Our Vision: The Virginia Water Environment Association (VWEA) will preserve and enhance Virginia’s Water Environment, now and for future generations.

INSIDE
- To Find Qualified Applicants, Think Regionally and Create a Pipeline
- Reimagine Credentialing with the Professional Operator Program
- VWEA Strategic Plan Update
Realize More

We partnered with WRF and New York City on the *Innovative and Integrated Stormwater Management* report. Data was compiled from 34 communities, including several Virginia utilities, about their stormwater programs.

The report offers an enhanced understanding of the strategies communities implement to cost-effectively improve the health of local water bodies and deliver related benefits.

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To Find Qualified Applicants, Think Regionally and Create a Pipeline
For more than two decades, we’ve been anticipating a major exodus of baby boomers from the US workforce… The 2007 recession appeared to postpone the silver tsunami...

Reimagine Credentialing with the Professional Operator Program
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...

Water and wastewater utilities provide critical lifeline services to their communities and their regions...

WEF Releases 10 Thickening and Dewatering Factsheets
Recently, the Solids Separation Subcommittee of the Water Environment Federation Residuals and Biosolids Committee began development of 10 factsheets...

FEATURES

COVER FEATURE
WaterJAM 2019 Review
WaterJAM 2019, held in Virginia Beach from September 9-12, perfectly reflected the environment of learning, fellowship, and outreach experienced in and around the Virginia Beach Convention Center.

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We Are Strong Because of Our Members

The past year has been tremendous for our members, our organization, and WaterJAM, our joint conference. Shawn has passed along the captain’s hat to me as the newest leader in a long line of strong captains, and I look forward to seeing what our great organization has on the horizon in the coming year.

As I reflect on our ‘ship’, I am reminded of a sermon at a time in my life when a call to action was upon me. The minister was speaking to a packed house – standing room only – as people were listening from the entryway and spilling out onto the sidewalks. Though I could barely see the speaker, I was fortunate to snag a spot on the stairs. His message: “Look at us! We are strong! Look at the potential for good that we can do! But everyone – everyone – needs a job!”

That message really stuck with me, and this is how I feel about our remarkable organization. Everyone needs a job; whether it is big or small, leader or helper, everything from the committee chair to the person who puts signs out at an event has a role to play. Everyone needs a job or a way to be involved within our organization. We are strong because of our members and the time and energy we invest.

We have multiple members who perform multiple jobs, and they are to be commended. We are also an organization that cultivates leaders, encourages new ideas, and, frankly, is a lot of fun! Our membership has reached record levels (our WaterJAM attendance has as well!), so everyone needs a job. Let’s see where we can sail our ship to next.

So your next question is how? How do you get involved? Great question! Our executive team has developed a handy page just for you, our members, so that you know where to get involved and what each and every committee is all about. Every committee can use volunteers to fill a variety of jobs (both big and small), and we are confident there

Upcoming Events for 2020 in Virginia

<table>
<thead>
<tr>
<th>Month</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>WaterTOC: Water Technical Online Conference (E-JAM)</td>
<td>Virginia Tech Executive Briefing Center, Arlington</td>
</tr>
<tr>
<td>March 2-3</td>
<td>Industrial Waste and Pretreatment Conference</td>
<td>Omni, Charlottesville</td>
</tr>
<tr>
<td>April 23</td>
<td>VWEA Stormwater Seminar</td>
<td>Westin, Richmond</td>
</tr>
<tr>
<td>May 6</td>
<td>Virginia Utility Management Conference</td>
<td>Westin, Richmond</td>
</tr>
<tr>
<td>May 7</td>
<td>VWEA Education Seminar</td>
<td>Westin, Richmond</td>
</tr>
<tr>
<td>June 24-25</td>
<td>VWEA Operations Conference with Safety Seminar and Ops Challenge</td>
<td>Hotel Madison, Harrisonburg</td>
</tr>
<tr>
<td>July 27-28</td>
<td>VA AWWA/VWEA Good Lab Practices Conference</td>
<td>Omni, Charlottesville</td>
</tr>
<tr>
<td>Sept 14-17</td>
<td>WaterJAM 2020</td>
<td>Hampton Roads Convention Center, Hampton</td>
</tr>
</tbody>
</table>
“I am truly honored and proud to be your president this coming year.”

is a right job to fit you. You can find contact information for each of the committees on our website: www.vwea.org.

We also have many jobs within our WaterJAM Planning Committee. It takes many people to organize such a fantastic conference. WaterJAM 2019 was a smashing success, and I have heard many accolades from our visiting WEF incoming President Jackie Jarrell, as well as committee chairs, exhibitors, and attendees. Everyone enjoyed the technical presentations, our exhibitor’s hall was full, and as presented on the adjacent chart, we set another record year for attendance with 1,935 registrations.

As we look to next year in Hampton, let’s aim for 2020 attendees! (2020 in 2020 has a nice ring to it).

We are especially proud of our committee accomplishments and wanted to highlight a few for you. In collaboration with our Executive Director Kathy Rabalais, we have assembled a Committee Kudos section in recognition of a job well done!

We also have lots of great events coming up this year and are looking to adding a few more to the roster for 2020 (see previous page for a teaser of what is to come).

I would also like to take a minute to thank all of the previous VWEA presidents, board members, executive director, committee leaders, and volunteers for making our association what it is today. I also want to welcome our new Member Services Coordinator Leigh Blecki. VWEA is a success due to the dedication of our members and volunteers who always play a dynamic role in pushing us forward.

On behalf of the VWEA board, I thank you. I am truly honored and proud to be your president this coming year and am forever thankful for this opportunity.

Please visit us at www.vwea.org and on Pages 42 and 43 to give us your feedback.

Committee Kudos

WaterJAM Committee – The committee organized another record-breaking conference while also assisting with new software implementation. Thank you for hanging in there!

Leadership Academy – Approved as a committee early in 2019 and quickly moved to develop its first Leadership Academy program. The committee reached the maximum capacity of 30 participants and kicked off at WaterJAM.

Lab Practices – The committee held its 25th Annual Conference in July with approximately 200 attendees at the two-day event and finished up a busy summer with a workshop at WaterJAM with 37 registrants.

NVRAC – Utilizing presentations that were not given at WaterJAM 2018 due to Hurricane Florence, NVRAC coordinated three lunch and learns in 2019.
Recognized leaders in advanced wastewater treatment

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VWEA RECOGNIZES
THE 2019 AWARD WINNERS

It is with great pleasure that VWEA recognizes and congratulates the 2019 Award recipients recognized at WaterJAM in Virginia Beach. It is our opportunity to recognize individuals and organizations, which have made outstanding contributions to the water environment profession and to the federation and its member associations.

VWEA’S PRESIDENT-ELECT, PHILL YI NAMED WEF OUTSTANDING YOUNG PROFESSIONAL

Phill Yi, Hazen and Sawyer, was selected by the Water Environment Federation as the 2019 recipient of the Outstanding Young Water Professional Award. The award is given to a WEF member 35 years of age or younger, who has made contributions to enhancing the activities of the Water Environment Federation, contributions to WEF Member Associations and to WEF Committees and improvement in the fundamental knowledge of performance of wastewater collection and treatment systems, water resource protection and research on issues important to the water environment.

Phill has served in many leadership positions within VWEA during his career. He has served as chair of WaterJAM, the VWEA Education Committee and the Northern VA Regional Activities Committee. In 2017, Phill served as the YP Board Representative for VWEA. In this role, he engaged with both students and YPs to grow their engagement and participation in the industry. Additionally, in 2016 he was a graduate of the WEF Leadership Institute. Phill joined the VWEA Board in 2018 as an officer and currently serves as President-Elect.

Through his participation at WEFTEC, the Nutrient Removal Conference, and WaterJAM, Phill has shared his wealth of knowledge. As a result, he is highly published and consulted. Phill has been recognized for his work by being inducted into the Virginia Select Society of Sanitary Sludge Shovelers in 2016 and being selected for the VWEA/VA AWWA Young Professional Award in 2014.

Since the inception of the WEF Outstanding Young Professional Award in 2005, VWEA members have been selected for the honor on four occasions:

- 2008 – Dr. Charles Bott, HRSD
- 2010 – John McGettigan, Greeley and Hansen
- 2016 – Lauren Zuravnsky, HRSD
- 2019 – Phill Yi, Hazen and Sawyer

Congratulations to Phill and all of our past Virginia winners on this distinguished honor!

SONNY RODEN MERITIOUS SERVICE AWARD

Scott Shirley, Western VA Water Authority

The award is intended to recognize association members who have provided extraordinary personal service, devotion and sacrifice to the association over an extended period of time. It is recognition of service to WEF committees, elected offices and most importantly, commitment of personal time and effort to furthering the association and profession above and beyond that which is normally given. This medal is rarely given and is truly an honor to receive.

ENSLOW-HEDGEPETH AWARD

Andy Landrum, Whitman, Requardt and Associates

The award is presented to an individual who has shown outstanding service to the association and has made outstanding contributions, or accomplished outstanding achievement in the water environment profession.
The Outstanding Young Professionals Award recognizes a VWEA or Virginia Section AWWA young professional, 35 years old or younger at the time of nomination, who, through individual effort, has made significant contributions to VWEA or the Virginia Section in the form of activities including: volunteer work, committee work, leadership activities and/or conference paper presentations.

THE WEF GEORGE W. BURKE FACILITY SAFETY AWARD
Fairfax County, Noman M. Cole, Jr. Pollution Control Plant

THE VWEA FACILITY SAFETY AWARD
UOSA, Millard H. Robbins, Jr. Advanced Water Reclamation Facility

The VWEA Facility Safety Awards encourage members to engage in an active and effective safety program in municipal and industrial wastewater treatment. Utilities are evaluated on evidence of a good safety record, facility written safety programs, maintenance of all safety equipment, a visual inspection of the facility for safety compliance and level of security, any other information that would complement the facilities safety compliance and level of security, safety training program and documentation and maintenance of treatment/process equipment.

The award recognizes a government employee’s service to the water environment field and to the association.

The award recognizes an elected or appointed public official, which has made significant contributions in the area of clean water legislation.

The award recognizes individuals who have made significant contributions to the advancement of wastewater collection systems, including design, education, training, certification, construction, operations, maintenance, and management.

The award recognizes dedication and service to the Stormwater Management field.

As an honorary society, individuals are nominated and selected by society members for significant and repeated effort toward making VWEA a better association. Activities may include technical presentations, serving as instructors at various workshops, serving as officer or as the chair of a productive committee, or as an active committee member, and putting time and effort into VWEA, which in the opinion of the Selection Committee, are worth recognition.

The award recognizes operators of wastewater treatment plants for outstanding performance and professionalism.

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For more than two decades, we’ve been anticipating a major exodus of baby boomers from the US workforce... The 2007 recession appeared to postpone the silver tsunami. But now the long-tenured, highly skilled personnel from our industry are retiring at an unprecedented rate.

Those are the opening sentences of a May 2019 Opflow article, Attract Tomorrow’s Water/Wastewater Workforce Today. The Opflow article reported that nearly one-third of the water/wastewater workforce in the San Diego area will reach retirement-eligible age in the next three years. A January 2019 WE&T article, State of the Industry, advises that in the Atlanta area, nearly half of the 1,415 current water/wastewater employees will be eligible for retirement in the next five years. But is it just the water/wastewater utilities in large metropolitan areas that are threatened with under-staffing? What about rural utilities? What about in Virginia?

To Find Qualified Applicants, Think Regionally and Create a Pipeline

By Bob Canova, VWEA/VA AWWA Work for Water Committee
In 2018, the VAAWWA/VWEA Work for Water Committee conducted a survey of Virginia utilities to answer that question. The committee surveyed utilities throughout Virginia and received 38 responses. The responses came from a good mix of urban and rural utilities across the state. Seven responses were from large utilities with greater than 100,000 customers. Below is a tabulation of 495 anticipated positions to be filled in the next five years by the 38 Virginia utilities responding to the Work for Water survey.

The tabulation is topped by wastewater and water treatment operators and specialty trades (I&C, mechanical, and electrical positions). Not unexpectedly, Virginia utilities expect to have the greatest difficulty filling these three positions.

### RESULTS OF THE SURVEY

The survey revealed that workforce recruitment and training challenges in Virginia vary. But a quarter of all responses indicated challenges with inexperienced and uncredentialed employment applicants. And 20 percent of the respondents indicated problems with uncompetitive salaries and a poor perception of the utility industry and its career opportunities. One utility reported that they ‘have a career ladder for many positions and typically hire at the lower levels of the ladder and advance people as their skills improve. Salary increases do not keep pace with the improvement in skills and people leave for higher pay.’ Another utility reported that ‘We lose a lot of good talent, especially in wastewater treatment, because we simply don’t pay enough. We have a career development plan which allows employees to get 10 percent salary increase for each licensure received (Class I, II and III) but as soon as they have their Class 1 Operators License, they go to a different county that pays 15 to 20 percent higher than we do. Therefore, we are just a stepping stone in their career.’

A third utility wrote: ‘Having to work nights and holidays is a real impediment to hiring when it is for a relatively low salary.’ And another: ‘This is an industry that no new-generation folks want to enter due to pay and nature of work.’ It appears that inadequate salaries and poor image are already making it difficult for the Virginia water/wastewater industry to maintain full staffing during this economic period of low unemployment and rising minimum wages. The survey did not address water/wastewater maintenance staff, but filling these positions also appears to be a challenge.

The millennials want work that is exciting and fresh, not a 30-year career with a single utility.

### INADEQUATE RECRUITMENT METHODS?

In general, the utilities that responded to the survey seem to be recruiting in traditional manners, advertising on their website, in local newspapers, on association websites, and with the Virginia Employment Commission. A few also advertise with Neogov, Monster, or Indeed. Unfortunately, these recruitment methods may not be adequate in the future.

The previously referenced January 2019 WE&T article proposed a new approach to water/wastewater staff recruitment, focusing on career interests of new millennial employees. The millennials want work that is exciting and fresh, not a 30-year career with a single utility. They want to be environmental stewards. They want opportunities to gain related experience and skills before entering their new positions.

The water/wastewater industry needs to approach recruitment regionally by partnering with neighboring utilities, recruiting for water/wastewater positions simultaneously with other municipal staff positions, participating with other municipalities in an annual job fair, and making entry-level positions more attractive by updating or creating new job categories to provide greater flexibility for potential applicants.

For more recommendations, refer to the Brookings Institute online Metropolitan Infrastructure Initiative Series at [https://www.brookings.edu/research/water-workforce](https://www.brookings.edu/research/water-workforce).

<table>
<thead>
<tr>
<th>Position</th>
<th>No. of Hires in Next Five Years</th>
<th>Typical Entry Level Salary Range</th>
<th>Expected Difficulty Filling Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater Treatment Operator</td>
<td>68</td>
<td>$31,000-$50,000</td>
<td>Great</td>
</tr>
<tr>
<td>Utility Trades (I&amp;C, mech. and elect)</td>
<td>50</td>
<td>$41,000-$50,000</td>
<td>Great</td>
</tr>
<tr>
<td>Water Treatment Operator</td>
<td>40</td>
<td>$20,000-$40,000</td>
<td>Great</td>
</tr>
<tr>
<td>Customer Service</td>
<td>39</td>
<td>$20,000-$40,000</td>
<td>Average to Little</td>
</tr>
<tr>
<td>Heavy Equipment Operator</td>
<td>38</td>
<td>$20,000-$40,000</td>
<td>Great to Average</td>
</tr>
<tr>
<td>Administration</td>
<td>34</td>
<td>$31,000-$50,000</td>
<td>Average to Little</td>
</tr>
<tr>
<td>Engineer</td>
<td>32</td>
<td>$51,000 - $60,000</td>
<td>Great to Average</td>
</tr>
<tr>
<td>Meter Reading</td>
<td>31</td>
<td>$20,000-$30,000</td>
<td>Average to Little</td>
</tr>
<tr>
<td>Water Distribution Operator</td>
<td>28</td>
<td>$20,000-$50,000</td>
<td>Great to Average</td>
</tr>
<tr>
<td>Wastewater Collections Operator</td>
<td>27</td>
<td>$20,000-$50,000</td>
<td>Great to Average</td>
</tr>
<tr>
<td>Inspector</td>
<td>27</td>
<td>$31,000-$50,000</td>
<td>Average to Little</td>
</tr>
<tr>
<td>Leadership (Directors, Assistant Directors)</td>
<td>25</td>
<td>$61,000-$110,000+</td>
<td>Great to Average</td>
</tr>
<tr>
<td>Chemist</td>
<td>23</td>
<td>$41,000 - $50,000</td>
<td>Great to Average</td>
</tr>
<tr>
<td>Information Technology</td>
<td>16</td>
<td>$31,000-$110,000</td>
<td>Great to Average</td>
</tr>
<tr>
<td>Utility Locator</td>
<td>17</td>
<td>$31,000-$50,000</td>
<td>Average</td>
</tr>
</tbody>
</table>
INNOVATIVE RECRUITMENT APPROACHES
We have two great examples of new recruitment approaches right here in Virginia. The Hampton Roads Public Works Academy (www.hrpwa.org), which began in 2003, now has 15 regional utility members and offers a two-year, hands-on program for 20 high school students annually from each of three regional career and technical education centers. Classes are offered in 32 major areas of work within the Public Works and Utilities fields and provide the cadets an opportunity to receive a paid summer internship with a Public Works Academy member organization. The Public Works Academy has proven to be a successful feeder program for member organizations and hired cadets usually perform extremely well.

In 2017, the Western Virginia Water Authority (www.westernvawater.org) implemented an apprenticeship program for high school juniors and seniors from the Roanoke County career and technical education center to help fill future vacancies in their Water and Wastewater Treatment Operator and Water Distribution Operator positions. Students have a flexible working schedule during their junior and senior years and a 40-hour-per-week schedule for one year after graduation, allowing them to gain required training to sit for their Class 4 Wastewater Treatment and/or Water Treatment license. Western Virginia Water Authority also established an Adult Apprenticeship program for electricians and implemented a $2,000 Retention Bonus that employees receive after three years of continuous employment (other criteria must also be met).

One of the Work for Water survey recipients recommended that the Virginia water and wastewater industry look hard at attracting transitioning military by tapping into the Transition Assistance Program at Fort Lee and other military installations within the state. That recommendation fits well with the AWWA OpFlow recommended recruitment approach – provide on-the-job training and licensing opportunities from the underrepresented population including women, veterans, and candidates in the criminal justice system.

The VA AWWA/WEA Work for Water Committee is already working on your behalf, participating in over a dozen elementary, middle and high school gatherings and career fairs each year. The committee has exhibits, handouts and volunteers to assist your local and regional recruitment efforts.

For assistance with school career fair participation, or to join the committee, contact Work for Water Committee Chair Stephen Turner (sturner@gfnet.com).

The Public Works Academy has proven to be a successful feeder program for member organizations and hired cadets usually perform extremely well.

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Reimagine Credentialing with the Professional Operator Program

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, Co.) 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 frontline 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 in the 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, a professional operator in Rivergrove, Ore. “The PO designation has made me a more appealing candidate for promotion.”

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

“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.”
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, a professional operator 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, which 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. 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, or send your questions to Info@ProfessionalOperator.org.

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

The Professional Operator 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).

This article solely reflects the personal opinions of the authors, not necessarily WEF and its members. It is provided for educational purposes only, and is not intended to substitute for the retainer and advice of an appropriate professional. No warranties or endorsement of any kind are granted or implied.

Water and wastewater utilities provide critical lifeline services to their communities and their regions. Supporting these vitally important functions require secure information technology (IT) and operational technology (OT), yet the sector’s IT and OT networks continue to face an onslaught of threats from cyber criminals, nation states, and others.

To support the sector in its cyber-security goals, and in response to the continually evolving threats, WaterISAC, the Water Information Sharing and Analysis Center, has just published a newly updated resource: 15 Cybersecurity Fundamentals for Water and Wastewater Utilities.

The updated guide contains dozens of best practices, grouped into 15 main categories, which water and wastewater systems can implement to reduce security risks to their IT and OT systems. Each recommendation is accompanied by links to corresponding technical resources. In sum, the guide connects users to the information and tools needed to take a dive deep into this important issue.

Here is a summary of the 15 fundamentals:

- **Perform asset inventories.** You can only protect what you know about. Knowing your environment is a basic requirement of a sound cyber-security program.
- **Assess risks.** Once asset inventories are completed, OT and IT risks should be assessed, considering the likelihood a threat will occur and the impact the threat will cause to the organization.
- **Minimize control system exposure.** Protect the control system environment from outside, untrusted networks. This involves network segmentation, traffic restrictions, and encrypted communications.
- **Enforce user access controls.** Users on a network should have no more access than needed to do their jobs. Apply role-based access controls and the principle of least privilege, including limited use of administrator rights to prevent users from accessing systems and files they are not authorized to access.
- **Safeguard from unauthorized physical access.** If an adversary can gain physical access to your equipment, they can compromise it. Non-technical, physical security controls can restrict physical access to IT and OT environments.
- **Install independent cyber and physical safety systems.** Cyber attacks can result in physical effects. To protect critical assets from such ‘blended’ threats, utilities should consider non-digital engineering solutions such as independent cyber and physical safety systems.
- **Embrace vulnerability management.** Largely informed by asset inventory and risk assessments, vulnerability management involves the need to identify and remediate cyber-security gaps and vulnerabilities before the bad guys exploit them.
- **Create a cyber-security culture.** Cyber security is everyone’s responsibility, from the break room to the boardroom. Effective cyber security starts at the top; to affect positive behavioral changes,
involve every executive, board member, and employee in cyber-security awareness and training.

- **Develop and enforce cyber-security policies and procedures (Governance).** Create, disseminate, and operationalize clear and actionable organizational policies and procedures regarding cyber-security expectations. The fundamentals in this guide can be used to begin developing policies that are most relevant to each organization.

- **Implement threat detection and monitoring. You will not find it if you are not looking.** The importance of configuring detailed logging and reviewing system logs to detect active threats in your environment cannot be overstated.

- **Plan for incidents, emergencies, and disasters.** Plan ahead for maintaining business continuity and resilience. Emergency response plans (ERPs) will be a requirement of America’s Water Infrastructure Act (AWIA) beginning in 2020.

- **Tackle insider threats.** The insider threat is a people problem, not one of technology; however, not all insider threats are malicious. Mitigate this organizational-level threat by understanding behavioral indicators that predicate an insider threat and apply appropriate training and technology controls to deter an incident.

- **Secure the supply chain.** The supply chain-vendor relationship is a common threat vector for cyber attacks and must be intentionally managed through security and vulnerability testing and risk assessments.

- **Address all smart devices.** When unsecured Internet of things (IoT) and mobile devices are connected to networks, they create holes (often to the Internet), which may not have previously existed. Cisco’s 2018 Annual Cybersecurity Report states that few organizations view IoT as an imminent threat, yet adversaries are exploiting weaknesses in connected devices to gain access to industrial control systems, which support critical infrastructure.

- **Participate in information sharing and collaboration communities.** Share information with others. Utilities can learn from each another by getting involved in WaterISAC, InfraGard, and similar communities. Cyber-mature utilities can significantly help the community and sector by sharing their experiences.

**About WaterISAC**

WaterISAC is a non-profit water and wastewater sector organization dedicated to protecting sector utilities from all hazards. WaterISAC disseminates threat advisories, reports, and mitigation resources to help utilities prevent cyber and physical security incidents and to recover from disasters.

WaterISAC draws information from federal and state law enforcement and many private sector sources to manufacture products relevant to the water and wastewater sector.

Membership, including a free 60-day trial, is open to utilities, consulting firms, sector associations and state agencies. More information is available at www.waterisac.org.

*Michael Arceneaux* is WaterISAC’s managing director and *Jennifer Lyn Walker* is WaterISAC’s cybersecurity risk analyst.

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Thickening and Dewatering 101

WEF Releases 10 Thickening and Dewatering Factsheets

Recently, the Solids Separation Subcommittee of the Water Environment Federation Residuals and Biosolids Committee began development of 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.

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 helps 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 solids concentration and can still 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 – which can no longer 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 on site to between 0.1 and one percent active solution before use. The dilution process must be followed meticulously 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 discharged, based on the percentage of solids in the feed. While the industry standard is 95 percent, on-site 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 re-treatment, 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 and Engineering Center at the Water Environment Federation (Alexandria, Va.). He manages the Residuals and Biosolids Committee and the Air Quality and Odor Control Committee. He can be contacted at PDube@wef.org.
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THE RISING TIDE MAKES FOR ANOTHER SUCCESSFUL WATERJAM

This year’s WaterJAM theme, The Rising Tide, perfectly reflected the environment of learning, fellowship, and outreach experienced in and around the Virginia Beach Convention Center. Many call WaterJAM a family reunion, and we’re happy to share that we set a record at 1,935 registrants, including 386 first-time registrants. We’ve got a big family, and it sure did grow even more this year!

Although the conference officially started on Monday, we held our annual Water Taste Test on Sunday afternoon in Neptune’s Park along the boardwalk. Most of the participants preferred the taste of Virginia Beach’s tap water to bottled water. This type of outreach helps to demonstrate the value of the services our industry provides to the public every day of every year.

EDUCATION, NETWORKING, AND OUTREACH

Monday offered numerous opportunities for education, networking, and outreach. The morning kicked off with two WaterJAM favorites: the golf outing and clay shoot. This year’s golf outing was held at The Signature at West Neck in Virginia Beach. Over 120 golfers duked it out on the links and then enjoyed a cookout and Water For People raffle.

The clay shoot was held at Old Forge Sporting Clays in Providence, Forge with 70 shooters. Following a morning of skeet, the attendees enjoyed a hearty barbeque lunch. The Young Professionals Service Project was held on Virginia Aquarium grounds. The Clean the Creek event entailed 35 volunteers cleaning aquarium grounds, including Owls Creek, surrounding nature trails, and parking lots. We also hosted three workshops: Lab Practices, Sustainability, and Wet Weather Storage. Following a full day of activities, we brought everyone together for the meet and greet at the Hilton Oceanfront. Networking abounded late into the night with food, drinks, and plenty of laughs, setting the perfect tone for the remainder of the conference.

OPENING SESSIONS AND A FUN 5K

Tuesday morning kicked off early with our annual Water For People 5K Fun Run/Walk. Set against the perfect backdrop of the beach oceanfront, we had 51 participants enjoy a brisk run along the boardwalk while watching the sunrise over the Atlantic Ocean.
Mascots Eddie and Niles join the evening banquet’s festivities.

The WaterJAM Exhibit Hall set a record with 226 booth registrations.

For our first-time attendees, the orientation breakfast helped them become better acquainted with all the opportunities WaterJAM has to offer with a fun trivia game that got everyone thinking! The orientation breakfast was followed by an eventful opening session, with an attendance that required expansion of the room size!

The opening session started with an address and proclamation by the Virginia Beach Department of Public Utilities Director, Bob Montague. The feature speaker, Peter Colohan, Executive Director of the Internet of Water, a project based at Duke University’s Nicholas Institute for Environmental Policy Solutions, provided an enlightening discussion on the state of our large and growing water challenges and how everyone can benefit from better access to water data.

The Keynote Speaker, Rear Admiral Ann C. Phillips, U.S. Navy (Retired) and Special Assistant to the Governor for Coastal Adaptation and Protection for the State of Virginia, led a rousing discussion on the experience Virginia is facing with increasing extreme weather events and natural disasters, which threaten public health and safety, the environment, and the economic well-being of the Commonwealth. National WEF and AWWA representatives, Jacqueline A. Jarrell and Theresa O’Grady followed with national activity and initiative updates.
CUTTING-EDGE INFORMATION AND SILENT AUCTION
This year’s Exhibit Hall had a record 226 booth registrations. Exhibitors shared cutting-edge information with the attendees about products and services, which help drive innovation in our industry. The Exhibit Hall also included various networking and educational events throughout the day, such as the Sewer and Water Art Gallery, showcasing unusual field artifacts found in the field by utilities, engineers, and contractors, the Young Professionals’ Cornhole Challenge, and the Water Reach Silent Auction, featuring a diverse collection of donated and handmade items.

Tuesday and Wednesday included a multitude of educational opportunities for students, Young Professionals and seasoned professionals alike!

FORWARD-THINKING AND PRACTICAL TOPICS
The technical sessions provided a venue for our presenters to share valuable educational information on forward-thinking and practical topics. Mobile sessions returned for a third year, offering multiple opportunities for attendees to engage in enhanced learning interactions with exhibitors, all while obtaining continuing education credits! Students and Young Professionals contributed to an excellent poster session, digital knowledge presentation, and student water challenge, enabling them to engage and network with water professionals, and teach them about cutting-edge research and practices.

Wednesday culminated with the Awards Banquet and Fun Night. It was a fantastic time had by all, with good food, recognition of our outstanding peers, and games into the night. We hope you enjoyed your time at WaterJAM in Virginia Beach this year.

On behalf of the entire WaterJAM Committee, we’d like to thank all attendees for contributing to The Rising Tide. We look forward to seeing everyone in 2020 in Hampton!
It is always a pleasure to hear directly from our friends at the Virginia Department of Environmental Quality. This year, the Public and Government Affairs Session at WaterJAM included presentations from David Paylor, DEQ Director, Melanie Davenport, DEQ Director of Water Permitting, Neil Zahradka, Manager of DEQ Land Application Programs and Jutta Schneider, DEQ Director of Water Planning Division.

As usual, Director David Paylor offered a candid and informative presentation on the hot-button topics of gas pipelines, coal ash and environmental justice. This provided a nice segue into an update on (Governor Northam’s) Executive Order No. 06. This order directs the DEQ to review operations and regulations, and, in general, determine resource needs and how to improve communications.

Dave shared his observations regarding how much the world has changed, particularly how quickly information is made available to the general public and how important it is to get out in front of a story. To that end, the DEQ is moving forward to update its website and developing strategies to provide important information to the public in a timely manner. With respect to environmental justice, Dave reported that this topic has been gaining attention and in response, the DEQ has hired a consultant to better understand what is being done in other states and at the federal level.

Throughout his presentation, Dave reflected on and reiterated the DEQ’s commitment to its core values, which are rooted in facts, science and the law.

Dave concluded by discussing the Chesapeake Bay TMDL WIP 3 document, conceding that the math to achieve compliance by 2025 is daunting, also adding that ‘everything, everywhere by everybody’ may not achieve Bay TMDL goals. Dave recognized the significant reductions in total nitrogen and total phosphorus made by point source discharges; however, he also expressed concern that over achievement in this area will be further leveraged to meet overall Bay TMDL targets.

**BIOSOLIDS MANAGEMENT EXTENDED WET WEATHER CONDITIONS**

Neil Zahradka’s presentation, Biosolids Management Extended Wet Weather Conditions 2018-2019, included a brief history of land application volume, which showed a considerable decrease in wet tons applies/year beginning in 2015. This drop in volume coincides with Blue Plains (DC Water) conversion to Thermal Hydrolysis Process (THP) technology, which produces Exceptional Quality biosolids.

In addition to the recent downward trend due to THP at Blue Plains, Neil explained a significant drop in CY 2018 due to the extremely wet weather, which prohibited land application statewide during much of the year.

Several statistics were presented regarding the rainfall in 2018 – nine east coast states recorded their wettest year, including Virginia. Besides substantial quantities of rain, it also rained on many days. Lexington, VA had measurable rain on 157 days during 2018. The high rainfall made land application very difficult. Virtually all storage pads reached their design capacity. Neal did not have values for the amount of sludge incinerated or land applied; however, he noted landfills – which historically provided relief when land application is not possible – are ‘increasingly more reluctant to accept biosolids’ due to odor concerns.

In response to these issues, DEQ staff and biosolids industry officials worked together to assist generators and land appliers to provide some flexibility regarding short-term storage, extended staging, consideration of variance requests and enforcement discretion.

**DEQ WATER PERMITTING DIVISION ACTIVITIES**

Melanie Davenport provided an update on DEQ Water Permitting Division activities. She first listed a number of general permits, which were either issued or under development. The Industrial Stormwater, Small MS4 and Construction General Permits may all be of interest to VWEA members.

Several regulatory actions are also of interest; these include Certification of Nonpoint Source Nutrient Credits, Erosion and Stormwater Program, and Distribution and Marketing of Exceptional Quality Biosolids. The state legislature directed SWCB to remove the phrase ‘not to exceed the term of the permit’ from construction schedules in VPDES permits. In the future, the schedule ‘may allow a reasonable period of time’.

The Permitting Division is also working on several guidance documents, electronic reporting requirements and bringing Virginia into alignment with federal changes affecting wetland and stream permitting.

**WATER QUALITY STANDARDS AND TOTAL MAXIMUM DAILY LOADS PROGRAMS**

Jutta Schneider provided updates on the Water Quality Standards (WQS) and Total Maximum Daily Loads (TMDL) programs.
The long-anticipated James River Chlorophyll A TMDL Criteria is nearing completion with the Governor’s Executive Review being completed on August 26, 2019. The criteria were published for 30-day public review on September 16, 2019, after which, they will be submitted to the EPA for final review.

Regarding the WQS Program, Jutta shared that follow-up actions from the last triennial review are close to completion. These include actions on bacteria, cadmium, and 94 human health criteria. These were submitted to the EPA for review and approval on August 14, 2019. The new freshwater ammonia criteria are currently undergoing executive (branch) review.

Work continues on TMDL development. By far the greatest numbers of local TMDLs address bacteria (68 percent of all TMDLs). The next highest categories are sediment (13 percent); nutrients (10 percent) and toxics (six percent of all TMDLs).

Jutta described an interesting case study, which involved a large number of stakeholders developing a Salt Management Strategy (SaMS) on the Accotink Creek. Stakeholders ranged from large institutions such as VDOT, Fairfax and Prince William Counties and Virginia Department of Health to local homeowner associations. The stakeholders were listed in nine different broad categories, including government agencies, public safety agencies, environmental groups, and property owners. The SaMS project started with its first public meeting in January 2018. The effort is expected to be finalized by the end of 2020.

PHASE 3 WATERSHED IMPLEMENTATION PLAN

Schneider and Davenport shared the duty of making the final DEQ presentation on the Chesapeake Bay TMDL (nitrogen, phosphorus and sediment) Phase 3 Watershed Implementation Plan (WIP III). The WIP III is Virginia’s plan to comply with the Chesapeake Bay TMDL.

While Virginia appears to be in good shape with regard to meeting early (WIP) nutrient targets, the opportunities for further improvement to meet the 2025 targets are very difficult. Accounting for additional growth in the state and tackling the impacts of climate change further complicate the development of WIP III. The effort can generally be broken down into three main areas: agriculture, urban, and wastewater.

The major agricultural focus will be centered on providing Best Management Plan (BMP) cost share funds. Additional Nutrient Management Plans and Livestock Stream Exclusions may be required if 2025 goals are unmet.

Most of the effort in the urban and suburban areas will focus on the MS4 program. The primary state partner will be the local Planning District Commissions (PDC). The Department of Forestry will also assist with tree canopy and buffer restoration.

The most controversial part of the WIP III is Virginia’s plan to amend the Water Quality Management Planning Regulation to add new secondary ‘floating waste load allocations’. The floating WLAs would be based on nutrient concentrations of 4 mg/l TN and 0.3 mg/l TP (for those not already there) at the current year’s actual flow. The current WLAs, now called primary WLAs, are based on nutrient concentrations of 4 mg/l TN and 0.3 mg/l TP annual concentration limitations. It is not clear at this time how all this will work out, however, the DEQ will be engaging stakeholders to assist in figuring this out.

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VIRGINIA BEACH
PUTS ITS TAP WATER TO THE TEST

Can you tell the difference between tap water and bottled water? On Sunday, September 8, 2019, Virginia Beach Public Utilities participated in the WaterJAM Taste Test, where visitors of the Virginia Beach Boardwalk put their taste buds to the test to determine which they preferred. The final results: 49 people preferred tap water, 55 people preferred bottled water, and 23 people had no preference between the two. While the results showed that there is no noticeable difference in taste, there is a huge difference in the cost and trash impact!

The WaterJAM Taste Test is a kick-off event to the Joint Annual Meeting of the Virginia Section of the American Water Works Association and the Virginia Water Environment Association. Each year, WaterJAM provides numerous professional growth opportunities for hundreds of water industry professionals from the Mid-Atlantic region and beyond.

WATERJAM 2019 SILENT AUCTION SUMMARY

As part of WaterJAM 2019, the Water Reach Joint Committee of the Virginia Section of the American Water Works Association (VA AWWA) and the Virginia Water Environment Association (VWEA) held their Annual Silent Auction on September 10 in the Exhibit Hall.

This year’s auction raised almost $1,000 to support the mission of the Water Reach Committee and ensure safe drinking water and proper sanitation to small system communities throughout Virginia. We want to thank all those who donated to and participated in the auction. Winners came away with some great items and services that represent Virginia well.

Our committee volunteers include utility directors, engineers, operators, groundwater specialists, permit specialists, professors, students and others who are dedicated to this mission.

If you are interested in joining the Water Reach Committee, please contact our new Chair, Scott Shirley, at Scott.Shirley@westernvawater.org, or call 540-283-8270.

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The 5K Water For People Fun Run was the largest – and the longest – JAM fun run yet. A total of 51 runners registered for the race and several more walk-ups joined in the fun at King Neptune on the Virginia Beach boardwalk. The scenic sunrise event was 3.3 miles long due to a planning glitch, which resulted in the runners having a bit of a longer trek. Despite this minor change, the weather was beautiful and the runners were good spirited about the extra exercise.

For the second year in a row, Alayna Bigalbal (Kimley-Horn) finished first overall and Mark Titcomb (Newport News WW) was a close second. Both took home $25 Running Etc. gift certificates and ‘dehydrated water’ trophies. Two other runners were lucky raffle winners of the $50 Amazon gift cards. All of the runners that registered by the WaterJAM early registration deadline took home custom race technical shirts. Those that registered later were able to choose from vintage race shirts still available. All finishers also received finisher’s flags to display on their name badges for the conference.

The 5K Fun Run/Walk raised over $2,400 for Water For People. Water For People works to share the vision of a world where all people have access to clean water, adequate sanitation, and basic health services.

Water For People’s partnerships aim to develop innovative and long-lasting solutions to the water, sanitation and hygiene problems in developing nations around the world. The Virginia chapter of Water For People hosts many events throughout the year to promote awareness and work together towards a common goal of clean water for all.

The 2019 Water For People WaterJAM 5K Fun Run/Walk was made possible by volunteers Darrin Geldert (Loudoun Water), Dan Horne (VDH), Angie Weatherhead (HDR) and Jamie Bondurant (Hazen and Sawyer).

Thank you to all the volunteers, sponsors, and participants of this year’s 5K Fun Run. We couldn’t have done it without you! We look forward to seeing you at next year’s WaterJAM 5K in Hampton.

To learn more about Water For People, visit www.waterforpeople.org, or e-mail Jamie Bondurant at jbondurant@hazenandsawyer.com to learn more about the Virginia chapter activities.
Seventy-one VWEA and VA AWWA members participated in the WaterJAM 2019 Clay Shoot held at Old Forge Sporting Clays in Providence Forge on September 9. This is one of the finest sporting clays facilities in Virginia and we were once again treated to 100 challenging targets, delicious food, and an overall great time together.

Tencarva Machinery (Tom Thomas, Kevin Ritchie, Todd Ritchie, and Conner Rutten) grabbed the Team Champion honors. Combs & Associates, Inc. (Bryce Carter, Jordan Combs, Greg Everhart and Sergio Gomez) claimed 2nd place honors, moving up a slot from last year. The 3rd place team was Timmons Group (Wes Hunnius, David Saunders, Bruce Strickland, and Ken Turner).

Greg Everhart was the Shoot Champion with a score of 89. Kevin Ritchie claimed 2nd with a score of 87, while Bryce Carter was our 3rd place finisher, breaking 85 of 100 targets. Unlike golf, the highest score wins in sporting clays.

Everyone enjoyed a fine lunch of BBQ sandwiches and vegetable soup, followed by the awards ceremony. As always, each shooter went home with a door prize for participating.

Due to the generosity of our sponsors, we were able to include two grand prize drawings this year. Susan Hamilton was the lucky winner of a YETI Cooler and Quinton Nottingham took home a RTIC Cooler.

Thank you to our participants and sponsors for a successful and safe event. We are already making plans for next year at WaterJAM 2020 and hope you can join us for another great day of shooting.
Congratulations to the 2019 WaterJAM Digital Knowledge Competition (DKC) winners! The competition was open to students and Young Professionals. As part of the DKC, participants created short video submissions focused on messages related to the fields of water and wastewater. These videos were used to engage, educate, and interact with local and remote WaterJAM audiences. $500 was awarded to each first-place winner in the student and YP categories, and $250 was awarded to each second-place winner in the student and YP categories (along with bragging rights)!

**STUDENT ACTIVITIES COMMITTEE WINNERS**

1st Place: Mohammad Nayeb Yazdi, Runoff Quality Characterization From a Container Nursery – Virginia Tech

2nd Place: Yuan Pan, Bioelectrochemical Systems for Azo Dye Treatment – Student at Northeastern University (China), Visiting PhD student at Virginia Tech

**YOUNG PROFESSIONALS COMMITTEE WINNERS**

1st Place: Mehdi Ketabchy and Mohammad Nayeb Yazdi, Comparative Evaluation of HSPF and SWMM Model to Simulate Streamflow – Gannett Fleming

2nd Place: Andrew Cockram, Water Main Pipe Critically and Data Informed Risk Identification – Prince William County Service Authority

Special thanks to the judges who volunteered their time to support the students:

Andrew King – Fairfax County
Gary Schafran – Old Dominion University
Jennifer Walsh – Hazen and Sawyer

These innovative videos can be viewed on the WaterJAM Facebook page. Please contact Rebecca Currall (RHolgate@hazenandsawyer.com) for more details.

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**THE CONDUIT • vwea.org • FALL 2019**
One of the best parts of WaterJAM is the recognition of excellence in the water industry, and that includes the awarding of VWEA Scholarships. Throughout my term as the Chair of the Scholarship Committee, I have seen the number of applicants for each scholarship grow and the caliber of students and operators applying continue to improve.

For the Operator Short Scholarship, all of the applicants showed enthusiasm for being water professionals and a desire to continue development in their career to better their skills and knowledge as protectors of the environment and human health. The three winners of this scholarship communicated their understanding of the value of education and licensure.

The Member Dependent, Rising Freshman and Undergraduate scholarship applicants all showed great academic performance and many extracurricular activities focused on the environment. The essays written by the winners of these three scholarships all focused on timely issues related to the water environment.

There was an increase in the number of applicants for the Sonny Roden Scholarship at the graduate student level, and many of the applicants are quite active in VWEA, in student activities committees throughout the commonwealth, other committees, and have presented at many conferences. The winner of this scholarship has a strong future as an engineer in the water industry and has already proven himself to be a dedicated VWEA member.

THE 2019 SCHOLARSHIP WINNERS ARE AS FOLLOWS

- Operator Short School: Lacy Burnette, Western Virginia Water Authority
- Alex Summers, City of Abingdon
- Matthew Stinson, Chesterfield County
- Undergraduate: Christopher Kelly, Old Dominion University
- Rising Freshman: Isabel Hendrix, Virginia Tech
- Sonny Roden: Yewei Sun, Virginia Tech

Allison Lee (Hazen and Sawyer), the new Scholarship Committee Chair and I greatly appreciate those of you who volunteered to score scholarship applications. Your investment in time facilitates the continued growth and success of this program. Most importantly, we would like to thank the VWEA corporate sponsors who continually support this program through their financial contributions, and committee participation.
Kayla Yingst and Pearl Ashitey volunteered to lead the Joint VA AWWA/VWEA Young Professionals Committee community service project for the 2019 WaterJAM Conference.

After looking at various organizations, which focus on water quality and education, Yingst and Ashitey decided to partner with the Virginia Aquarium and Marine Science Center. The Virginia Aquarium and Marine Science Center is committed to their conservation mission by supporting sustainable practices and earning various awards by doing so. In addition to volunteering at the aquarium, Yingst and Ashitey partnered with the City of Newport News and Virginia for a Green Initiative by securing a donation of reusable water bottles for the WaterJAM service project volunteers.

The community service project took place at the Aquarium on Monday, September 9, 2019 – the first day of the WaterJAM Conference. There were over 20 volunteers that helped to clean up multiple areas of the aquarium grounds including parking lots and boat ramps resulting in numerous pounds of waste collected. The group also helped with the aftermath of Hurricane Dorian by clearing fallen logs, branches, and debris along Owls Creek, which runs alongside the aquarium grounds. Volunteers cleared over 10 pick-up truckloads of fallen debris from the area, which was a big accomplishment for the team.

The Virginia Aquarium and Marine Science Center cleanup was a great way to kick-off WaterJAM. The Aquarium provided the volunteers with information about their different programs, including Conservation in Action, Stranding Response, and Sensible Seafood. The Aquarium welcomes volunteers and organizations to participate in multiple cleanups throughout the year.
We invite all our members to make the most of your membership by getting active in a committee. Our committees do a range of activities including:

- Planning the Joint Annual Meeting (WaterJAM)
- Planning and delivering educational seminars and workshops throughout the year
- Writing articles for the *The Conduit* and e-newsletter
- Volunteering for service projects that promote the enhancement of our water environment
- Promoting the growth of the industry by engaging youth of all ages
- And much more...

*Review the list below and join a committee today!*

### ADMINISTRATIVE COMMITTEES

<table>
<thead>
<tr>
<th>Committee</th>
<th>Description</th>
<th>Contact Info</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communications</strong></td>
<td>Solicits articles for and produces a quarterly magazine called “The Conduit,” which is the main communication tool for the VWEA membership at large. Committee also puts together the Annual VWEA Calendar and assists Association staff with social media, including evaluating data to improve engagement of members.</td>
<td>Sara Ferrance, <a href="mailto:sferrance@carollo.com">sferrance@carollo.com</a></td>
</tr>
<tr>
<td><strong>Continuing Education</strong></td>
<td>Meets the 3rd Wednesday of each month via conference call to review abstracts for VWEA education events to determine eligibility for CPEs.</td>
<td>Terry Legg, <a href="mailto:tlegg@wraltp.com">tlegg@wraltp.com</a></td>
</tr>
<tr>
<td><strong>Membership</strong></td>
<td>Actively strives to improve membership and committee involvement of new and old members.</td>
<td>Jewel Minor, <a href="mailto:jewel.minor@richmondgov.com">jewel.minor@richmondgov.com</a></td>
</tr>
<tr>
<td><strong>Strategic Planning</strong></td>
<td>The committee works to ensure VWEA has an active long-range and strategic plan and to measure progress toward meeting the goals of the Association’s plan.</td>
<td>Dana Hargrove, <a href="mailto:dhargrove@hazenandsawyer.com">dhargrove@hazenandsawyer.com</a></td>
</tr>
</tbody>
</table>

### EDUCATION/TRAINING COMMITTEES

<table>
<thead>
<tr>
<th>Committee</th>
<th>Description</th>
<th>Contact Info</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual Meeting – WaterJAM</strong></td>
<td>WaterJAM provides technical growth opportunities (including continuing education credits) covering the latest industrial trends as well as a variety of social and service endeavors for all attendees.</td>
<td>Peter Baskette, <a href="mailto:PBaskette@BrwnCald.com">PBaskette@BrwnCald.com</a> or Bryce Carter, <a href="mailto:brycecarter@combs-associates.com">brycecarter@combs-associates.com</a></td>
</tr>
<tr>
<td><strong>Collection Systems</strong></td>
<td>Strives to improve the quality of the operations and maintenance of wastewater collection and interceptor systems by improving professionalism, providing training, and the exchange of information and ideas.</td>
<td>Kyle Logue, <a href="mailto:klogue@brwncald.com">klogue@brwncald.com</a></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Organizes a one-day annual seminar in May for the specific purpose of educating VWEA members and others on cutting edge topics in the wastewater field.</td>
<td>David Parker, <a href="mailto:David.Parker@dewater.com">David.Parker@dewater.com</a></td>
</tr>
<tr>
<td><strong>Industrial Waste &amp; Pretreatment</strong></td>
<td>Members hold monthly conference calls to organize the Industrial Waste and Pretreatment Seminar and Annual Industrial Environmental Excellence Awards.</td>
<td>Beau Dodge, <a href="mailto:wrdodge@arlingtonva.us">wrdodge@arlingtonva.us</a></td>
</tr>
<tr>
<td><strong>Lab Practices</strong></td>
<td>Determines and addresses laboratory related concerns of the Association’s membership, promotes professionalism in laboratory practices, and sponsors an annual seminar on laboratory methodologies and requirements as well as a workshop at WaterJAM.</td>
<td>Mike Mueller, <a href="mailto:michael.mueller@fairfaxcounty.gov">michael.mueller@fairfaxcounty.gov</a></td>
</tr>
<tr>
<td><strong>Leadership Academy</strong></td>
<td>Develops a year-long program on leadership topics including moral and ethical leadership, emotional intelligence, people skills, project management, and more.</td>
<td>Michele Siminari, <a href="mailto:msiminari@fairfaxwater.org">msiminari@fairfaxwater.org</a></td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td>Offers annual educational conference/event focused on Plant Operations, Maintenance, and other associated staff and develops regional plans to offer single day training events / activities.</td>
<td>Jeff Coyne, <a href="mailto:jcoyne@hazenandsawyer.com">jcoyne@hazenandsawyer.com</a></td>
</tr>
<tr>
<td><strong>Safety &amp; Security</strong></td>
<td>Develops and assists in conducting a safety program which keeps Association members and the public informed of safety issues in the water sector.</td>
<td>Deborah Harsh, <a href="mailto:HarshD@chesterfield.gov">HarshD@chesterfield.gov</a></td>
</tr>
<tr>
<td><strong>Stormwater</strong></td>
<td>Provides the VWEA membership with education about stormwater issues, regulations, and to serve as a forum for the exchange of knowledge and experience among stormwater professionals.</td>
<td>Benjamin Custalow, <a href="mailto:bcustalow@greeley-hansen.com">bcustalow@greeley-hansen.com</a></td>
</tr>
</tbody>
</table>
**Sustainable Utilities:** Leads the growth and advancement of sustainable practices in the utilities industry through communication and educational opportunities amongst VWEA and VA AWWA members.

**Contact:** Matthias Wittenberg, wittenbergm@cdmsmith.com

**Utility Management:** The committee’s purpose is to improve water and wastewater utility management in Virginia. We offer education for all association members on topics relevant to utility management through activities such as workshops and Water JAM presentations.

**Contact:** Paul Delphos, Paul.Delphos@aecom.com

**Water Reuse:** Collaborates on the regulatory, technological, and financial aspects of the water reuse industry, tracks developments, and helps educate the memberships of both VA AWWA and VWEA on the newest findings.

**Contact:** Liz Sitter, elizabeth.sitter@ghd.com

**OUTREACH COMMITTEES**

**Public & Government Affairs:** The Committee is responsible for tracking and reporting Federal and State legislation that may impact the wastewater industry in Virginia. The committee writes and submits articles for the Conduit regarding policy, legislation, and other topics. The Committee coordinates the Government Affairs session at WaterJAM each year.

**Contact:** James Grandstaff, gra@henrico.us

**Scholarship:** Awards scholarships for students at Virginia institutions studying civil or environmental engineering, physical or environmental sciences, or wastewater treatment plant courses in pursuit of an operator’s license.

**Contact:** Allison Lee, alee@hazenandsawyer.com

**Student Activities:** Enhances students’ knowledge of the water environment and encourages student membership and participation in VWEA and VA AWWA activities.

**Contact:** Shirley Luu Smith, SLSmith@hazenandsawyer.com

**Water for People:** Helps people in developing countries improve quality of life by supporting the development of locally sustainable drinking water resources, sanitation facilities, and hygiene education programs.

**Contact:** Jamie Bondurant, jbondurant@hazenandsawyer.com

**Water Reach:** Its mission is to ensure safe drinking water and proper sanitation to communities throughout Virginia.

**Contact:** Joseph Brown, jbrown@sercap.org

**Work for Water:** Enhances the visibility and image of a career in the water and wastewater industries.

**Contact:** Steven Turner, stturner@gfnet.com

**WARN:** Provides a method whereby Virginia water and wastewater utilities that have sustained damages from natural or manmade events could obtain emergency assistance as necessary from other water and wastewater utilities.

**Contact:** Kenneth “IKE” Eisenhart, Ike.Eisenhart@IronHart-Consulting.com

**SPECIAL INTEREST COMMITTEES**

**Information Technology:** Promotes the use and integration of information technology within the wastewater and water industries. Identifies technology needs of organizations and provides resources to assist with implementation.

**Contact:** Josh Gelman, gelmanjl@cdmsmith.com

**Manufacturers & Reps:** Provides VWEA and VA AWWA the resources of manufacturer and representative members for training programs, planning and implementation of the exhibit programs at the Annual Meeting and seminars.

**Contact:** Matt Harrison, harrison.m@sherwoodlogan.com

**Operation Challenge:** Plans the annual competition, giving Virginia’s operational professionals an avenue to cultivate new skills or hone current ones. Ensures teams have the tools they need to represent Virginia admirably at WEFTEC.

**Contact:** Lee Heath, lheath@hrsd.com

**Regional Activities:** Fosters networking, education, environmental stewardship, and social activities for VWEA in various regions across the state.

**Contact:** Northern VA: Will Schafer, Will.Schafer@kimley-horn.com, Central VA: Olivia Langford, olangford@brokenbrough.com, Eastern VA: Jennifer Klages, jklages@rkk.com, Southwest: Santa Moore, smoore@abingdon-va.gov

**Young Professional:** Works to encourage active participation of the younger members of VWEA and VA AWWA.

**Contact:** Bruce Strickland, bruce.strickland@timmons.com
As we close out 2019, it is an opportune time to reflect on the successful events of the VWEA and VA AWWA Central Virginia Young Professionals Committee (CVYP) over the last year. Across the Commonwealth of Virginia, the Young Professionals (YP) Committee supports a variety of networking, social, and professional activities for YPs to build their careers.

The CVYP sponsored a series of successful activities during 2019. In June, the James River Belle Isle Riverbank Planting event occurred. Dozens of saplings were planted to protect the shores of the popular park from soil erosion and deterioration, ensuring enjoyment of the park by future generations.

In August, the first YP Instructional Clay Shoot was held at Conservation Park, where YPs learned the skill of clay shooting, including proper firearm safety. A number of YPs would later put this training to good use at WaterJAM’s Annual Clay Shoot networking event.

Events held in 2019 are summarized in the following table, including an upcoming networking event in October/November. Be on the lookout for upcoming announcements of future events. Be sure to encourage YPs in your organization to get involved with the Committee. Let’s finish the year strong!

For additional information about these activities, or to join the Central VA YP Committee, please contact Brandon Cooper (bcooper@greeley-hansen.com).

See you all soon!

### CENTRAL VIRGINIA YP COMMITTEE UPDATE AND 2019 CLOSEOUT

#### 2019 CENTRAL VIRGINIA ACTIVITIES

<table>
<thead>
<tr>
<th>Month</th>
<th>Event</th>
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<tbody>
<tr>
<td>January 2019</td>
<td>RVA on Ice at 17th Street Market and Afterhours</td>
</tr>
<tr>
<td>May 2019</td>
<td>Networking Social – Julep’s</td>
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<tr>
<td>June 2019</td>
<td>2nd Annual Belle Isle Riverbank Tree Planting Event</td>
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<tr>
<td>June 2019</td>
<td>Magnolia Green EWST Site Visit and Afterhours</td>
</tr>
<tr>
<td>August 2019</td>
<td>Networking 101 – Instructional Clay Shoot</td>
</tr>
<tr>
<td>September 2019</td>
<td>WaterJAM – YP Booth, Expo Hall Activity, YP Workshop, Poster Contest</td>
</tr>
<tr>
<td>October 2019</td>
<td>Networking Social</td>
</tr>
</tbody>
</table>

James River Belle Isle Riverbank Tree Planting activity

Magnolia Green Water Tower site visit

Testing out those clay-shooting skills
PCB Minimization Plans (PMPs), PFAS/PFOS, pharmaceuticals, and ‘smart’ sewer technology are just a few of the ‘hot’ pretreatment topics that will be presented at the 36th Annual Industrial Waste & Pretreatment Conference, at the Omni Hotel in Charlottesville on March 2-3, 2020.

Come join us for the workshop and technical sessions to learn the latest trends in treating industrial waste, pretreatment program elements, and regulatory updates from the U.S.E.P.A., the Department of Environmental Quality, and a legal firm. The final agenda and registration information will be available on the VWEA website in January 2020. Registered attendees can earn wastewater operator and/or professional engineering continuing education credits.

As usual, our exhibitors are always the highlight of the conference – bringing industry experience, cutting-edge products, and providing unique opportunities for networking to take place with like-minded professionals. Bring your questions and challenges, as most likely somebody in attendance has dealt with that same issue.

The Industrial Waste & Pretreatment committee is always on the lookout for pretreatment professionals that are interested in addressing the issues and needs of our unique community.

If you are interested in serving on our committee, please contact Beau Dodge at 703-228-6881, or by email to: wrdodge@arlingtonva.us.

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Another Great Year-In Review
Submitted by Matthias Wittenberg

The VA AWWA/VWEA Sustainable Utilities Committee had another great year, with notable successes that include: achieving five straight years of certification for WaterJAM as a Virginia Green event, organizing a workshop titled What Does it Mean to be a Sustainable Utility? at WaterJAM, hosting a webinar on Managing Nonnative Invasive Plants, promoting the Sustainable Event Checklist beyond state lines, and touring the HRSD SWIFT facility.

The Virginia Beach Convention Center provided:
• Recycling receptacles throughout the venue
• Reusable water bottle filling stations
• Bulk packaging of condiments, where applicable
• Restroom paper products were made from recycled paper
• Donation or composting of food waste

This year there were 15 recipients of the Tidy Otter Exhibitor Award, in acknowledgement of their efforts in sustainability. The exhibitors who met the award requirements and contributed to the green event include:

Five Consecutive Years of Receiving the Award:
• Gannet Fleming
• The Perkinson Co.
• Wendel

Four Consecutive Years of Receiving the Award:
• OBG, Part of Ramboll

Through continued focus on sustainability and reducing the conference’s net environmental impact, the 2019 WaterJAM Conference was certified as a Virginia Green event, for the fifth year in a row! The 2019 WaterJAM Planning Committee continued its partnering with the Sustainable Utilities Committee to make this initiative a success.

Items incorporated into WaterJAM that supported the certification included:
• A user-friendly WaterJAM App that reduced the number of printed planners
• On-line registration
• Use of recycled paper products throughout the conference to include the planner and board inserts
• Use of water or soy-based ink in printed materials
• Conference boards are designed for reuse each year
• Conference attendees were encouraged to turn in the lanyards and plastic name tag holders at the end of the conference, for reuse at future conferences

The Virginia Beach Convention Center provided:
• Recycling receptacles throughout the venue
• Reusable water bottle filling stations
• Bulk packaging of condiments, where applicable
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Five Consecutive Years of Receiving the Award:
• Gannet Fleming
• The Perkinson Co.
• Wendel

Four Consecutive Years of Receiving the Award:
• OBG, Part of Ramboll
Two Years of Receiving the Award:
• CPower Energy Management
• Whitman, Requardt & Assoc., LLP

First-Time Awardees:
• Avista Technologies, Inc. (first time awardee)
• Balfour Beatty Infrastructure, Inc.
• Brown and Caldwell
• Clark Nexsen
• Garney Construction
• Haskell
• JMT
• Vand Solutions LLC
• Wood Equipment Company

The committee would like to offer a huge thank you to these exhibitors for their participation and for reducing their impact on the environment! We hope to get the momentum going and would like to see even more exhibitors participate in this effort in upcoming conferences.

As part of the WaterJAM conference, the VWEA/VA AWWA Sustainability Committee hosted speakers from AlexRenew, Loudoun Water, HRSD, the City of Norfolk and the Western Virginia Water Authority during a well-attended workshop titled What Does it Mean to be a Sustainable Utility. The September 9, 2019 workshop provided fresh perspectives on sustainable practices within Virginia’s utilities and municipalities, and new ideas for participants to take back to
their organizations. The Sustainable Utilities Committee hopes to provide members with more information about sustainable practices for water utilities through a future article about this workshop in this magazine and a follow-up webinar with additional speakers in 2020.

On May 8, 2019, the VWEA/VA AWWA Sustainability Committee organized a webinar with the Blue Ridge Partnership for Regional Invasive Species Management (PRISM). The topic was: How to manage invasive nonnative plants on properties, sites, roadways, and all of the other places where they show up and try to take over.

The webinar was presented by Rod and Maggie Walker, Blue Ridge PRISM’s founders, and answered questions and discussed topics on:
- Why non-native invasive plants are a problem
- How to get started in managing them
- What practices and tools are best to use
- Which of the different techniques are best used at which time of year

If you have questions, please contact Rod and Maggie directly via email at: rwalker@alum.mit.edu.

With the success and experience in making WaterJAM a sustainable event, the committee developed a checklist to be provided to other committees for use in the wide range of event planning: anything from community outreach, to golf tournaments, tours, or lunch and learns; all the way up to full scale conferences. The committee presented the checklist at association leadership training and other events and worked to have it featured as an example for sustainable stewardship in the AWWA Connections e-newsletter. Check out this article on the AWWA website and download the checklist from the VWEA or VA AWWA website to be sure to use it in your event planning at work!

On June 14, 2019, the Sustainable Utilities Committee met at the HRSD SWIFT Research Center in Suffolk, VA. Following a committee meeting, those in attendance received a behind the scenes tour of this facility that replenishes the Potomac Aquifer with up to one million gallons of drinking water quality SWIFT Water daily. SWIFT is a water treatment project that aims to take highly treated water that would otherwise be discharged into the Elizabeth, James or York rivers and puts it through additional rounds of advanced water treatment to meet drinking water quality standards. The SWIFT Water is then added to the Potomac Aquifer, the primary source of groundwater throughout eastern Virginia. With a focus on sustainability, the SWIFT Research Center, the first pilot facility for this innovative project, was designed with the Sustainable Infrastructure’s Envision rating system in mind. Envision scoring indicated that a Platinum level award could be achieved with the current design. HRSD ultimately elected not to pursue the award, but the scoring results validated the facilities design as a highly sustainable project. The Sustainable Utilities Committee hopes to provide future educational opportunities on the Envision rating system to VA AWWA and VWEA members.

The Sustainable Utilities Committee is looking forward to another great year of finding ways to advance sustainable practices in the utilities industry through communication and educational opportunities amongst VA AWWA and VWEA members and Virginia water professionals. If you are interested in joining the Sustainable Utilities Committee, please contact our newest chair, Andrew Casolini Dal Bo at acasolini@gmail.com.
May 2019 Webinar Discusses Managing Nonnative Invasive Plants

By Kathi Mestayer and Rod Walker

In May, the VWEA/VA AWWA Sustainability Committee organized a webinar by the Blue Ridge Partnership for Regional Invasive Species Management (PRISM). The topic revolved around managing invasive, nonnative plants on our properties, sites, roadways, and all of the other places where they show up and try to take over. Thanks to Rod and Maggie Walker, Blue Ridge PRISM’s founders, for creating and presenting the webinar! It was a real eye-opener.

This article is a brief summary of what the webinar covered, as well as other resources. If you would like to watch it yourself, the quick, 60-minute presentation, including both the PowerPoint slides and audio narration is available on VWEA’s GoToWebinar site: https://register.gotowebinar.com/recording/808150245471281409

Blue Ridge PRISM is supported by the Shenandoah National Park Trust, a 501c3 nonprofit. It was the first Cooperative Weed Management Area (CWMA) in Virginia, out of almost 100 CWMAs nationwide, mostly in the west. So far, the Blue Ridge PRISM works closely with Virginia DOT, US Forest Service, Virginia Department of Forestry, Virginia Cooperative Extension, and many others. Their website is here: https://blueridgeprism.org.

Blue Ridge PRISM’s area covers close to three million acres in 10 counties, including the entirety of the Shenandoah National Park. A large footprint, and a very large mission!

It is dedicated to reducing the negative impact of nonnative invasive plants on the health of the natural and agricultural environment in the Blue Ridge Mountains.

Quick Summary of Webinar Topics

The webinar covered a lot of ground at a brisk pace (similar to many nonnative invasive plants). Some of the topics discussed were:

- Why nonnative invasive species are a problem, and how they degrade ecosystems by swampng, stressing, smothering and poisoning the natural environment, ecosystems, food webs and habitats;
- How to get started in managing them… creating a plan, choosing targets/priorities/strategies (including ongoing monitoring), and making tough decisions, like where to start;
- Various practices, including hand-pulling, mowing, strategic and careful use of herbicides, and which practices work best for grasses, plants, vines, shrubs and trees;
- The tools of the trade, from brush cutters to heavy equipment such as bush hogs and forest mulchers, and what problems/sites each is best-suited for;
- The best time of year to use different techniques, e.g., killing trees and shrubs with herbicides is not as effective in the spring, when their sap is rising, making it hard to get the herbicide into the roots. And killing Japanese stilt grass and garlic mustard is most effective in the spring, before they have gone to seed.

Keeping the Momentum Going

Rod and Maggie continue to work hard on spreading the word, by connecting the Blue Ridge PRISM with other organizations. You can see a list of their upcoming workshops on the Blue Ridge Prism website. And under Factsheets, there is a wealth of information on the specifics of dealing with specific plants, as well as the story of Rod and Maggie’s war with the weeds on their own property.
A Related VWEA/VA AWWA Event
On June 9, 2019, the VWEA/VA AWWA Stormwater, Young Professionals, and Regional Activities Committees, along with the Richmond Tree Stewards and the City of Richmond’s Department of Public Utilities RVA H2O initiative (www.rvah2o.org) had an event at Belle Isle to help stabilize the slopes and prevent erosion by planting black locust trees. They also removed English ivy and Elaeagnus (Autumn olive trees), both nonnative invasive plants, which were discussed in the PRISM webinar. https://cdn.ymaws.com/vwea.site-ym.com/resource/resmgr/events/2019/yp/2019_belle_isle_planting_eve.pdf.

Related organizations include the Northern Virginia (NOVA) PRISM, the National Capitol Region PRISM, and the James River Association in Richmond.

The Last Word
Rod and Maggie offered to be resources for utilities about identifying, prioritizing, and managing nonnative invasive plants on their sites and right of ways. If you have questions, please contact them directly via email at: rwalker@alum.mit.edu.

They are usually running around like a couple of long-tailed cats in a roomful of rocking chairs, so it might take a couple of days to receive a reply.

If you have any questions about the Sustainable Utilities Committee, or want to get involved, please contact the committee chair, Dr. Matthias Wittenberg at: wittenbergm@cdmsmith.com.

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A Little History

By Michael Mueller, LPC Chair

For those of you not familiar with the Laboratory Practices Committee, the LPC has been a joint VA AWWA/VWEA Committee since 1995. The committee was formed to identify and address laboratory-related concerns of the associations’ membership. Its mission includes the review of standards and practices, and serves to educate and promote professionalism in the water and wastewater community.

Committee Structure, Benefits and Meetings

The LPC membership – seasoned and novice, young and old – is represented by a variety of municipal wastewater and drinking water laboratories, commercial laboratories, regulatory agencies, and vendors. The LPC provides a professional, friendly and relaxed venue where members can network, share information, and collaborate on important issues.

LPC meetings are held throughout the year for discussions, subcommittee projects, and technical presentations (which include lunch). Items of interest include regulatory concerns, state laboratory accreditation/certification, methods and technologies, sustainability, quality assurance requirements, and management issues. LPC meetings are typically structured to contain time for both subcommittee and full committee discussions with subcommittee meetings starting at 10 a.m. and the full committee meetings starting at 11 a.m.

“The LPC exemplifies the meaning of teamwork through its subcommittees and projects. Each year, LPC subcommittees work to create the annual Good Laboratory Practices.”

Notable Annual Events

The LPC exemplifies the meaning of teamwork through its subcommittees and projects. Each year, LPC subcommittees work to create the annual Good Laboratory Practices (GLP) Conference to address current issues faced by the environmental laboratory community. This event consists of several half-day workshops and a technical program with vendor exhibits, and presents the opportunity to earn CPEs for wastewater/water operators and CECs.

Hands-on workshops are included to provide practical training, which analysts can use in their daily activities. These workshops are designed to address the analytical concerns of both operators and analysts. Technical session topics range from specific analytical issues to laboratory management interests. Each year, LPC subcommittees also work to create workshops and presentations for the VA AWWA – VWEA Joint Annual Meeting (JAM). Information on these worthwhile events, as well as organizational contact information, can be found on the VWEA and VA AWWA websites.

LPC Members in Action

Besides the committee activities previously mentioned, LPC members participate in many other aspects of VWEA and AWWA. They are also engaged in several state and national activities and/or organizations, either through membership and/or representation. Member participation in VWEA and AWWA and other organizations, industry activities, and events include, but is not limited to:

- Board of Directors for both VA AWWA and VWEA
- Various committees for JAM (Joint Annual Meeting of VA AWWA and VWEA)
- National WEF LPC
- DEQ Laboratory Stakeholders Workgroup
- The ad hoc Committee for VA’s Development of Rules and Regulations for Environmental Laboratory Certification
- ASTM Committee D19 for water
- NELAC Institute Proficiency Testing Committee
- Coordinator and Judges for the State and National Operation Challenge Laboratory Event sponsored by VWEA and WEF
- Detection and Quantitation stakeholder workgroup
- NACWA Mercury workgroup (National Association of Clean Water Agencies)
- Science fair judges on the middle school and high school levels
- EPA Method Development Studies

With the ever-changing regulatory concerns and workforce economics, we encourage everyone interested in the LPC to join and participate. There is great value in what can be gained from the vast amount of knowledge and experience shared among members.

For further information on how to be a part of this amazing committee, please contact Michael Mueller at michael.mueller@fairfaxcounty.gov.

Good Lab Practices Conference attendees learning about new technology in the conference exhibits hall.
VA AWWA/VWEA Lab Practices Committee
Seeks Candidates for the 2020

LAB ANALYST
EXCELLENCE AWARD

One of the best ways to acknowledge an exceptional performer is by nominating them for an award. For lab folks, VA AWWA/VWEA offers the Lab Analyst Excellence Award. Eligibility and criteria requirements for the award are summarized below.

VA AWWA/VWEA Lab Analyst Excellence Award

ELIGIBILITY
- MEMBERSHIP - The candidate does not have to be a member of the Water Environment Federation at the time of nomination. The association will award a membership to the winner if the awardee is not a current member.
- EMPLOYMENT - The candidate must be employed at an industrial, commercial, or municipal laboratory facility, which conducts water and wastewater analyses.
- RESPONSIBILITIES - The candidate must have direct responsibilities for analytical bench testing and/or field-testing of water or wastewater samples.
- RECOGNITION - Only those who have not been recognized by this award before are eligible. Non-winning nominees may be nominated again. One nominee per facility per year.

CRITERIA
- INITIATIVE - The nominee must have shown initiative in pursuing innovative bench or field technique improvements.
- PERFORMANCE
  - The nominee must have performed duties consistently as outlined by laboratory or field-sampling/analytical methods.
  - The nominee’s performance must demonstrate a commitment to high quality control standards.
  - The nominee must be conscientious about laboratory or field safety requirements.
- ABILITY - The nominee’s abilities must include problem solving.
- PERSPECTIVE - The nominee’s perspective should be dutiful and conscientious.
- PERSONAL DEVELOPMENT - The nominee’s actions should demonstrate a commitment to professional development, e.g., by maintaining active membership in professional associations and/or through continuing education.

The deadline for nomination packages is February 14, 2020. It’s never too early to nominate. So don’t let this recognition opportunity pass you by.

For more information and nomination forms, please contact:

Lea Brooks
Chesterfield County, Proctors Creek WWTP | 1200 Coxendale Road, Chester, VA, 23836
Phone: 804-768-7351 | Fax: (804) 748-4692 | Email: brooksdll@chesterfield.gov
Call for Papers and Workshops

26th ANNUAL GOOD LABORATORY PRACTICE TECHNICAL CONFERENCE 2020

Sponsored by VA AWWA/VWEA Laboratory Practice Committee

The Laboratory Practice Committee hereby invites the submission of abstracts for papers and workshops for the 26th Annual Good Laboratory Practice (GLP) Conference, to be held in Charlottesville, Virginia on July 27 and 28, 2020 at the Omni Charlottesville Hotel. This conference is designed to provide the latest information on major issues such as analytical method updates and development, laboratory accreditation, regulatory updates, particularly those impacting laboratory staff and utilities; and emerging technologies and analytical instrumentation. This is a great opportunity to present new information related to water and wastewater issues. Workshops will be held on July 27, and the technical presentations will be given on July 28.

We encourage you to submit an abstract and participate in discussions, which are important to the advancement of our laboratory professionals. Conference topics may include, but are not limited to the following:

- Natural Water Monitoring
- Environmental Research
- Treatment Plant Monitoring
- Drinking Water Distribution
- Bacteriological Techniques
- Drinking Water Disinfection
- Laboratory Accreditation
- Laboratory Management
- Security Issues
- Water and Wastewater Analytical Methods
- LIMS, Laboratory software Applications
- Laboratory Practices
- Laboratory Ethics
- QA/QC Issues
- Regulatory Issues
- Emerging Instrumental Technology
- Analytical Instrument Troubleshooting
- Nutrient Screening Methods

Abstract and Paper submissions for technical presentation:
Submit a 300-word or less abstract, which lists the title, author(s), affiliation, phone number, and email address. Morning session presentations are 40 minutes. Afternoon technical session presentations are 25 minutes with a five-minute Q&A.

Workshop Proposal submission:
Submit a one-page workshop outline, which includes information on the subject matter and name(s), affiliation, email address, and phone number of workshop instructors. Workshops are three-hour-long sessions.

Deadline for Presentations and Workshops is February 14, 2020.

To submit your technical presentations and workshop proposals, or further information, contact:
Alicia Connelly
Lab Manager, Newport News Shipbuilding
alicia.a.connelly@hii-nns.com
In 2018, the VWEA Board identified the six main goals for the updated Strategic Plan (2018-2023) to be championed by a member of the board and assisted by two mentors.

1. Leadership and Advocacy – President
2. Membership Value – YP Representative
3. Education and Training – Vice President
4. Collaboration and Outreach – PWO Representative
5. Technology Optimization – Association Representative
6. Organizational Stewardship – President-Elect

At every VWEA Board meeting, the Champion of each Strategic Planning objective provides an update regarding the progress on the one to three objectives outlined under each goal in the VWEA Strategic Plan Blueprint. Objectives under each goal were determined by their impact to the success of the goal over the next five years.

Next, each objective was assigned an action plan comprised of specific tasks. These specific tasks have measurable results within execution timelines attainable using available resources. The accomplishments for each goal are then summarized and presented to the membership annually.
The YP Representative focused on enhancing and communicating VWEA value to a diverse membership in order to grow and retain membership. This was accomplished through the optimization of communication channels. Currently, we are overloaded daily with email communications, making it an inefficient way to distribute news, events, and opportunities to members.

By changing the ways we choose to distribute information, we hope to better engage and maintain our membership. Two ways in which this was accomplished was providing a direct avenue for committees to post to social media and through the development of the VWEA Widget. The VWEA Widget launched at WaterJAM 2019.

The President aimed to increase participation in state board meetings. This effort allows for the compilation and distribution of meeting minutes and information to membership in an accessible, concise manner. In this way, our membership can remain in the know and access this information via the website, the new VWEA widget, and the Conduit. James Grandstaff was appointed to the VDH Sewage Handling and Disposal Advisory Committee to begin assisting in this effort and representing VWEA.

The President is working to develop a Water Leadership annual meeting. Attendees from Virginia organizations with similar missions to VWEA (e.g. VA AWWA, Rural Water, etc.) will be selected and invited to share information, insights, lessons learned, and vision. Once established, we believe this will also lead to opportunities for joint educational events to spread our reach geographically, progressing our goal to become the community leader and authority on trends and issues in the water industry and promote awareness of public policies.

The Vice President focused on enhancing VWEA’s ability to distribute educational materials over multiple platforms and enhancing high-quality knowledge sharing this year. To progress these objectives, WaterTOC and VWEA Water Development Resource Online Program (WaterDROP) development were initiated.

WaterTOC is targeted at industry professionals who are unable to attend the WaterJAM event due to monetary, geographical, or other restrictions. The mission of WaterTOC is to provide networking opportunities for VWEA and VA AWWA members, provide opportunities to improve the collective knowledge, skills, and professional ethics through increasing educational opportunities, and provide additional opportunities for subject matter experts to share their knowledge. WaterTOC planning continues to progress with a target date of February 20, 2020 for the first official event.

WaterDROP is an online training platform, which provides member access to additional online training.

VWEA has initiated a conversation with WEF about partnering to develop online training programs, which can be piloted with VWEA and then replicated/used for other member associations. A draft request for proposals has also been developed for solicitation in Q4 2019 or Q1 2020. VWEA is also reaching out to other member associations regionally and across the US, which have training programs to understand what they are utilizing.

4. Collaboration and Outreach – PWO Representative

The PWO spent time this past year determining points of collaboration between many of the functions of VA AWWA and VWEA. Two groups targeted were the Continuing Education and Development (CED) and the AWWA Education Committees, and the Membership Committees for both organizations.

Merging CED and AWWA Ed Committees: VWEA’s CED has a primary objective to review abstracts/content and determine opportunities for offering educational credits. VA AWWA’s Education Committee is broader, including webinars and promoting operator training. However, there is an opportunity to develop a common form and process that both organizations could use to collaborate and improve the CPE review/approval, especially concerning topic areas, which are relevant to both the wastewater and water industries (i.e. utility management, safety, etc.). Combine the efforts of the VA AWWA and VWEA Membership Committees: AWWA and WEF parent organizations operate differently, making it inherently difficult to meet the membership requirements of both simultaneously. While the two committees will likely remain separate, the promotion of membership and involvement may align. Areas identified for collaboration include membership drives, networking events, etc.

5. Technology Optimization – Association Representative

The association representative worked to leverage technology to collaborate with other board members to provide technological support of other goals’ initiatives and to provide added value at existing events. Examples include the evaluation of Zoom software, which was selected and purchased in support of the WaterTOC initiative, an evaluation of carpooling applications that could be used at major conferences to provide sustainable alternatives to driving alone, and evaluations of education and training platforms to support WaterDROP training content.
6. Organizational Stewardship – President-Elect

The President-Elect focused on remaining the premier water quality association by promoting brand awareness and recognition and expanding educational reach. The Information Technology Committee successfully partnered with the Communications Committee to generate two promotional videos on VWEA and WaterJAM. The videos were used during conference events throughout the year during introductions as promotions for both VWEA and WaterJAM. Both videos are available on the VWEA Website via YouTube.

The expansion of education reach is targeted at three main levels: school-age (K-12) students, collegiate students, and industry professionals. The Student Activities Committee saw an increase in involvement at their events, particularly the VA AWWA Model Water Tower Challenge (MWTC) and the VWEA Student Design Competition (SDC). There are goals to expand the MWTC competition to Montgomery County in the short-term, and eventually Richmond in the long-term. The two winning SDC teams were sent to WEFTEC in Chicago, IL in September, and represented Virginia at the national level. Work for Water is planning more involvement in local middle and high schools by engaging in science fairs.

The WaterTOC initiatives within Goal 6 to expand educational reach for industry professionals may be found within Goal 3.

Next Steps

The next steps for the VWEA Strategic Planning Committee are to continue to work with the VWEA Board to execute its Action Plans to be implemented over the next one to two years for each goal and continue to report on the progress of the plan annually.

Please reach out to Kathy Rabalais (kathy.rabalais@vwea.org) or the Strategic Planning Committee (Ryan Nagel, rnagel@hazenandsawyer.com and Dana Hargrove, dhargrove@hazenandsawyer.com) with questions regarding the 2018-2023 VWEA Strategic Plan.
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## VISION
The Virginia Water Environment Association will preserve and enhance Virginia’s water environment, now and for future generations.

### MISSION
- Share & exchange water quality information and expertise among members, industry professionals, and the public
- Deliver high quality educational services and products to water quality professionals and colleagues
- Promote & advance the water quality industry through effective communication strategies
- Support the application of sound science
- Advance the knowledge and understanding of Virginia’s water environment

## GOAL 1. LEADERSHIP & ADVOCACY
Be the community leader, authority on trends and issues and promote awareness of public policies.

**LEAD — President**

## GOAL 2. MEMBERSHIP VALUE
Enhance opportunities for membership development and engagement.

**LEAD — YP Representative**

## GOAL 3. EDUCATION & TRAINING
Provide education and professional development opportunities for VWEA members, students, legislators, and other key stakeholders.

**LEAD — Vice President**

## GOAL 4. COLLABORATION & OUTREACH
Promote collaboration with other professional associations to outreach efforts.

**LEAD — PWO Representative**

## GOAL 5. TECHNOLOGY OPTIMIZATION
Leverage technology to streamline communications and amplify organizational efficiency.

**LEAD — Association Representative**

## GOAL 6. ORGANIZATIONAL STEWARDSHIP
Use resources to effectively and efficiently serve its members and unify the water community.

**LEAD — President-Elect**

---

**Strategic Planning Committee—Ryan Nagel, Ph: 757.818.9771, Hazen and Sawyer, Dana Hargrove, Ph: 804.545.5092, Hazen and Sawyer**
Member Spotlight

Each year the WVEA recruits, attracts, and adds new members to its ranks. Our diverse membership includes students, academics, and professionals (working and retired) from the public and private water industry and beyond. A list of recent member additions and their current affiliations (if known) are presented below. You can get to know a little more about our current membership by checking out the member bios included herein.

Name: CHRISTOPHER KELLY
Months with WVEA: 6 months
Company/Profession: U.S. Navy, previous Underwater Construction; will enter Civil Engineer Corps upon graduation
Years of Experience: 12 years in the Navy
Hometown: Schertz, TX

What kind of projects do you work on? I’m currently a student, but I previously worked on underwater repair of Naval facilities.

What drew you to join WVEA? The environmental class did.

What is your favorite thing to do outside of the office? Wrangle three kids, four years and under.

Savannah Moretz
Seth Poe
Theresa Marie Riel
Ellen Egen
Charles Burgis
Ryan Dunn
Rose Huynh
Ariel Sayre
David Flagg
Christopher Edwards
Stuart Wickham
Ellison Smith
Dorissa Pitts-Paige
Blake Hamilton
Efrain Lopez
Delphine Lambert
Wendy Ekenberry
Benjamin Slaughter
John Griggs
Kathryn O’Connell
Isabel Hendrix
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Ankita Adhvaryu
Katriel Simpson
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T.C. Sasser
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Thomas Key
Andrea Rodriguez-Figueroa
Neil Norris
Courtney Barrett
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Aaron Sutton
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Randall Clark
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Drew Ghiglieri
Giorgio Barchitta
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we prepare communities for 
tomorrow, today!
My first few minutes waiting in line at Starbucks were enough to prove that times are changing... fast. Local and national news organizations tell us tales of technologic advancement, the rise of artificial intelligence, and changing weather patterns.

As I watch the hive of activity behind the counter, I notice the continuous use of one thing that hasn’t changed.

Water.

The most universally required resource on the planet. Some organisms don’t need oxygen but one thing that they all need is water.

We need water. When I was a teenager, I remember the media foreshadowing overpopulation and impending water scarcity, that was 1987. The world had only reached around 5 billion in population and now the United Nations projects a water-hungry population of 8.6 billion by 2030, just 11 years from now!

SO, WHAT ABOUT WATER?

An innovative company in Santa Rosa, California has apparently been asking the same question. They’ve been in the municipal drinking water industry for three decades, manufacturing an elegantly simple secondary containment vessel for chlorine gas designed to process and prevent a chlorine gas release, protecting workers and surrounding communities from a serious health hazard.

TGO Technologies, the maker of the secondary containment vessel called ChlorTainer, began asking their customers and other industry experts in the waste and water treatment industries one simple question: What’s the most important investment we can make to protect the future of water?

TGO discovered something interesting and surprising. The overwhelming answer had nothing to do with water... but rather, the stewarding of our water.
AGING WORKFORCE WILL IMPACT PLANT MANAGEMENT

The collective knowledge hidden within our workforce is often viewed as the most valuable asset in the waste and water treatment industry. But the industry is going to experience a loss of these key knowledge holders, specifically, the plant management who guide the current and future direction. In fact, the 2018 Longer Working Careers Survey of 143 large U.S. employers revealed that while older employees are crucial for business success, 83% of employers, ‘have a significant number of employees at or nearing retirement.’ (Willis Towers Watson, 2018).

Plant managers look to innovative companies as they adapt to workforce changes. By providing simplified solutions and training, vendors and suppliers like TGO Technologies can become strategic partners to help plant managers shorten the learning curves in plant operations, as less experienced workers replace their retiring colleagues.

“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 secondary containment vessels, and the manufacturer’s training in their use, can help. Mike Holloway, the chief operator at Walnut Creek Special Utility District in Lake Bridgeport, TX, believes that equipment design is a crucial component to efficiently operating his water treatment facility.

Reflecting on his organizations use of TGO Technologies’ chlorine gas containment system, Mr. Holloway said that: “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.”

“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 four changeouts to learn it well.”

THE VALUE OF INDUSTRY SCHOLARSHIP COMMITMENTS

The American Water Works Association (AWWA) has recognized the importance of raising student awareness and interest in the Water Industry. By encouraging well-educated entrants into the water industry, robust AWWA scholarships range from $5,000 to $10,000 and are awarded to aspiring civil and environmental engineering students.

TGO Technologies is now partnering with the AWWA to support their engagement efforts, planting the intellectual “seeds” for the future of the water industry. TGO has contributed $5,000 in 2018 and is planning to double that investment in 2019. In fact, TGO has an ongoing commitment to invest a percentage of each installed ChlorTainer toward AWWA scholarships.

WHAT NEXT: HOW WE CAN HELP

If we agree that water is a crucial resource for our modern society, wouldn’t the stewards of our water benefit from the same entrepreneurial passion that currently drives our technological advancement?

What if water were the next oil? The management of this most crucial resource would command the same entrepreneurial passion that we see driving transformative technological advancements.

The communities and industries that depend on safe water, those that protect our water resources, may call upon us to develop comprehensive investments that combine innovation, creative problem solving, and educational engagement.

How can we engage youth in a meaningful way, igniting their natural curiosity, interest, and energy in this promising field?

As the knowledge holders, we have the ability to create paths leading the brightest minds to a promising, meaningful career in the water industry.
Improving quality of life

We’re passionate about what we do. In striving to have a positive influence on the communities we serve and the world around us, we can leave a lasting legacy. This is what improving quality of life means to us.

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<td>800-626-4653</td>
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<td>800-837-9779</td>
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<td>Harmsco Filtration Products</td>
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<td>Heyward Incorporated</td>
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<td>InfoSense, Inc.</td>
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<td>877-747-3245</td>
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<td>740-335-2019</td>
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