/factsheets](http://www.wef.org/factsheets) to see all of the thickening and dewatering factsheets as well as factsheets on many other topics.



**Dr. Patrick Dube** is a technical program manager in the Water Science & Engineering Center at the Water Environment Federation (Alexandria, Va.).

He manages the Residuals and Biosolids Committee and the Air Quality & Odor Control Committee. He can be contacted at [PDube@wef.org](mailto:PDube@wef.org). x

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# Reimagine Credentialing with the Professional Operator Program

Lisa Dirksen



Two letters after a name can have a big effect on a career – just look at the R.N. or P.E. Those designations add a level of credibility to the professional, affect the pay scale, and indicate the knowledge necessary to perform to the best of one’s ability.

With the support of the American Water Works Association (AWWA; Denver) and the Water Environment Federation (WEF; Alexandria, Va.), the Association of Boards of Certification (ABC; Ankeny, Iowa) recognized the need for a similar designation that gives water and wastewater operators credit where credit is due.

Operators are front line protectors of human health, either through ensuring safe drinking water or the safety of waterways through effective wastewater management. They are the lifeblood of every community and deserve a way to be showcased as professionals.

And so – built by operators for operators – the Professional Operator (PO) program was born.

## Join a Community

POs are an elite group of like-minded individuals, deeply committed to serving the public and growing in the water sector. Having a supportive community for sharing professional knowledge is absolutely invaluable. The designation opens doors for international networking, connects operators with opportunities to be water sector advocates, and qualifies operators to attend events along the way.

## Grow as a Professional

Becoming a certified PO signals to employers that the operator is an achiever – committed to their profession long-term and ready to go above and beyond.

“I became a Professional Operator because of the chance to test my knowledge and accelerate my career,” said Brian Faist, Professional Operator in Rivergrove, Ore. “The PO designation has made me a more appealing candidate for promotion.”



Brian Faist (left), a Professional Operator from Rivergrove, Ore., receives his PO certificate from Andrew Houlihan, Water Treatment Operations Commissioner for Halifax Water (Nova Scotia, Canada) at ACE18 in Las Vegas. Faist said he sought out this credential to test his knowledge and accelerate his career. “The PO designation has made me a more appealing candidate for promotion,” he said. Credit: Courtesy of ABC



Georginna Lockett from Atlanta received her Professional Operator certificate from Andrew Houlihan, Water Treatment Operations Commissioner for Halifax Water (Nova Scotia, Canada) at ACE18 in Las Vegas. Earning this credential assures that these operators have mastered the most rigorous standards of their disciplines. “Being a PO certifies me in the industry as a top-level operator and that has been my goal since I started in the field,” Lockett said. Credit: Courtesy of ABC

Whether looking to grow within a company or trying to find a job, being a PO makes an operator stand out in a crowd.

### Ensure Accountability

The PO program is the first internationally recognized professional designation for water and wastewater operators. With the designation, peers, customers, and the public can feel confident that a PO has mastered the most rigorous standards.

"I wanted a challenge and I tackled it," said Georginna Lockett, PO in Atlanta. "Being a PO certifies me in the industry as a top-level operator and that has been my goal since I started in the field."

All POs must also adhere to a code of conduct, which bolsters an operator's reputation and builds additional community trust.

### Increase Mobility

Water sector adopters of the PO program are continuing to grow and it's helping to mold an expansive future for operators.

"Broad acceptance of a standard certification can make water professional credentials portable across state or country lines," said Paul Bishop, President and CEO of ABC. "With many benefits and potential solutions also come some challenges, but industry leaders at WEF, AWWA, and ABC are up to the task."

The PO program is a great leap toward an industry credential standard. It includes uniform and transparent credentialing that is recognizable by any employer or certification body.

### Begin Your Journey

PO certification is offered to operators in four levels (from Class I through Class IV) for water treatment, water distribution, wastewater

collection, and wastewater treatment. Joining the PO movement is simple and the entire process can take as little as a few weeks.

- **Step 1: Create an Online Profile.** The path to becoming a PO starts by creating a profile online at [portal.abccert.org](http://portal.abccert.org). An operator will be asked to provide such information as work and education history.
- **Step 2: Submit an Application.** The operator applies and ABC reviews the operator's profile to ensure basic criteria have been met. Applications are accepted from anywhere in the world, any day of the year.
- **Step 3: Take the Exam.** In some cases, operators may have already passed a certification exam that ABC will accept. If not, the operator will schedule a time to take an ABC certification exam. Once the exam is passed, the operator will receive a certificate, be invited to a POWER event to be formally recognized, and join the PO community.

For questions or additional information, visit [www.ProfessionalOperator.org](http://www.ProfessionalOperator.org) or send your questions to [Info@ProfessionalOperator.org](mailto:Info@ProfessionalOperator.org).



**Lisa Dirksen** is Director of Communications and Public Affairs at ABC (Ankeny, Iowa). She can be reached at [ldirksen@abccert.org](mailto:ldirksen@abccert.org).

The PO program is administered by the Certification Commission for Environmental Professionals (C2EP), an organization of volunteer water environment operations subject matter experts created by the Association of Boards of Certification (ABC). x

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## Equipment Manufacturer for WTP's and WWTP's Finds Ways to Help with Their Customers' and the Industry's Broader Concerns

Chlorine Containment News™ – Reported independently as Catalytic Objective Synthesis™\*

**H**aving decided that its commitment to serving the water industry as an equipment manufacturer means more than just developing hardware and software proposals and fulfilling them, TGO Technologies has sought input from its customers on how they are dealing with overarching industry concerns, and how the company can help, as a supplying manufacturer.

One concern being investigated, by this manufacturer of secondary containment vessels for gas cylinders, is coping with the widely acknowledged situation of aging plant management and workers. These personnel have typically stayed at their places of employment for many years, with their average tenure noted in one recent study,<sup>1</sup> by the federal Bureau of Labor Statistics (BLS), to be the highest among all industries, and there is deep concern about how

they are to be effectively replaced with knowledgeable and trained new personnel.

So far in its ongoing investigation, the company has learned about some things about what is already being done by plant management to address the aging workforce challenge; how the design of TGO's equipment and its on-site training in its use can help; and how a special partnership with the American Waterworks Association (AWWA) may address the problem.

### PLANT MANAGEMENT OBSERVATIONS

"As long as the equipment information is effectively passed on, there shouldn't be any problems for new people," noted Alex Mares, the water utilities supervisor for Lake Havasu City, AZ. "Meanwhile, overall, our city is looking at optimizing training programs to get new guys interested in plant operations, including

drawing them from our own distribution system crews, toward getting them interested in training for whole-plant operations.”

Another manager noted how the design of the containment vessels, and the manufacturer’s training in their use, can help.

“Training for this equipment is pretty straightforward; we just need to have somebody with experience on site when we are changing out the chlorine cylinders,” summarized Mike Holloway, chief operator for the Walnut Creek Special Utility District in Lake Bridgeport, TX.

“It’s not a long process to learn,” he continued. “We don’t need six months to train somebody. It shouldn’t take more than 4 changeouts to learn it well.”

#### FURTHER INITIATIVES

More sharing of information among utilities on how they are coping with the aging workforce challenge can certainly help, as can further attention from manufacturers on simplifying equipment design, and increased participation in scholarship initiatives. But other actions can help as well.

More high school outreach might be especially promising. One study,<sup>2</sup> by *The Princeton Review*, says that the most popular college majors among youth today are computer science, communications, and political science, because they are regarded as offering the best prospects for advancement, and the highest salaries. Another study,<sup>3</sup> by the BLS, says that the information industry’s workforce is already more than five years younger than the water industry’s.

“The water industry can certainly offer prospects for employment and opportunities for advancement, as increasing population increases needs for plant personnel.”

The water industry can certainly offer prospects for employment and opportunities for advancement, as increasing population increases needs for plant personnel. The students electing their major based on the “hot” trends may want to reconsider looking into the water industry.

#### FOOTNOTES

<sup>1</sup> <https://www.bls.gov/news.release/tenure.t05.htm>

<sup>2</sup> <https://www.princetonreview.com/college-advice/top-ten-college-majors>

<sup>3</sup> <https://www.bls.gov/cps/cpsaat18b.htm>

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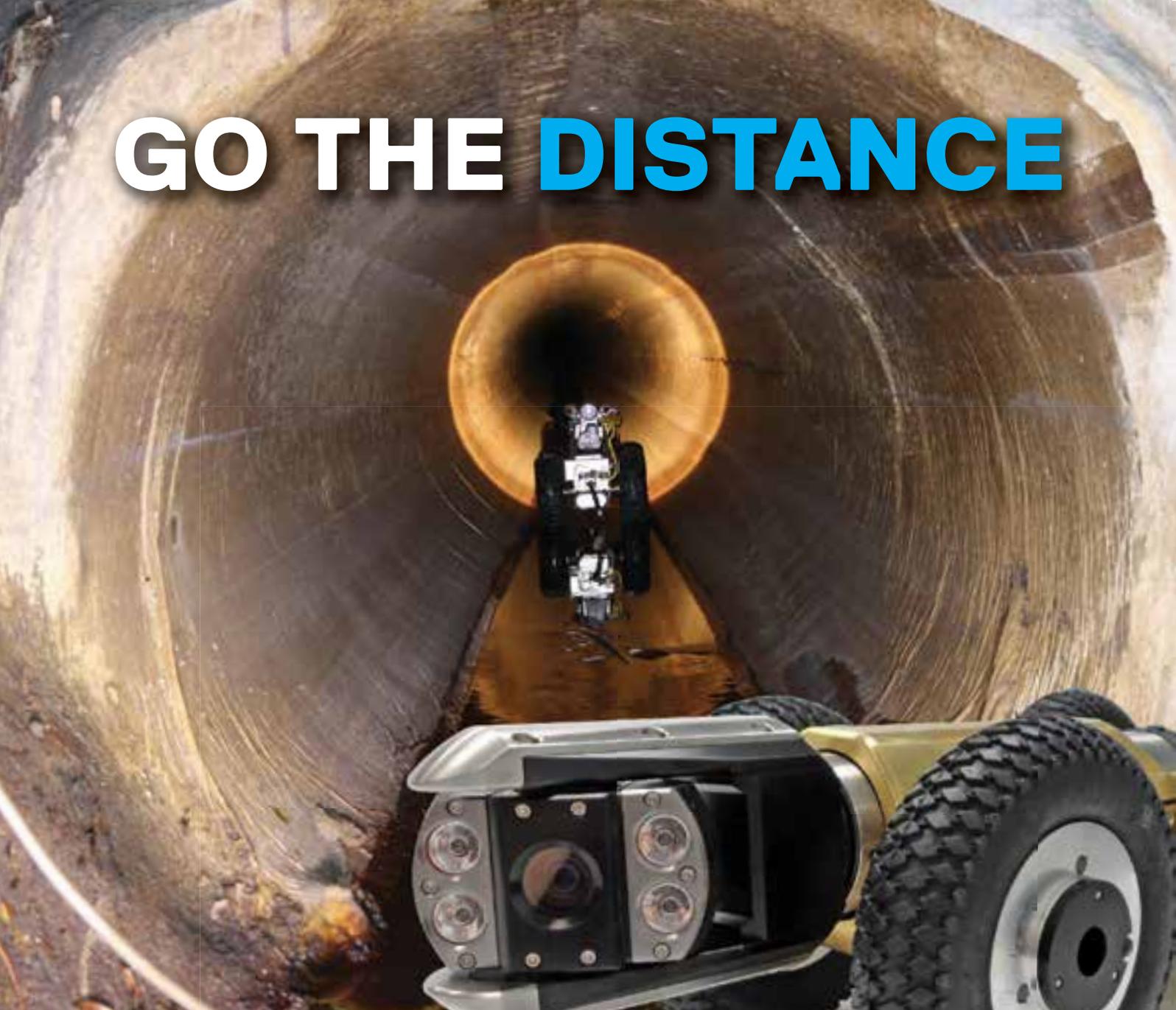


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# 2019/20 BUYERS' GUIDE

Our AWEA Buyers' Guide consists of two sections:

- A categorical listing of products and services, including a list of the companies that provide them.
- An alphabetical listing of the companies appearing in the first section. This listing includes name, contact info, website and more.

AWEA and The Wave has received great support through the advertising of these companies and organizations. Please think of them when you require a product or service. We have endeavoured to make it easier for you to contact these suppliers by including their telephone number and, where applicable, their websites.

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RELINER/Duran, Inc.

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EVENT	DATE	LOCATION
Water Quality Technology Conference and Exposition	Nov 3-7 2019	Dallas, TX
WEF Utility Management Conference	Feb 25-28, 2020	Anaheim, CA
Biosolids Conference	Mar 31-Apr 3, 2020	Minneapolis, MN
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There is only one grit removal system designed to remove 95% of grit down to 100 micron **FOR ALL FLOWS** experienced at WRRFs and treatment plants. While competing technologies derate efficiencies at peak flows, **PISTA**® hydraulic vortex grit removal systems consistently deliver in all conditions—backed by actual test results, not theory. Systems derating for storm events are not “advanced”—only the baffled **PISTA**® holds stake to that claim.

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