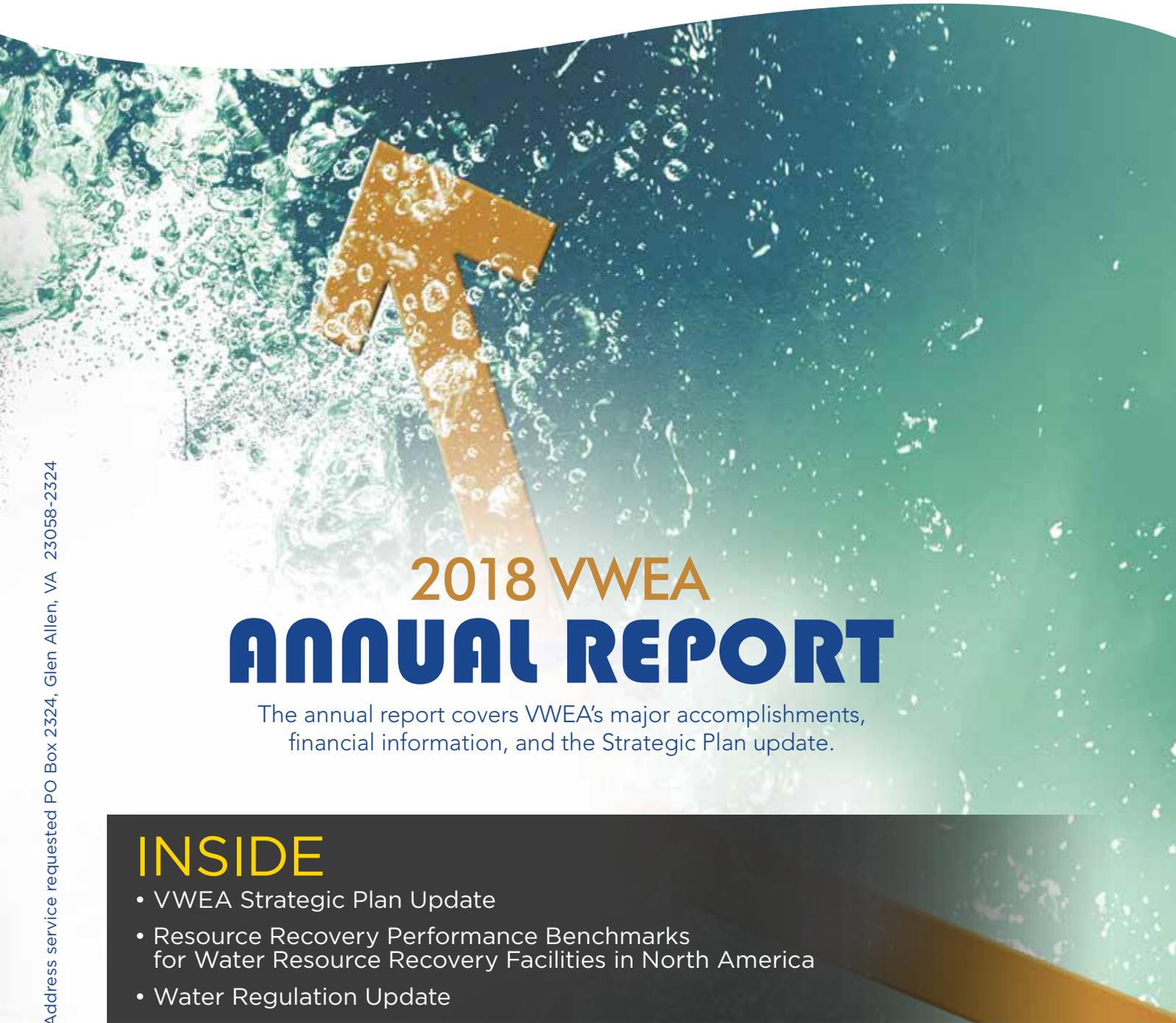


THE CONDUIT

WINTER 2019

THE OFFICIAL PUBLICATION OF THE VIRGINIA WATER ENVIRONMENT ASSOCIATION, INC.



2018 VWEA ANNUAL REPORT

The annual report covers VWEA's major accomplishments, financial information, and the Strategic Plan update.

INSIDE

- VWEA Strategic Plan Update
- Resource Recovery Performance Benchmarks for Water Resource Recovery Facilities in North America
- Water Regulation Update

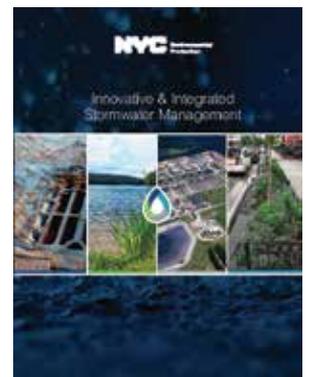
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Realize More

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.



The full report can be downloaded at waterf.org

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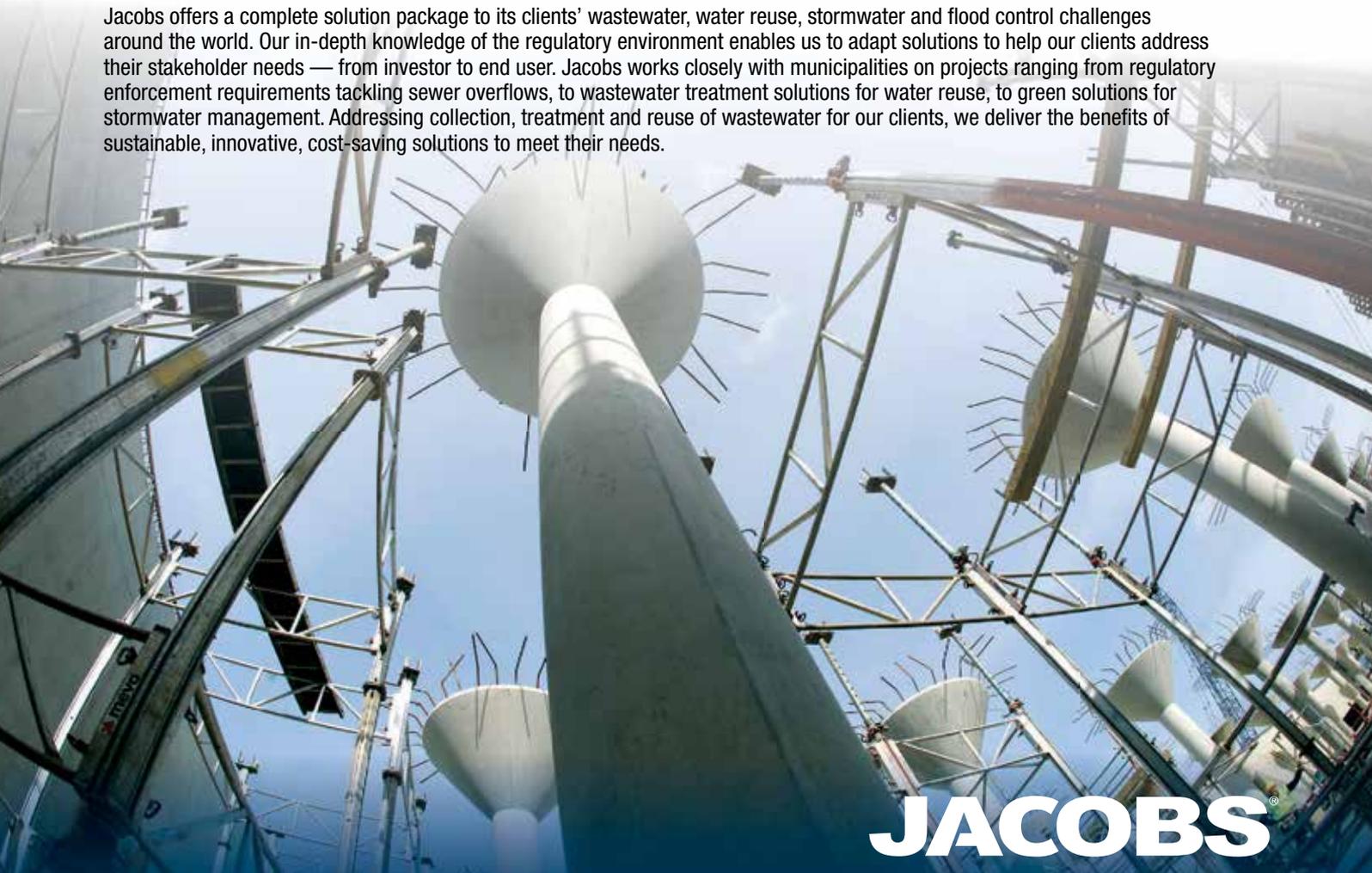
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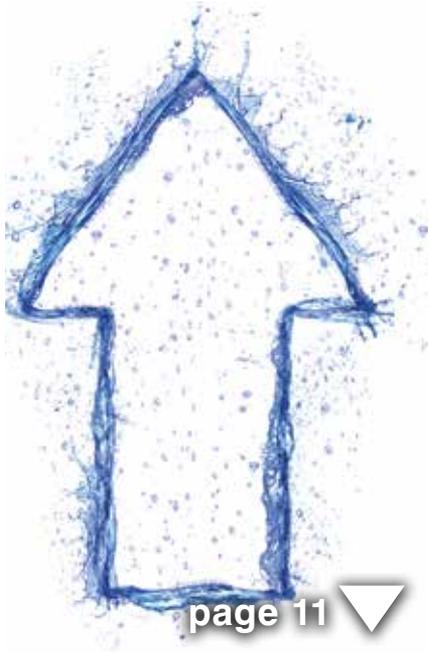
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Virginia Beach, VA 23462
Phone: +1.757.518.9666



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VWEA Strategic Plan Update **18**

The VWEA Strategic Planning Committee presents its six new Strategic Goals and associated Objectives and Actions for 2018-2023.

Resource Recovery Performance Benchmarks for Water Resource Recovery Facilities in North America **22**

WEF conducted a utility survey among water resource recovery facilities in the U.S. and Canada to establish a baseline for current practices pertaining to water, energy, phosphorus, biosolids, and nitrogen.

Water Regulation Update **27**

An overview of the major regulatory activities that are anticipated to affect utilities over the next five years.

Alexandria Takes Major Steps to Promote Healthier Waterways **32**

RiverRenew, the City of Alexandria's largest infrastructure project to date, will achieve cleaner, healthier waterways for the community

▼ **COVER FEATURE**

2018 Annual Report

The annual report summarizes the VWEA's accomplishments, including events, tours, and scholarships awarded, and financial information.

▼ **WEF FEATURES**

The WEF Stormwater Institute Announces its 2018 MS4 Award Winners **47**

The MS4 awards are intended to inspire leaders to seek new and innovative ways to meet and exceed regulatory requirements.



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Shawn Heselton, President

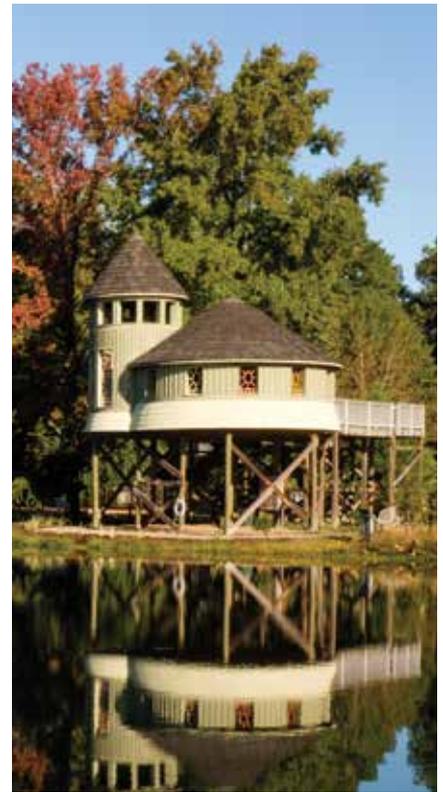
Getting into the gym more, drinking more water, saving more money... as we contemplate the new year, one resolution that I always think about is how I can use my VWEA membership to the fullest. From education and training to networking, the Association is the “one-stop shop” for your professional needs. Putting a VWEA spin on the words of Antoine de Saint-Exupéry, a famous French writer, poet, aristocrat, journalist, and pioneering aviator, the vast growth you can attain from using your membership as opposed to just being a member is endless.

Professional Development

One fantastic benefit of a VWEA membership is professional growth through committee involvement and volunteer leadership positions. With over 30 committees, 14 of which are jointly coordinated with the Virginia Section of the American Water Works Association (VA AWWA), the Association encompasses the multitude of interests that comprise our industry. Committees like Operations, Education, Stormwater, and Utility Management are always in need of members to plan educational events and seminars.

On October 25, 2018, in collaboration with VA AWWA, we held the fifth annual Joint Leadership Retreat at the Lewis Ginter Botanical Gardens in Richmond. The VWEA and VA AWWA committee leadership met for a full day of interactive training. Topics

covered resources for committees, succession planning, and continuing education. Engagement was also discussed, particularly how members can reap the many benefits of participation.



The Lewis Ginter Botanical Gardens, site of the October 2018 Joint Leadership Retreat.

“If you want to build a ship, don’t drum up people together to collect wood and don’t assign them tasks and work, but rather teach them to long for the endless immensity of the sea.”

– Antoine de Saint-Exupéry

Education and Training

Another valuable benefit of a VWEA membership is the education and training put together by our committees. The Association offers a full breadth of opportunities for you to earn Continuing Education Credits and Continuing Professional Units through conferences, seminars, workshops, and lunch & learns. Below is a list of some of the superb events happening in 2019:

- Industrial Waste & Pretreatment Conference (Charlottesville), March 4-5
- Stormwater Seminar (Richmond), April 25
- Education Seminar (Richmond), May 8-9
- Operations Conference and Ops Challenge Competition (Harrisonburg), June 26-27
- Lab Practices Conference (Charlottesville), July 29-30
- WaterJAM (Virginia Beach), September 9-12

With the proliferation of webinars and the development of E-JAM, committees are able to branch out beyond traditional classroom-type training and use distance learning to its maximum potential. Presentations given

through the Internet can provide unlimited space for attendees and be more accessible and affordable.

Networking

No matter the industry, networking is a key component to establishing connections, building trust, and sharing knowledge. Gina Romero, famous entrepreneur and CEO and co-founder of Connected Women, said, "A really important part of networking is actually about what you bring to the table – not just what you want to get out of it. Contribution is a big part of networking success." VWEA offers the vehicle/ship for connections through not only conferences and seminars, but also a variety of social functions.

VWEA's Regional Activities Committees (RACs) foster networking through social activities such as after-hour events, sporting events, golf tournaments, and environmental stewardship activities. Being involved in one of the four RACs, which are located in different regions of Virginia, is a great way learn more about your fellow VWEA members.

Service

VWEA's vision is to "preserve and enhance Virginia's water environment, now and for future generations." Service, through participation in projects and fundraising for our water environment, is fundamental to the Association. This past year's WaterJAM Young Professionals Community Service Event tackled a park cleanup with Lynnhaven River Now at Beach Garden Park. Water For People is always looking for ways to raise money for needy Virginia communities. Please consider participating in the many ways you can help our environment and those in need!

As we chart our way through 2019, I am excited for the countless ways in which VWEA can serve our members. Thank you to all those who serve on our committees and volunteer your precious time and energy. If you wish to join a committee or would like to participate in an event, please see our exceptional website (www.vwea.org) or contact Kathy Rabalais, Association Manager: admin@vwea.org. I challenge all of our members to renew their commitment to VWEA. You won't be disappointed! ☺

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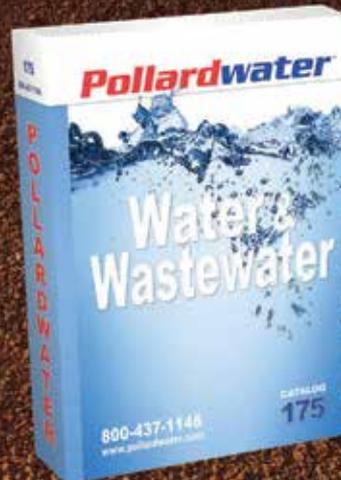
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2018 VWEA
**ANNUAL
REPORT**

WHAT INVOLVEMENT MEANS TO MEMBERS...



Tim Moore, PhD, P.E., PMP, Tetra Tech

VWEA is an amazing organization! Through my involvement with VWEA, I have had the pleasure of working with so many amazing people, collaborating on multiple projects and committees, uniting under the same purpose: "to preserve and enhance Virginia's water environment now and for future generations." It makes me happy to work with so many people, collaboratively preserving a sustainable future for my and the millions of Virginia children yet to come!



Allison Lee, EIT, Hazen and Sawyer

As a young professional, I've been able to take on leadership positions within VWEA that have provided me with valuable leadership experience as well as the opportunity to give back to the community and to get other young professionals involved with this organization. From scholarships to organizing events at WaterJAM, my involvement with VWEA has been rewarding both personally and professionally. I encourage others to join VWEA and to be an active member by attending local events or by volunteering with a committee in which they are interested.



Wilson "Beau" Dodge, REM, Arlington County

In my Air National Guard career, I strived to uphold the Air Force Core Values of 1) Integrity first, 2) Service before self, and 3) Excellence in all we do. I find joy and fulfillment in living by these values, and employ them in my career as a wastewater professional. VWEA has provided me with another outlet to serve with like-minded professionals in an organization that values integrity, service, and excellence.



Karen Pallansch, P.E., AlexRenew

Throughout my career, I have been fortunate to serve VWEA and WEF. My service to these two organizations has helped me gain valuable insights into our industry's challenges and learn about leading-edge water-cleaning technologies. I have met so many intelligent, thoughtful, and passionate colleagues throughout my many years of volunteering, and I always enjoy seeing and speaking with them at VWEA and WEF gatherings. The valuable connections I have made and the conferences I have attended and presented at have provided me with great ideas to bring back to my team, and new ways to effectively lead AlexRenew. Volunteering with VWEA and WEF has been invaluable for my water career.



Donnie Seward, P.E., AECOM

Since 2011, I have been involved in the VWEA Stormwater Committee and it has been one of the most rewarding experiences of my career. In my opinion, VWEA is the banner trade association of Virginia, delivering premium technical conferences while maintaining meaningful exposure to the market and regulators. VWEA's culture fosters a family environment with vibrant committees and engaged leadership. It has been a staple in my annual professional development. In many ways, VWEA and its committees have become a lighthouse to which professionals look for regulatory guidance and market intelligence. Most of all, we are all one big family at VWEA, here to support each other through this journey to protect the environment and improve water quality.

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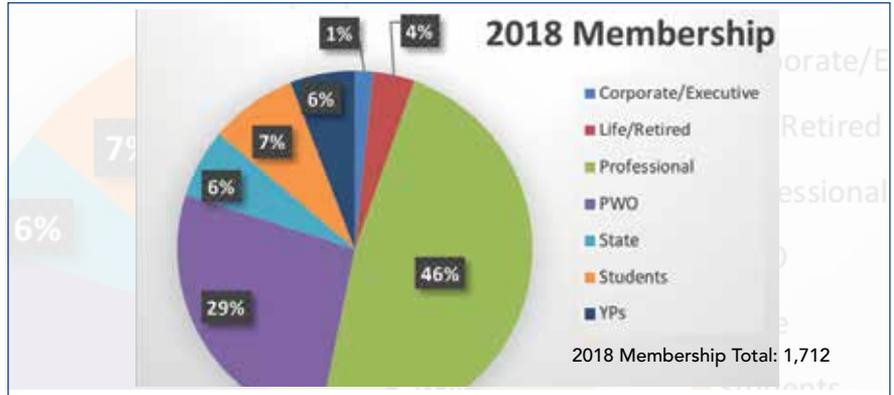
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VWEA 2018 ACCOMPLISHMENTS

This year, VWEA had an overall membership increase of 4%. We continue to support our students by paying the cost of WEF student membership. In 2018, VWEA paid for **93 student memberships!**

The implementation of our state-only membership option became permanent in 2018 with a vote at our Membership luncheon at WaterJAM. With this approval, VWEA is equipped to provide an opportunity for more industrial professionals to reap the benefits of membership with the Association.



2018 Seminars and Webinars

- Tucson Water: When the Going Gets Tough... Water Conservation and Reuse Webinar*
- Public Outreach for Engagement and Behavior Change*
- Securing your Utility*
- Fall Prevention Safety Workshops*
- Emergency Response Seminar and TTX*
- NASSCO Inspector Training - Cured in Place Pipe (CIPP)
- YP Leadership Seminar*
- Don't Settle for Conventional: Emerging Alternative Primary Treatment Technologies Webinar*
- Continuous Monitoring and Adaptive Control Technology at the Warren Avenue Stormwater Basin, City of Lynchburg*
*In partnership with VA AWWA.



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2018 Lunch and Learns

- Stormwater: James River High School BMP Retrofit Projects
 - HRSD SWIFT Project: EVRAC & Stormwater Committees*
 - Stormwater: Bioretention and Stream Bed Material Components for Construction
 - Loudoun Water Beaverdam Creek Dam Project Overview and Tour*
 - Lee Hall Reservoir Dam*
- *In partnership with VA AWWA.



WWEA held two Lunch and Learns and tours of the HRSD SWIFT Project.

Strategic Plan Update

The WWEA Board of Directors worked with the Strategic Plan Committee to revise the WWEA's strategic plan. A few notable changes include:

- Addition of the Association Representative Board position.
- Realignment of Board Liaisons and Committees.
- Increased focus on organizational stewardship; ensuring we are providing value to our members.

2018 Donations/Awards

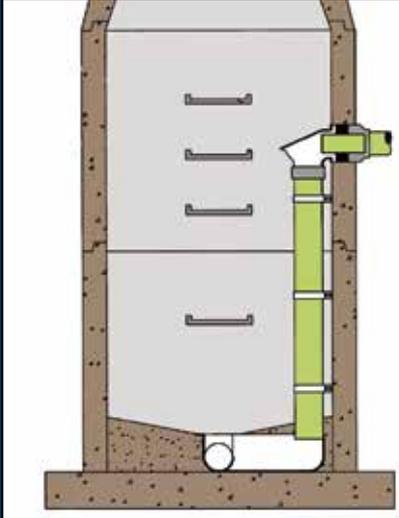
During 2018, WWEA continued its support of past initiatives and added several new ones. For the first time, we sent **two teams** to WEFTEC to participate in the **Student Design Competition**. Virginia was represented in both the wastewater and environmental categories! We also supported sending two Young Professional leaders to the **WEF/VA AWWA YP Summit**. We have planned to continue both in 2019!

Contributions included:

- Water for People
- Seven Regional Science Fair Awards – first and second place
- Stockholm Junior Water Prize Travel – two team members
- Water Environment Research Foundation
- Student Design Competition Awards
- Digital Knowledge Competition Award
- Student Design Team Travel to WEFTEC
- WaterJAM Wastewater Poster Contest
- Ops Challenge Teams Travel to WEFTEC

Total provided: \$23,725

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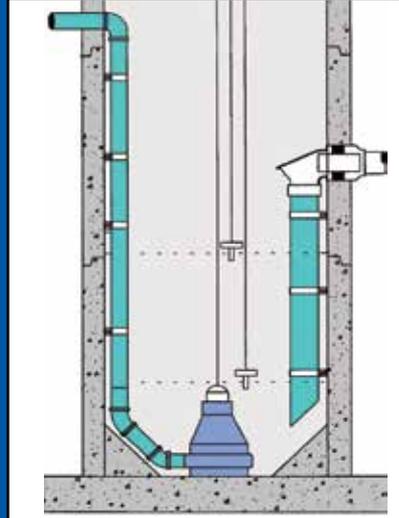
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Community Service

VWEA members continue to give their time and efforts to serve their communities. In 2018, VWEA committees planned six service projects.



Volunteers removed invasive plants and planted native live stakes along the James River.



A group of volunteers for Clean the Bay Day.



Members helped the Friends of the National Arboretum install a new irrigation system.



During WaterJAM 2018, a new WaterJAM logo was unveiled. The new logo incorporates both of the VWEA and VA AWWA brands in a modern format.

WaterJAM

WaterJAM 2018 proved to be memorable due to the threat of Hurricane Florence. While the conference was shortened so that attendees could get home safely, much of WaterJAM occurred and once again was a record-breaking year.

- **1795 registrants** – a new record!
- **261 first-time** attendees
- **220 exhibit booths** showcasing the latest technology
- **Partnership with Water Otter** to offer continuing education to registrants after WaterJAM to ensure needed credits are available to members.

2018 Scholarships

- \$2,500 - Sonny Roden Memorial Graduate
- \$5,000 - Undergraduate (two awards)
- \$2,258 - Wastewater Operator Short School
- \$2,500 - Rising Freshman
- \$2,500 - Member Dependent

Total awarded: \$14,758

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WEF Collection Systems Conference

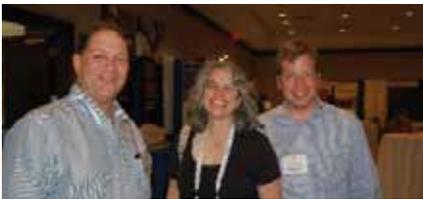
VWEA was honored to be chosen to host WEF's 2018 Collection Systems Conference. The conference provided the opportunity for Virginia to assist in coordinating keynote speakers, moderators, exhibits, and a Virginia-selected technical session. VWEA hosted a meet and greet social for attendees and a breakfast for young professionals to round out the very successful conference.

VWEA Annual Specialty Conferences

- Industrial Waste & Pretreatment
- Stormwater
- Education
- Operations
- Lab Practices

Over 800 attendees

67 CPEs for wastewater operators



Members at the Annual VWEA Education Conference.

Awards

VWEA recognized 38 individuals and organizations in 2018 that made an outstanding contribution to the water environment profession and/or VWEA. Learn more about our awards at www.vwea.org/awards.



Scott Shirley presenting Chris Pomeroy of Aqua Law with the inaugural Stormwater Splash Award.

Networking

VWEA provided 30 networking opportunities in 2018. Members participated in golf tournaments, facility tours, after-hour socials, and more. [e](#)



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2018 FINANCIAL INFORMATION

Virginia Water Environment Association Balance Sheet As of December 31, 2018		Total
ASSETS		
Current Assets		
Bank Accounts		
Charles Schwab General Investment	122,792.57	
Charles Schwab Scholarship Investment	172,022.31	
Scholarship Fund	35,062.28	
SunTrust	336,076.59	
Wells Fargo – Interest Checking	99,137.62	
Total Bank Accounts	\$765,091.37	
Total Current Assets	\$765,091.37	
TOTAL ASSETS	\$765,091.37	
LIABILITIES AND EQUITY		
Liabilities		
Current Liabilities		
Credit Cards		
American Express	0.00	
Total Credit Cards	\$ 0.00	
Total Current Liabilities	\$ 0.00	
Total Liabilities	\$ 0.00	
Equity		
Opening balance equity	75,710.64	
Retained Earnings	612,643.12	
Net Income	76,712.61	
Total Equity	\$765,066.37	
TOTAL LIABILITIES AND EQUITY	\$765,066.37	

BUDGET VS. ACTUALS: 2018 BUDGET – FY2018 P&L CLASSES JANUARY-DECEMBER 2018		
	Total	
	Actual	Budget
Income		
Ad sales	11,352.26	9,500.00
Dues	30,265.00	30,000.00
Exhibitor fees	34,330.00	39,740.00
Interest	100.17	150.00
Miscellaneous income	4,472.34	700.00
Registration fees	274,540.58	232,570.00
Sponsor donations	85,650.00	70,225.00
Total income	\$440,710.35	\$382,885.00
Gross profit	\$440,710.35	\$382,885.00
Expenses		
Audiovisual	9,070.65	11,440.00
Awards, gifts, prizes	21,833.81	35,841.50
Bank charges	12.50	50.00
Contract services	95,452.18	86,820.88
Corporation expenses	25.00	25.00
Credit card charges	7,246.95	6,026.00
Email services	199.92	200.00
Equipment maintenance	0.00	100.00
Equipment purchase	317.47	2,060.00
Event entertainment	2,500.00	1,450.00
Exhibitor costs	1,433.66	2,860.00
Facilities	5,488.73	11,370.00
Food and beverage	112,563.36	130,091.00
Insurance	1,208.00	1,400.00
Miscellaneous expenses	9,026.32	6,445.00
Postage	317.81	1,020.00
Printing services	1,205.66	2,675.00
Scholarship award	14,758.00	15,000.00
Speaker expenses	4,319.73	5,650.00
Sponsor expenses	4,840.00	6,000.00
Stand-alone social event	21,945.95	14,259.00
Storage (records)	2,953.52	3,838.00
Supplies	6,365.21	8,220.00
Telephone	1,300.39	1,500.00
Transportation at events	0.00	1,250.00
Travel by staff or volunteers	27,713.19	30,647.00
WEF dues paid by us	1,860.00	1,758.00
Total expenses	\$353,958.01	\$387,996.38
Net operating income	\$86,752.34	-\$5,111.38
Other income		
Investment gains/losses – realized	-10,039.73	
Total other income	-\$10,039.73	\$0.00
Net other income	-\$10,039.73	\$0.00
Net income	\$76,712.61	-\$5,111.38

VWEA STRATEGIC PLAN UPDATE

PRESENTED TO THE VWEA BOARD ON DECEMBER 3, 2018



The heart of any organization's strategy is what it actively chooses to do and not do and how effectively it executes those choices. However, strategic plans often fail or remain unused because organizations tend to go through the motions of developing the plan simply because common sense says, "every good organization must have a strategic plan."

The Virginia Water Environment Association is no different. It has the Vision "to preserve and enhance Virginia's water environment, now and for future generations." VWEA needs to ensure that it is focused on strategic goals that enable it to realize this Vision.

Goals

Throughout 2018, the VWEA Strategic Planning Committee has been working with the VWEA Board to re-evaluate its existing Strategic Plan (2013-2018) to select priorities for improvement (Strategic Goals) and associated Objectives and Actions. The six main Goal areas identified for the updated Strategic Plan (2018-2023) are as follows:

1. Leadership & Advocacy
2. Membership Value
3. Education & Training
4. Collaboration & Outreach
5. Technology Optimization
6. Organizational Stewardship

In order to arrive at the Goals listed above, the VWEA Board conducted a workshop to determine whether the existing Strategic Plan contained the *right* goals. After reviewing the strategic goals of both the AWWA and the WEF, VWEA assessed each state-level goal established in its 2013-2018 Strategic Plan. Given the changing marketplace, the VWEA Leadership and the Strategic Planning Committee determined that Organizational Stewardship should be added to the Strategic Plan's goals in place of the existing Brand Awareness goal. With the recent VWEA logo change, the primary Action under the Brand Awareness goal was considered complete. The Organizational Stewardship goal and its objectives were deemed important to keep a well-rounded Strategic Plan focused on the right priorities.

Path to Goal Achievement

Each Goal is accompanied by one to three Objectives outlined in the VWEA Strategic Plan Blueprint (see page 20). 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 comprising specific tasks. These specific tasks have measurable results within execution timelines attainable using available resources. For example, one task under *Goal 2: Membership Engagement, Objective iii. Enhance Member Participation*, is to develop a membership survey to be taken upon registering for VWEA to identify committees of interest to the new member. This task would be performed in collaboration with the Membership Committee and VA AWWA. The target is to have this survey created and implemented by September 2019. The metric to determine the success of the task is the percent of new membership to complete the survey and serve on a committee selected based on the survey outcome.

Each Goal has been assigned one Goal Champion from the current VWEA Board member responsible for implementing the Action Plan to steer Objective achievement. The Goal Champions have the benefit of two Mentors. All Mentors have previously served on the VWEA Board as President, volunteering their extensive organizational and industry experience. Their input will be invaluable to successful implementation of the 2018-2023 Strategic Plan.

GOAL 2 – MEMBERSHIP VALUE – ENHANCE OPPORTUNITIES FOR MEMBERSHIP DEVELOPMENT AND ENGAGEMENT.

1. Champion – Dana Hargrove, YP Representative
2. Mentors – Steve Johnson and Abha Sharma
3. Objective – Enhance member participation.
4. Action – Recognize service and incentivize member participation.

VWEA Board Restructuring

The VWEA Board Organizational structure was evaluated as part of the 2018-2023 Strategic Plan update. The committees were better aligned with Board liaisons possessing similar focus and the required knowledge necessary to advise each committee and aid in their major event planning. Committees with similar missions were combined or placed under the same Board liaison to facilitate communication, enable collaboration, and reduce initiative redundancy.

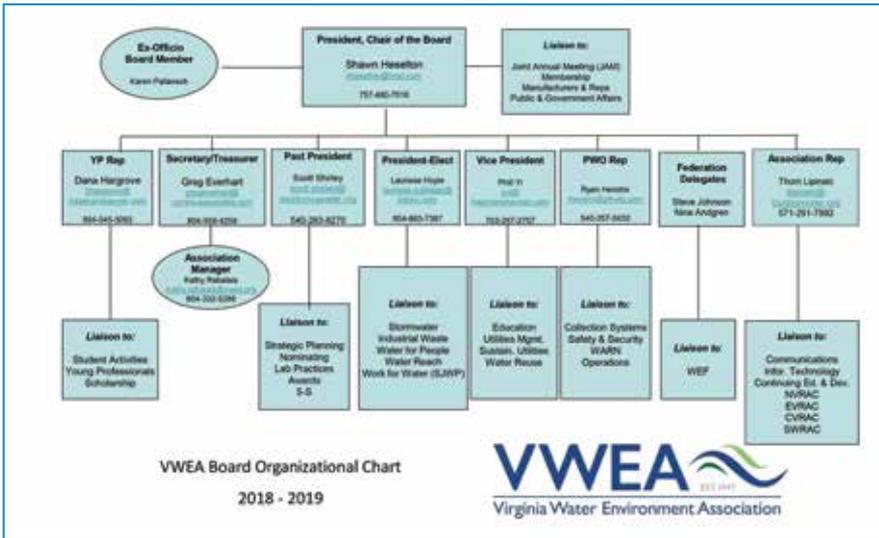
An additional Board position was created this year – Association Representative. The Board determined this position would have a three-year term and oversee seven committees:

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the four Regional Activity Committees and the Communications, Information Technology, and Continuing Education and Development Committees.

Next Steps

The next steps for the VWEA Strategic Planning Committee are to finalize the Strategic Objectives and associated Action Plans to be implemented over the next one to two years for each Goal and report on the progress annually.

Please reach out to Kathy Rabalais (*kathy.rabalais@vwea.org*) or the Strategic Planning Committee Leadership (Ryan Nagel, *rnagel@hazenandsawyer.com*; Dana Hargrove, *dhargrove@hazenandsawyer.com*) with questions regarding the 2018-2023 VWEA Strategic Plan. ☺

TASKS (Highest priority tasks to be done in 9-12 months)	KEY ROLES (Other than Champion)	TIME (Target date of completion)	KEY RESOURCES (List of dependencies/constraints)	METRIC (Measure of success/ completion)
Develop a membership survey upon registering for VWEA to identify potential committees of interest for new members.	VA AWWA, Membership Committee	September 2019	Platform to deliver the survey.	% of new membership to complete the survey and serve on a committee.

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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*

OBJECTIVES

1. Identify local impact of key technical, regulatory, and legislative issues facing the water community and promote awareness among membership.
2. To be an advocate in the practice of sound science in the Water Industry.
3. Promote association outreach to the public.

GOAL 2. MEMBERSHIP VALUE

Enhance opportunities for membership development and engagement.

LEAD — *YP Representative*

OBJECTIVES

1. Enhance and communicate VWEAs value to a diverse membership to grow and retain members.
2. Advance member professional development.
3. Enhance member participation.

GOAL 3. EDUCATION & TRAINING

Provide education and professional development opportunities for VWEA members, students, legislators, and other key stakeholders.

LEAD — *Vice President*

OBJECTIVES

1. Enhance VWEAs ability to distribute educational materials over multiple platforms.
2. Enhance high quality knowledge sharing.
3. Promote education, leadership and training opportunities through scholarship program support.

GOAL 4. COLLABORATION & OUTREACH

Promote collaboration with other professional associations to enhance outreach efforts.

LEAD — *PWO Representative*

OBJECTIVES

1. Align with the water community.

GOAL 5. TECHNOLOGY OPTIMIZATION

Leverage technology to streamline communications and amplify organizational efficiency.

LEAD — *Association Representative*

OBJECTIVES

1. Optimize collaboration amongst members and stakeholders.
2. Adopt technology solutions to address VWEA business needs.
3. Provide effective communication to members and stakeholders.

GOAL 6. ORGANIZATIONAL STEWARDSHIP

Use resources to effectively and efficiently serve its members and unify the water community.

LEAD — *President—Elect*

OBJECTIVES

1. To remain the premier water quality association.
2. Maintain financial sustainability.

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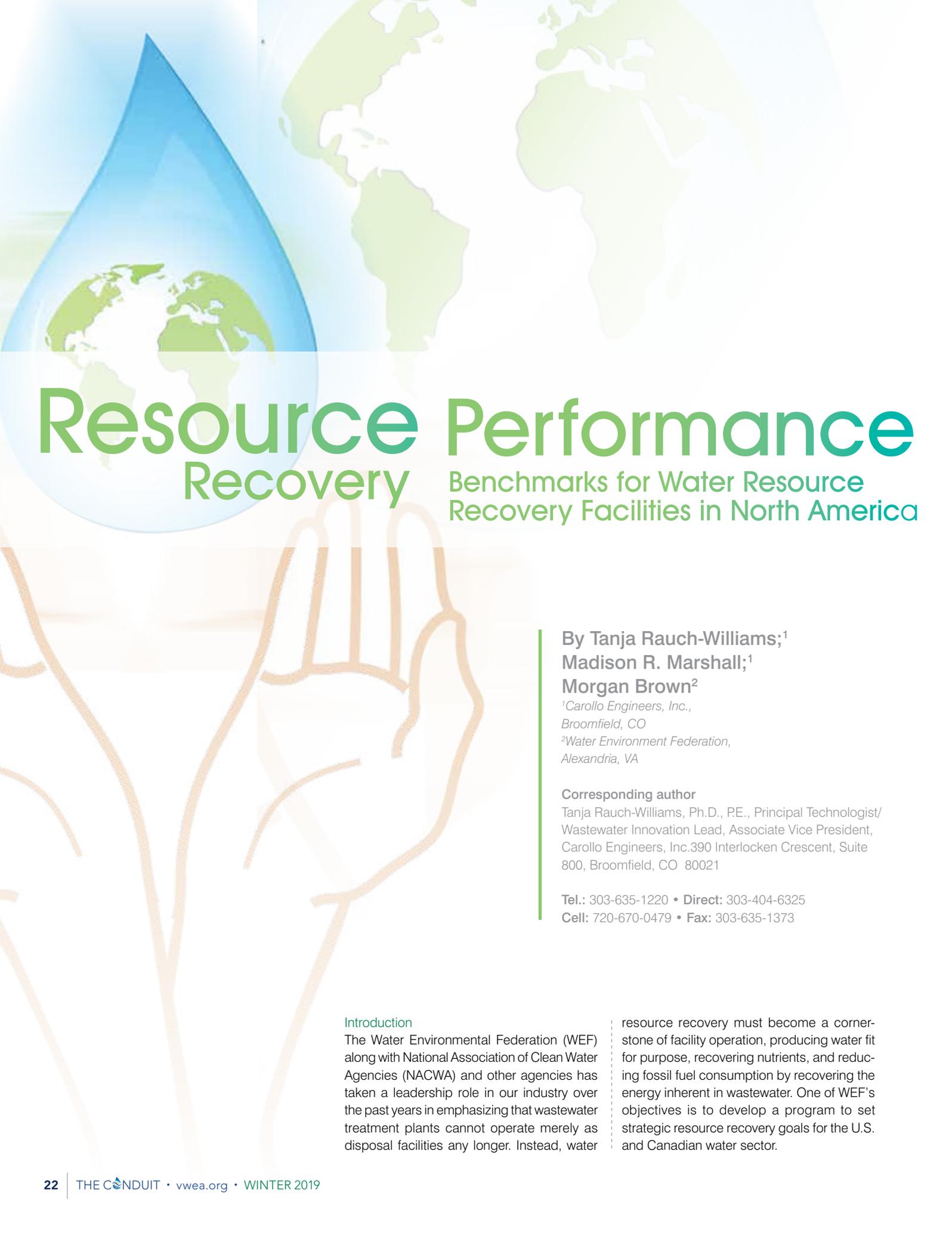
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Resource Performance Recovery

Benchmarks for Water Resource Recovery Facilities in North America

By **Tanja Rauch-Williams**;¹
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Morgan Brown²

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Introduction

The Water Environmental Federation (WEF) along with National Association of Clean Water Agencies (NACWA) and other agencies has taken a leadership role in our industry over the past years in emphasizing that wastewater treatment plants cannot operate merely as disposal facilities any longer. Instead, water

resource recovery must become a cornerstone of facility operation, producing water fit for purpose, recovering nutrients, and reducing fossil fuel consumption by recovering the energy inherent in wastewater. One of WEF's objectives is to develop a program to set strategic resource recovery goals for the U.S. and Canadian water sector.



WEF is currently in the process of defining national resource recovery goals for the water industry. Publication of these goals is currently scheduled for Spring 2019.

The first step of this effort was to establish a baseline for current resource recovery practices in the North American wastewater sector. This baseline was developed in 2018 as part of a study entitled *Baseline Data to Establish the Current Amount of Resource Recovery from WRRFs* funded by WEF and supported by the Water Research Foundation, NACWA, and the WaterReuse Association [1].

On the basis of this study's findings, WEF is currently in the process of defining national resource recovery goals for the water industry. Publication of these goals is currently scheduled for Spring 2019.

This paper will provide an overview of the 2018 study objectives and then focus on the results of a utility survey that was conducted as part of this study among water resource recovery facilities (WRRFs) in North America. The survey quantified the resource recovery potential and current practices of WRRFs in the U.S. and Canada pertaining to water, energy, phosphorus, biosolids, and nitrogen.

Methods

As part of the *Baseline Data to Establish the Current Amount of Resource Recovery from WRRFs* study, a utility survey was conducted to collect detailed data from utilities. The data allows to establish mass balances to quantify recovered and non-recovered amounts for each resource.

The resources considered in this analysis and survey included water, biosolids, phosphorous, nitrogen, and energy (chemical, thermal, and kinetic). The following information was requested from WRRFs in the survey:

1. General facility information
 - a. Influent flows
 - b. Rated design capacity
 - c. Services area
 - d. Type and level of treatment
2. Information about process streams
 - a. Influent
 - b. Effluent
 - c. Biosolids
3. Types of resource use
 - a. Water, biosolids, phosphorus, nitrogen, and energy

The data was requested as 2017 annual average values. Brief explanations were included with the survey to describe the data requested

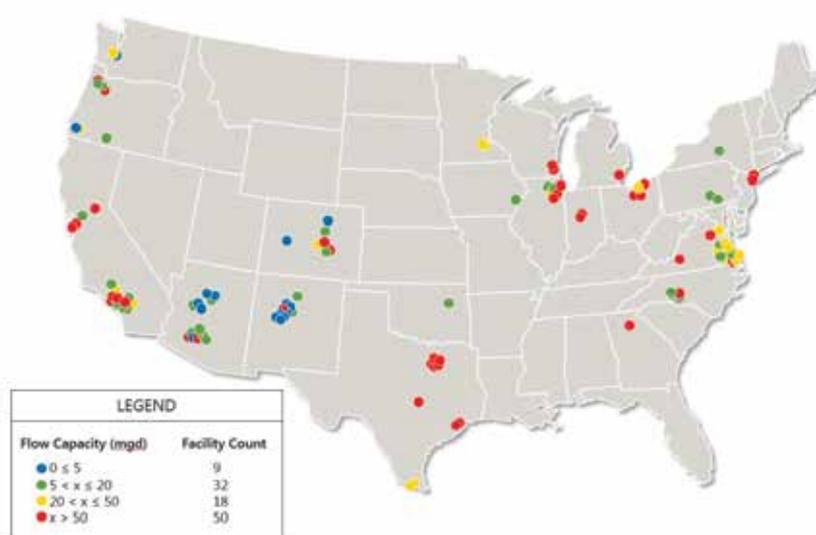


FIGURE 1: Geographical distribution of survey participants.



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and its use in the study. The survey was conducted between May and August 2018.

Results

A total of 109 utilities in the U.S. and a total of 17 utilities in Canada participated in the survey. The U.S. facility participants represent about 22% of all nationally treated municipal wastewater flow (7,220 MGD) and about 20% of the total mass of biosolids produced in the U.S. (6.7 million metric dry tons per year). Figure 1 shows the geographical distribution of the U.S. WRRFs that participated in the survey.

The Canadian response was notable but limited and did not allow for a national statistical evaluation.

The aggregated survey results for water reuse by WRRFs in the U.S. are summarized in Figure 2. In general, the results align with the published statistics by the U.S. Environmental Protection Agency (EPA) [2] for the status of potable and non-potable water reuse in the U.S. However, when considering water discharged to surface water for beneficial use (e.g., aquatic life habitat protection) as part of “water recovery” based on the survey results, the fraction of “water recovery” is increased from about 6% to 8% nationwide to close to 30%.

The beneficial end use of biosolids for all survey participants is presented in Figure 3. These results indicate a higher fraction of biosolids land application than accounted for in the Beecher et al. (2007) [3] national biosolids database, which is the latest comprehensive database on biosolids in the U.S. Landfill cover and surface disposal of biosolids account for an average of approximately 21% among all survey participants, which is less than the estimate a decade ago by Beecher et al. This reflects a continued shift from biosolids landfill disposal to land application.

The total average recovery of phosphorus is significantly higher in larger facilities (about 60%) that have started to install phosphorus recovery technologies in recent years, as shown in Figure 4. Smaller facilities recover on average only about 30% of phosphorus, mostly through beneficial land application of biosolids.

Figure 5 shows the specific electric energy consumption versus wastewater flow treated by facilities of all sizes for survey participants in the U.S. Larger facilities are able to treat the same amount of wastewater flow at a smaller specific electric energy consumption. This dataset allows benchmarking of the electric energy consumption among facilities of similar sizes.

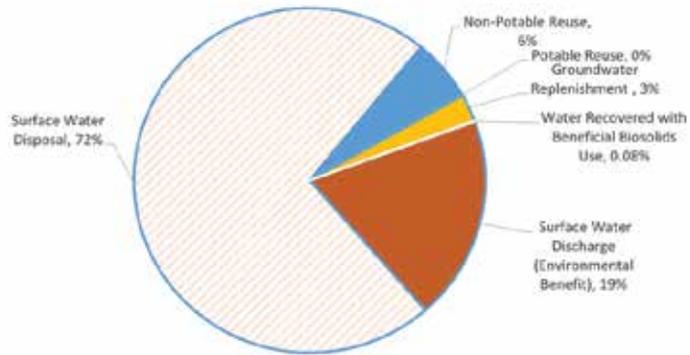


FIGURE 2: Distribution of water end uses for all survey participants.

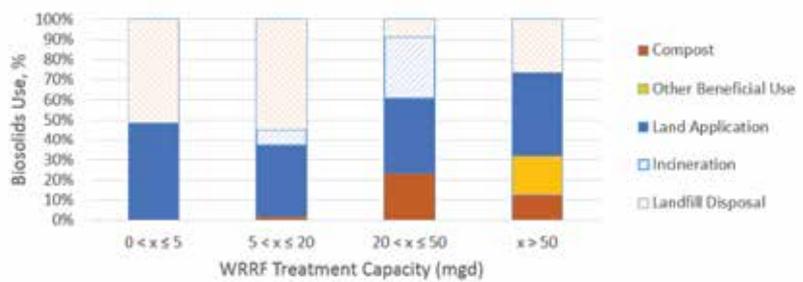


FIGURE 3: Distribution of biosolids end uses by facility size for survey participants.

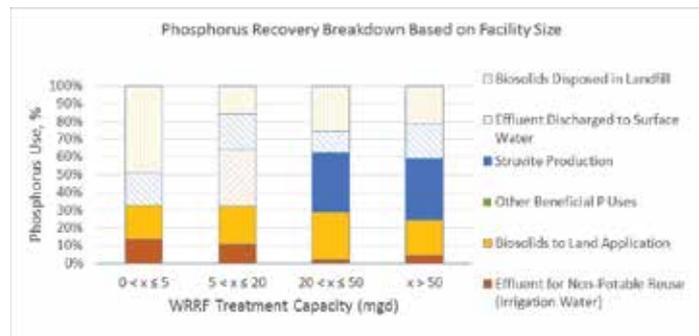


FIGURE 4: Distribution of phosphorus end uses by facility size for survey participants.

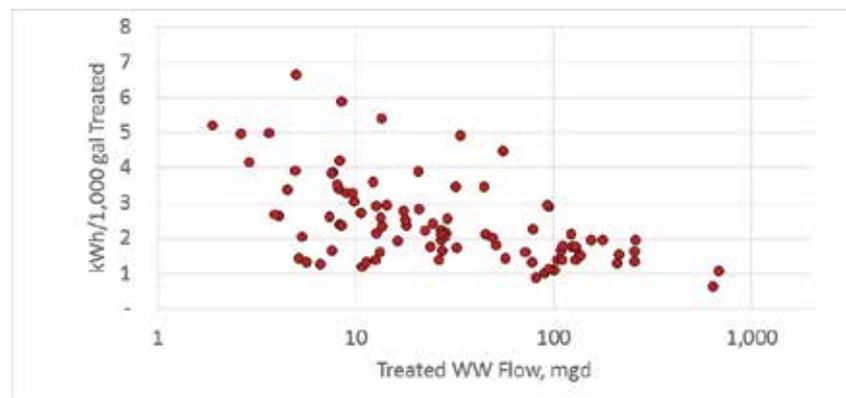


FIGURE 5: Specific electric energy consumption at surveyed utilities per treated wastewater flows (annual average).



Facility Size (MGD)	0 < x ≤ 5	5 < x ≤ 20	20 < x ≤ 50	x > 50
Minimum	0%	0%	0%	0%
25th percentile	0%	0%	0%	0%
Median	0%	0%	0%	0%
75th percentile	0%	0%	11%	37%
90th percentile	0%	17%	37%	82%
Maximum	0%	55%	50%	99%

TABLE 1: Degree of electric energy self-sufficiency among survey participants.

Table 1 summarizes the degree of electric energy self-sufficiency (defined as the ratio of average annual electric production to electric consumption) among the participating WRRFs. About 10% to 25% of the utilities larger than 20 MGD in size produce electricity and are able to cover 11% to 99% of their annual electrical demand. 10% of the surveyed facilities with treatment capacities larger than 50 MGD are approaching 100% electric energy self-sufficiency.

Relevance to Industry

Resource recovery has started to become a noticeable cornerstone practice of WRRFs

in the U.S., as suggested by the survey that was conducted as part of this study. The data compiled through the survey provides several benefits to the industry:

1. Benchmarking resource recovery achievements among WRRFs: The database allows WRRFs to compare their operation to the performance of other peer facilities and resource recovery industry leaders. This information can help set defensible quantitative facility objectives.
2. Justifying a standard level of resource recovery: Quantitative metrics on resource recovery in North America can help utility managers justify facility-specific recovery

goals and associated funding requirements.

3. Tracking the progress of resource recovery objectives over time: By documenting resource recovery metrics in the study's survey spreadsheet, WEF, policy makers, regulators, and WRRFs can track progress through regular updates.

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Water Regulation Update

By Sarah Burns, CPH, MCE and Caroline Russell, PhD, PE.

The current federal regulatory climate poses interesting challenges for water utilities considering what, if any, treatment or operational changes are needed to maintain regulatory compliance in the next five years. The U.S. Environmental Protection Agency (EPA) has issued non-enforceable health advisory levels for two cyanotoxins and two perfluorinated compounds. It is unclear if and when an enforceable federal rule for these compounds will follow, although a few states have issued enforceable requirements. The EPA is expected to issue a proposed Long-Term Lead and Copper Rule in 2019. On the other hand, the current administration is focused on deregulation, and Executive Orders (EOs) have been issued to limit the ability of federal organizations such as the EPA to develop new regulations. This article focuses on a few of the major regulatory activities that are anticipated to affect utilities over the next five years.

Executive Order 13771

The EO titled "Reducing Regulation and Controlling Regulatory Costs," issued on January 30, 2017, states that for every new regulation, two existing regulations must be identified for repeal. The EO is directed at reducing costs, stating that the costs associated with new regulations within a fiscal year should be zero.

The implications of this EO for drinking water regulations remain unclear, though it is likely that the promulgation of new regulations will be minimized while the EO is in place. In the interim, water utilities are advised to continue their efforts to protect public health by minimizing exposure to contaminants with known adverse health effects and to consider potential future regulations as part of any long-range facility planning.

Long-Term Lead and Copper Rule Revisions

The Lead and Copper Rule (LCR), established in 1991, is primarily focused on preventing public exposure to lead in the distribution system by reducing corrosivity through corrosion control treatment (CCT). The LCR set Action Levels (ALs) for lead and copper of 0.015 mg/L and 1.3 mg/L, respectively. If the lead or copper ALs are exceeded based on compliance sampling at customer taps, a water utility must revisit its optimal CCT. Though LCR revisions have been planned and discussed for almost two decades, the events in Flint, MI highlighted some of the shortcomings of the existing rule:

- The LCR is reactive instead of proactive in terms of lead service line replacement. Additionally, full lead service line replacement is challenging, since the portion of the line on residential properties is not typically owned by the water system.
- The lead AL is not health-based and is instead based on treatment abilities and costs. It has been established that there is no safe level of lead.
- A recent *Opflow* article [1] provides an overview of the LCR and

potential revisions. Water systems can prepare for potential revisions by identifying lead service lines, optimizing corrosion control treatment, and developing/improving public outreach programs.

Fourth Unregulated Contaminant Monitoring Rule

Every five years, the EPA evaluates unregulated contaminants to determine if there is an opportunity to protect public health through the regulation of a specific contaminant. The Unregulated Contaminant Monitoring Rule (UCMR) is part of this process. Under the UCMR, public utilities are required to complete monitoring activities for contaminants selected by the EPA. The resulting occurrence data help the EPA identify contaminants for which regulations may protect public health. Six perfluorocompounds were included under the previous UCMR 3; occurrence data from that sampling effort are available online.

UCMR 4, which includes the 30 contaminants presented in Table 1, was published in late 2016. Public water supply systems are required



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to monitor these contaminants between 2018 and 2020. Specific monitoring requirements vary by facility size and type. Under UCMR 4, all large (> 10,000 served) surface water (SW), groundwater (GW), and groundwater under the direct influence (GWUDI) of SW facilities are required to monitor for the 20 "Additional" contaminants. Large SW and GWUDI facilities are required to monitor for the ten cyanotoxins as well. A total of 1,600 randomly selected small utilities are required to monitor for contaminants: 800 of these are SW facilities required to monitor cyanotoxins; the remaining 800 utilities (SW or GW) are required to monitor for the 20 "Additional" contaminants.

Though regulatory action is not expected within the next few years, water systems should utilize collected monitoring data to identify which contaminants might be of concern for their individual system. Once potential concerns are known, existing treatment can be assessed for removal efficiencies and new treatment technologies can be identified and evaluated, as needed.

Moving Forward

While the current regulatory horizon is unclear, water utilities can begin planning for any potential future regulations by:

TABLE 1: UCMR 4 Contaminant List.

10 Cyanotoxins (Nine Cyanotoxins and One Cyanotoxin Group)	
Total Microcystin	Nodularin
Microcystin-LR	Microcystin-LF
Microcystin-LA	Microcystin-YR
Microcystin-LY	Cylindrospermopsin
Microcystin-RR	Anatoxin-a
20 Additional Contaminants	
Germanium	Oxyfluorfen
Manganese	HAA5
Alpha-hexachlorocyclohexane	HAA6Br
Profenofos	HAA9
Chlorpyrifos	1-butanol
Tebuconazole	2-propen-1-ol
Dimethipin	2-methoxyethanol
Total permethrin (cis- and trans-)	Butylated hydroxyanisole
Ethoprop	O-toluidine
Tribufos	Quinoline

1. Reviewing their water quality to understand which unregulated contaminants could be of concern for their system.
2. Initiating changes to address contaminants that pose a public health concern, accounting for unintended consequences.
3. Accounting for potential future regulations as part of their long-range facility planning.

References

1. Russell, C., Brandhuber, P., & Lytle, D. (2017). Lead in drinking water: Past, present, and future. *Opflow*, 43(12), 10-15. doi: <https://dx.doi.org/10.5991/OPF.2017.43.0079>

Sarah Burns may be reached at sburns@carollo.com.

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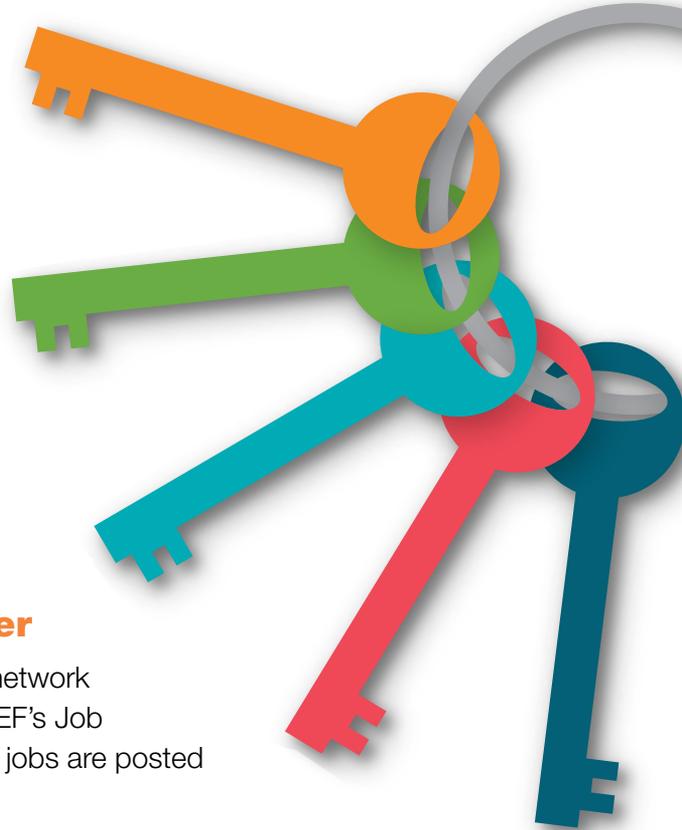
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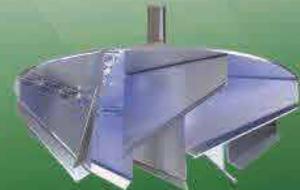
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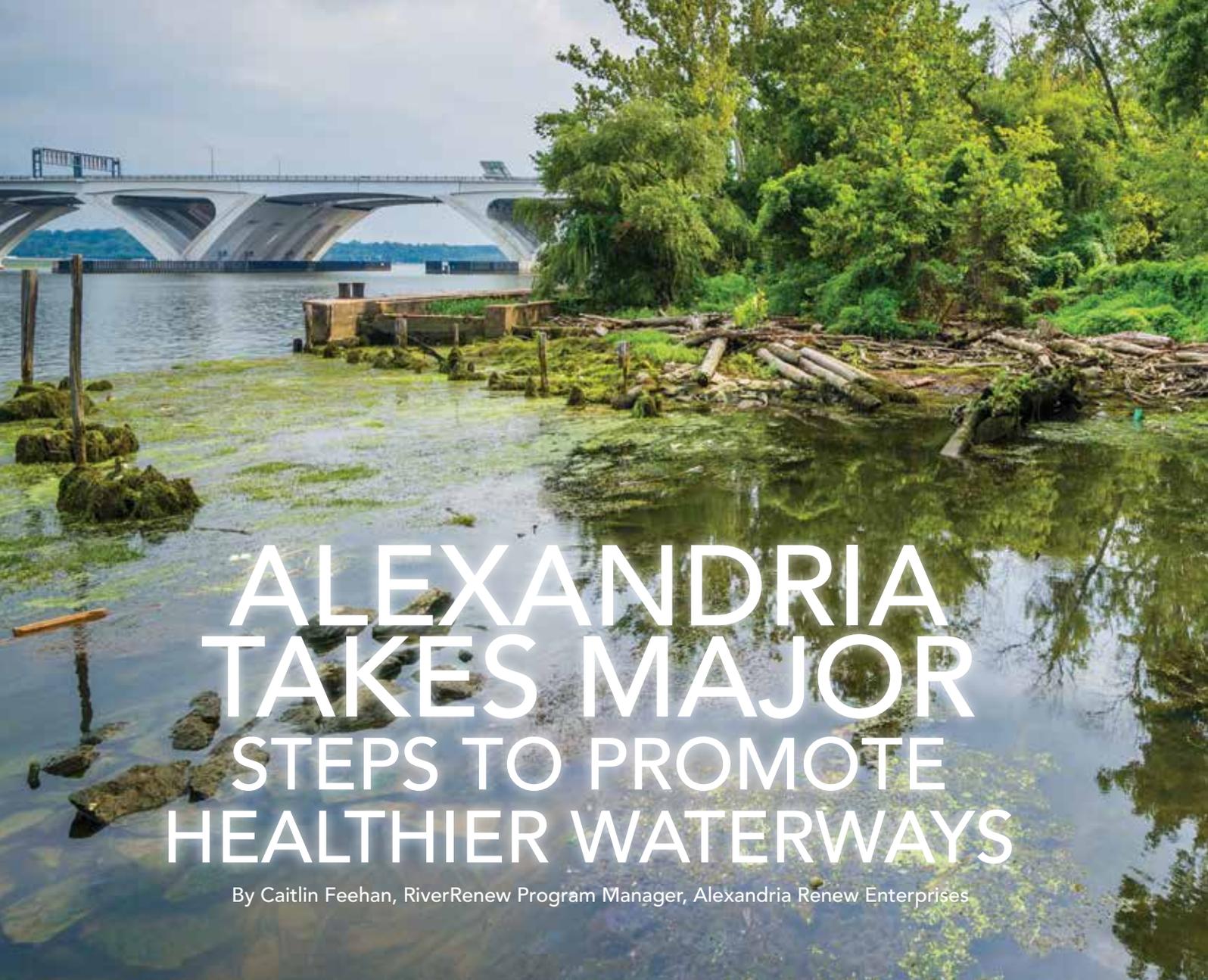
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ALEXANDRIA TAKES MAJOR STEPS TO PROMOTE HEALTHIER WATERWAYS

By Caitlin Feehan, RiverRenew Program Manager, Alexandria Renew Enterprises

RiverRenew, the city's largest infrastructure project to date, will target a century-old sewer system issue to achieve cleaner, healthier waterways for the community.

On June 29, 2018, a joint plan prepared by Alexandria Renew Enterprises (AlexRenew) and the City of Alexandria outlining an approach to remediate Alexandria's combined sewer system (built in the late 1800s) was accepted by the Virginia Department of Environmental Quality (DEQ). Titled "RiverRenew," the plan outlines infrastructure improvements to remediate four outfalls in Alexandria that currently discharge combined sewage to Hooffs Run, Hunting Creek, and the Potomac River during rain events. Acceptance of this major initiative meets the first major

milestone established by legislation passed by the Virginia General Assembly in April 2017. The legislation requires that combined sewer discharges from the four outfalls be remediated by July 1, 2025, which significantly accelerates the planning and engineering phases to meet the legislative mandate.

RiverRenew features a new two-mile-long deep tunnel system, new sewer infrastructure, and upgrades to AlexRenew's water resource recovery facility, where combined sewage collected in the tunnel system will be pumped and treated. Once completed, the tunnel



The Long Term Control Plan Update program to remediate Alexandria's combined sewer system was renamed RiverRenew to succinctly communicate what the program is about (cleaning Alexandria's waterways by 2025) and why we should care (our rivers, renewed).

system will connect to the existing combined sewer system, diverting millions of gallons of combined sewage to AlexRenew for treatment and significantly reducing the frequency and volume of overflow events into Alexandria's waterways.

The RiverRenew team analyzed the recent climate period from 2000 to 2016 to measure performance of the program. Overflows occur approximately 60 times per year, or anytime there is a rain event greater than a quarter-inch. These discharges result in approximately 140 million gallons of combined sewage pollution from the 540-acre combined sewer area each year. The tunnel system and wastewater plant upgrades will reduce the frequency of discharges to less than four per year and reduce the volume discharged to 16 million gallons. In addition, the new system will provide approximately 97% capture of combined sewage.



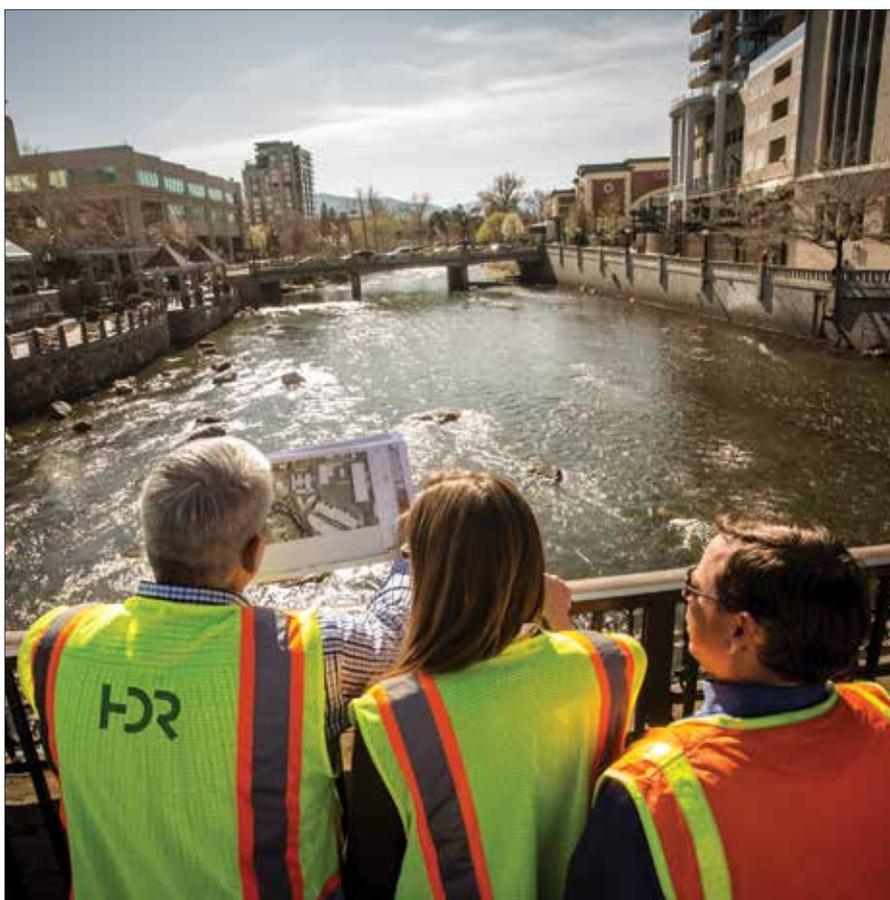
RiverRenew will construct a two-mile-long deep tunnel system that will connect to existing combined sewer outfalls to divert overflows and convey the flows to AlexRenew's water resource recovery facility for treatment. (The figure shows the tunnel system's general location. Actual tunnel system route alternatives are currently under evaluation.)

The significant reduction in the frequency and volume of these discharges will achieve cleaner, healthier waterways by reducing the amount of bacteria, trash, and other pollutants that currently impact Hooffs Run, Hunting Creek, and the Potomac River.

At the center of RiverRenew is a 12-foot-diameter, two-mile-long storage and conveyance tunnel that will control discharges from Outfalls 001 and 002. The proposed deep tunnel will be constructed in the Potomac Formation, a 100-million-year-old layer of soil consisting primarily of clay and fine sands. The depth of this soil group drives the overall

TABLE 1: Summary of reductions in number of combined sewer overflow events and volume of combined sewer discharges following the completion of RiverRenew.

Outfall	Overflow events/year		Volume/year (million gallons)	
	Now	After RiverRenew's implementation	Now	After RiverRenew's implementation
001	34	2	63	8
002	78	2	38	5
003	60	2	31	1
004	71	< 1	8	2
Total			140	16



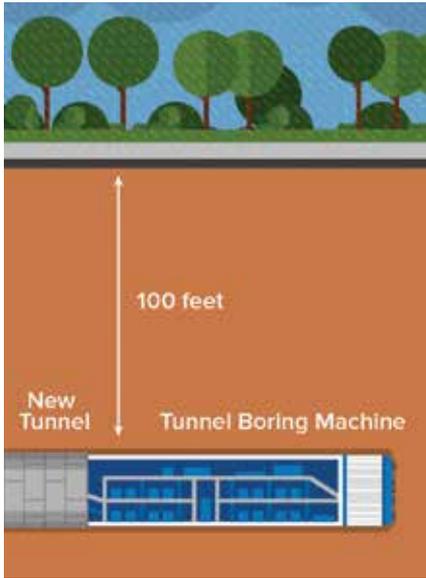
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depth of the deep tunnel, currently planned for 120 feet below ground. The tunnel itself will be constructed using an Earth Pressure Balance Tunnel Boring Machine (TBM) that excavates material and installs precast



The tunnel system will be constructed approximately 100 feet below ground with a state-of-the-art tunnel boring machine that excavates material and installs precast concrete segments in a single pass.

concrete segments in a single pass. The TBM will be launched from AlexRenew, moving east, then north, about 40 feet per day as it installs new sewer infrastructure and is largely undetected at the surface. The state-of-the-art machine is designed to maintain a constant pressure on its face, or “cutterhead,” significantly minimizing the potential for ground movement.

Outfalls 003 and 004 will be remediated by the construction of a six-foot-diameter conveyance pipeline coupled with a 130 million gallons per day (MGD) wet weather pumping station and 40 MGD wet weather treatment facility. The RiverRenew team is currently analyzing two alternatives for the pipeline: trenchless or open cut. Both options are shallower than the proposed deep tunnel serving Outfalls 001 and 002, with a depth ranging from ten feet to 40 feet.

While the deep tunnel and conveyance pipeline will connect AlexRenew to the existing outfalls, new diversion facilities will be constructed to connect into the existing combined sewer system and convey flows to the tunnel and conveyance pipeline. Diversion facilities are the workhorses of tunnel systems; the RiverRenew diversion facilities will be designed to convey up to 200 MGD of combined sewage.

A significant amount of construction activity over the next seven years will transform AlexRenew’s wastewater treatment plant to support the new sewer infrastructure and treatment of additional wet weather flows. To accommodate tunneling operations from

About AlexRenew

Led by a five-member citizen Board, Alexandria Renew Enterprises (AlexRenew) is a special-purpose wastewater authority serving over 300,000 people in the City of Alexandria and parts of Fairfax County. AlexRenew treats an average of 35 million gallons of wastewater per day at its water resource recovery facility located in Alexandria, in Virginia’s southwest quadrant.

the plant, AlexRenew will decommission and demolish its former administrative building, which also includes the main plant laboratory. The laboratory and other plant functions will be relocated and the building demolished to accommodate tunnel construction by 2021. The tunnel will be built from a 50-foot-diameter shaft and three-acre construction staging area that will largely use all available free space at and adjacent to the plant.

Following tunneling operations, the 50-foot shaft will be built out to accommodate a drop shaft and a 40 MGD tunnel dewatering pumping station with screening equipment to remove muck from the tunnel following rain events. Since AlexRenew is located in an urban environment, the shaft and screening system will be housed in a superstructure to align with other common architectural elements in the area. Other RiverRenew-related projects at the plant include:

- Expansion of the primary effluent pumps.
- Installation of a 130 MGD wet weather pumping station.
- Relocation of chillers and electrical equipment.
- Conversion of two existing primary settling tanks to be used as a wet weather disinfection facility.

Currently in the planning phase, RiverRenew has been particularly focused on analyzing its impacts to the community and environment. The proposed facilities enter federal land, namely Jones Point Park and the Potomac River riverbed, and as such, the program falls under the requirements of the *National Environmental*

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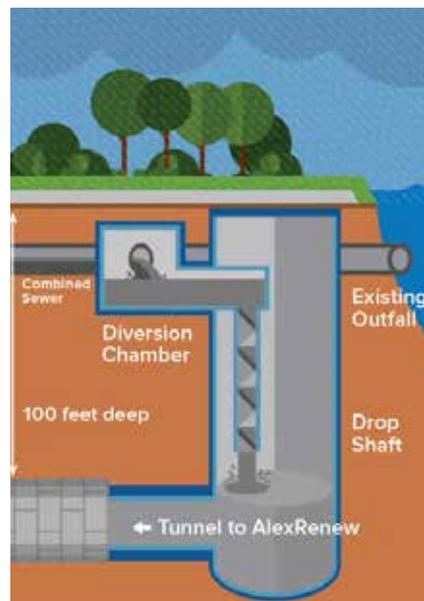
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Diversion facilities consist of a diversion chamber, approach channel, and drop shaft. The drop shafts associated with RiverRenew are proposed to be approximately 40 feet in diameter and 120 feet deep.

Policy Act. RiverRenew is currently conducting an Environmental Assessment (EA) with the National Park Service to analyze its potential environmental impacts. The EA will ensure that natural resources, cultural resources, and community impacts are considered when locating proposed alternatives for the tunnel system. Community feedback is a critical part of the EA, and RiverRenew has implemented a robust outreach plan to inform Alexandrians about tunnel alignment alternatives, diversion facility locations, and anticipated construction impacts. Comments received from the community will be incorporated into analysis of the proposed alternatives.

Historic Alexandria Resources Commission, and other consulting parties to ensure Alexandria's historic and archaeological resources are carefully considered and any potential adverse effects are appropriately mitigated. At the same time, the RiverRenew team has completed nearly 20 deep geotechnical borings along the tunnel corridor to gain a better understanding of Alexandria's geology to optimize the tunnel designs. It is anticipated that further drilling will occur in 2019 once a tunnel alignment is selected.

Construction at AlexRenew will begin this summer. While these early-release packages are underway at AlexRenew, the

project team will finalize the EA and select a preferred tunnel alignment and diversion facility locations. Following this major permitting milestone, detailed engineering efforts to support the development of Request for Proposal (RFP) Documents will begin. The RFP Documents will support the procurement of the tunnel system via a design-build methodology, with an anticipated construction start date of December 2020.

Throughout construction, AlexRenew will engage with a Stakeholder Advisory Group of 13 Alexandria residents to review and mitigate potential construction impacts



Community feedback is a critical part of the EA, and RiverRenew has implemented a robust outreach plan to inform Alexandrians about tunnel alignment alternatives, diversion facility locations, and anticipated construction impacts.

In addition to the EA process, RiverRenew is also considering the effects on historic structures through the Section 106 process. Section 106 of the *National Historic Preservation Act* requires federal agencies to consider the impacts of their undertakings on any structure, site, or district listed or eligible for listing in the National Register of Historic Places. RiverRenew is actively coordinating with federal and state agencies as well as City of Alexandria staff, the Alexandria Archaeological Commission, the

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A significant geotechnical investigation is being conducted to gain a better understanding of Alexandria's geology to optimize the tunnel designs.



In seven years' time, Alexandria will be on its way to safer waterways for the community.

in the community. Stakeholders were nominated by prevalent Alexandria community groups and selected through an application process. The Stakeholder Advisory Group is anticipated to be established in January 2019 and will conduct meetings on a monthly basis. As ambassadors to their neighbors and city, the Stakeholder Advisory Group is critical to ensuring the needs of Alexandrians are met as AlexRenew implements one of the most challenging and complex public works projects ever undertaken in the City of Alexandria.

Correcting a century-old issue in a historic city that was largely established in the twentieth century will require significant expenditures. At approximately a 10% design level, RiverRenew cost estimates range from \$370 to \$555 million, which will largely be borne by ratepayers in Alexandria. AlexRenew, with support from its City of Alexandria partners, has requested that 20% of the project be funded via state grants, similar to other combined sewer projects in the Commonwealth of Virginia. A request of \$25 million was made for Fiscal Year 2019 to assist with funding the early design and construction work and to minimize the potential for rate shock to Alexandria residents.

In seven years' time, Alexandria will be on its way to safer waterways for the community, a healthier environment for local wildlife, and a cleaner Potomac River for future generations. Stakeholders interested in RiverRenew can stay up to date with progress at riverrenew.com. The website currently has featured content on the design of Alexandria's diversion facilities. For more information about the project, send an email to askriverrenew@alexrenew.com.



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War of the Weeds

By Kathi Mestayer, KMA Consulting

You know that Chinese wisteria that's taken over the pump station site, jumped the fence, and is now chewing up adjacent acreage like it owns the place? How about Oriental bittersweet, that cute groundcover, creeping like a blanket up tree trunks to 50 feet and dragging trees and branches down in ice and wind storms? Then there is the stately bamboo army, marching forward, shoot by shoot, until it withstands water, fire, or a three-foot-deep stainless-steel barrier?

That's just the tip of the iceberg. Utilities like the Virginia Department of Transportation, the National Parks Service, Virginia Cooperative Extension, and other public entities are spending more and more time and money managing nonnative invasive plants.

The Joint WEA and VA AWWA Sustainability Utilities Committee is planning a webinar in the Spring of 2019 on the subject. The program will be offered by Blue Ridge PRISM (Partnership for Regional Invasive Species Management), a nonprofit organization that has been very actively helping with these problems. Blue Ridge PRISM has received federal funding to help public and private landowners in ten counties along the northern Blue Ridge Mountains. These funds help the landowners manage invasive problems, sometimes on a large scale (e.g., major equipment). The PRISM also conducts in-depth classes on how to identify and manage invasive plants.

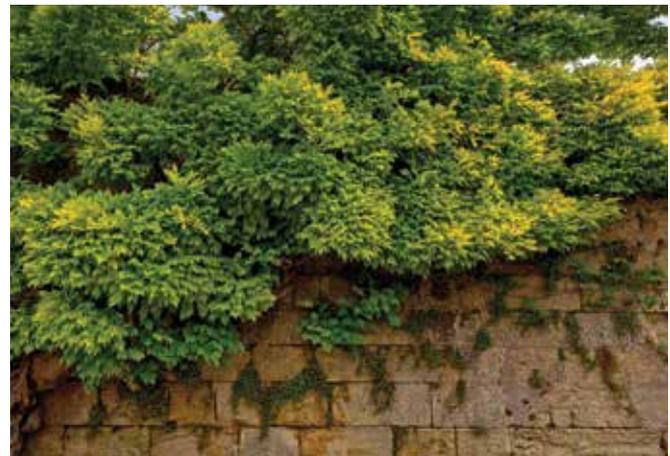
Blue Ridge PRISM's website offers information and advice (and scary photos) on managing many of the plants most often dealt with in Virginia. See *Invasives: Bullies of the Plant World* by visiting <http://blueridgeprism.org/factsheets>.

The webinar will be given by Blue Ridge PRISM's directors, Rod and Maggie Walker, who have gotten the program going and are looking to expand it across the state.

A notice will be issued when the webinar is scheduled in the Spring of 2019. To get on the email list for an additional notice, please sign up by contacting Kathi Mestayer at kwren@widomaker.com. ☺



Bamboo, unimpeded.
Photo courtesy of Blue Ridge PRISM.



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HRSD: COLLABORATIVE EDUCATION DAY

By Keegan Ankofski, Chief Maintenance Management – South Shore, HRSD

With aging and expanding infrastructure comes the opportunity for newer employees to gain valuable hands-on collections system operation and repair knowledge while working within the HRSD Collections System. Traditional HRSD hands-on learning opportunities include on-the-job training and the HRSD apprenticeship program. Five years ago, management within HRSD's South Shore Interceptors Division identified gaps in training for non-apprentice employees. As a result, HRSD developed a unique way to provide hands-on learning opportunities through a twice-yearly Collaborative Education Day (CED). This event is hosted by HRSD and gives HRSD employees and staff from the localities served the opportunity to learn about the preventive and corrective ways to maintain collections systems and handle emergency repairs.

The CED is led by HRSD's more experienced team members and is held at one of our training facilities in Chesapeake. The CED adds a critical layer of training by giving newer team members the opportunity to learn how to respond to emergency situations through simulated practice stations. The benefits of CEDs are appreciated by HRSD staff across all levels.

"This training allows us to simulate active emergency repair situations without the time constraints of a real emergency, giving us ample time with newer employees to show them how repairs will be executed in the field. The CED is also a good refresher for seasoned employees," said Charles Hawkins, Interceptor Chief Foreman.

Training Stations

CED hands-on learning is conducted via the use of nine training stations, which include:

- Couplings
- Mechanical Joints
- Air Venting
- Trenching and Shoring
- Concrete Pipe Repair
- Cast and Ductile Iron Pipe Cutting and Repair
- Well Points
- Bypass Pumping
- Emergency Power Restoration

A sample of the activities performed at some of the stations are discussed in the sections below.

Training Station: Coupling Station

Pictured left to right at the Coupling Station are D'Angelo Greene, Interceptor Assistant; Mike Ethridge, Interceptor Technician; and Steve Grooms, Interceptor Technician. Here, employees are practicing a point repair on a compromised pipe, which could occur as a result of a crack or corrosion. They install a new section of ductile iron pipe using the proper couplings and torque the bolts to the appropriate specification.

After participating in repair activities at the Coupling Station, Rebekah Grimstead commented, "During this station I learned the importance of double-checking all measurements and marking these measurements on the pipe before trying to install a new section."

Training Station: Mechanical Joints

Pictured left to right at the Mechanical Joints Station are David Anderson, Interceptor Foreman; Joseph Salone, Interceptor Assistant; and Dan Johnson, Interceptor Heavy Equipment Operator. Here, David is teaching



Pictured left to right at our Trenching and Shoring Station are Randy Cummins, Interceptor Technician; William Bolden, Interceptor Assistant; Steve Grooms, Interceptor Technician; and D'Angelo Greene, Interceptor Assistant.

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Joseph and Dan the proper way to tie in a new section of pipe utilizing a ductile iron gland and a mechanical joint gasket. As the pipe is slid into the joint, it will be bolted in place using T-bolts and torqued to the proper specification.

Training Station: Air Venting

Pictured left to right at the Air Venting Station are Randy Cummins, Interceptor Technician; D'Angelo Greene, Interceptor Assistant; Steve Grooms, Interceptor Technician; and William Bolden, Interceptor Technician. Employees are simulating an emergency resulting from a broken air venting riser. A 24-inch stick of ductile iron pressurized with fresh water is set up. We use typical system pressures to make the situation as real as possible. After the wooden plug is in place and the spill is contained, the employees will then put a two-inch tapping saddle around the pipe. The corporation stop and riser pipe will be replaced.

The three-day CED event is conducted semi-annually to ensure that staff stays current on training. The first two days are reserved for HRSD employees and the third day is open to locality partners who want to send their employees to participate. We view CEDs as a great opportunity to sharpen our field skills and as a means of exchanging "best practices" while strengthening our working relationships with other localities. Our hope is that all localities will be able to take advantage of a CED in the future.

Keegan Ankofski may be reached by phone (office: 757-460-7098; mobile: 757-284-8114) or email (Kankofski@hrsd.com).



Pictured left to right at the Coupling Station are D'Angelo Greene, Interceptor Assistant; Mike Ethridge, Interceptor Technician; and Steve Grooms, Interceptor Technician.



Pictured left to right at the Mechanical Joint Station are David Anderson, Interceptor Foreman; Joseph Salone, Interceptor Assistant; and Dan Johnson, Interceptor Heavy Equipment Operator.



Pictured left to right at the Air Venting Station are Randy Cummins, Interceptor Technician; D'Angelo Greene, Interceptor Assistant; Steve Grooms, Interceptor Technician; and William Bolden, Interceptor Technician.



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CREATIVE SPIRIT ON DISPLAY AT MODEL WATER TOWER COMPETITION

Provided by Prince William County Service Authority

The Prince William County Service Authority's Model Water Tower Competition took on a creative and festive feel this year, thanks to the holiday-themed winning entry.

St. Francis student Jerry Boasmanboon and his neighbor Renu Nguyen-Rawoor of Graham Park Middle School created a working water tower that combined elements of Halloween, Thanksgiving, and Christmas. Boasmanboon and Nguyen-Rawoor, who called their team the Water Tank Warriors, painted a cheese ball can orange for Halloween and decorated the top with a turkey face and feathers to represent Thanksgiving. They wrapped battery-powered lights around the tower's legs and glued peppermints on the structure to give it a Christmas feel.

That creativity was on display in all ten entries of the competition, which was sponsored by VA AWWA and Micron Technology. Entries were rated on structural, hydraulic, and cost efficiency as well as design ingenuity.

"The kids not only utilized different materials and structural concepts, but made it uniquely theirs by decorating their water towers to match their creative sides," said competition judge Andrew Cockram, a GIS Technician at the Service Authority.

Second place went to Maddi Waltsak of Antietam Elementary School, and third went to the team of Kylie Hayes, Erin Fortson, Laurie Kouevi, Stella Kouevi, and Alyssa Cassel of Woodbridge Middle School. The competition was opened this year to fifth graders who are



Winners Renu Nguyen-Rawoor and Jerry Boasmanboon designed a working water tower that combined elements of Halloween, Thanksgiving, and Christmas.

enrolled in Prince William County's SIGNET (Students Involved in Gifted Needs in Education Today) program.

Judge Glenn Pearson said he was just as impressed by the level of enthusiasm and curiosity shown by the parents during the event. The Work for Water Committee, which comprises members of VWEA and VA AWWA, hosted an informational booth on careers in the industry as the students were being judged. Families also watched a short video about the value that comes from working in

the water and wastewater industry before the awards ceremony.

"At the hydraulics station, I was asked many questions (from kids and adults) about how our water distribution system operates, how the tanks work, why tanks look different from site to site, how much water our tanks hold, and so on," said Pearson, the Service Authority's Deputy Director of Operations & Maintenance. "The level of curiosity was much higher than I initially expected." ☺

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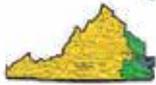
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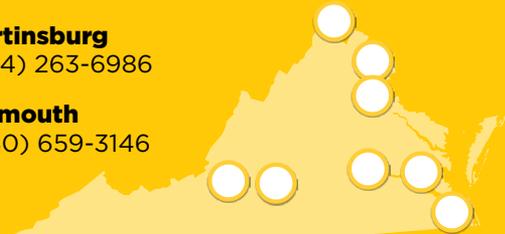
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U.S. STOCKHOLM JUNIOR WATER PRIZE 2019

For many years, the Stockholm Junior Water Prize (SJWP) has congregated the nation’s most imaginative young minds for an outstanding competition in water-related science projects. A high school student (or group of two students, Grades 9-12) with a science project aimed at enhancing quality of life through the improvement of water quality, water resource management, or water and watershed treatment is qualified to participate in the SJWP.

Every year, beginning in March, VWEA asks for volunteer judges for the SJWP competition at regional high school science fairs all over the Commonwealth. Currently, we are looking for volunteers to fill the following positions:

1. Attend a science fair (listed below) and award two top students (or student groups). Winners at each fair will receive monetary awards and are highly encouraged to continue their research.
 - a. While at the regional science fairs, pass out literature to all students

who present water-related projects, inviting them to submit their work to the VA State SJWP.

2. In April, read and score the submitted papers as a means of choosing a state winner.

The student(s) chosen to represent Virginia at the SJWP will travel to Columbus, OH in June to compete against the rest of the country and, if chosen as the national winner, will travel to Stockholm, Sweden in August to compete at the international level!

If you or someone you know are able to judge for any of the events listed below, please contact the SJWP State Co-Organizers: Angela Weatherhead (angela.weatherhead@hdrinc.com or 757-599-7012) or Christine Radke (cradke@waterrf.org or 571-384-2106). For more information on SJWP, please visit www.wef.org/sjwp.

Please help show your support for all these wonderful student researchers! ☺

Date	City	Name of Fair	Location
March 2	Warrenton	Fauquier County Regional Science & Engineering Fair	Radford University - Peters Gym
March 5	Harrisonburg	Shenandoah Valley Regional Science Fair	Merritt Hall, Central Virginia Community College
March 9	Radford	Blue Ridge Highlands Regional Science Fair	Wakefield High School
March 14	Charlottesville	Virginia Piedmont Regional Science Fair	Fauquier High School
March 14	Leesburg	Loudoun County Science and Engineering Fair	Godwin Hall, James Madison University
March 16	Arlington	Northern Virginia Regional Science and Engineering Fair	UVA John Paul Jones Arena
March 16	Fairfax	Fairfax County Area Regional Science and Engineering Fair	Old Dominion University
March 16	Norfolk	Tidewater Science and Engineering Fair	Kelly Leadership Center
March 16	Richmond	Metro Richmond STEM Fai	Math Science Innovation Center
March 16	Roanoke	Western Virginia Regional Science Fair	Riverside High School
March 23	Manassas	Prince William-Manassas Regional Science Fair	Kelly Leadership Center
April 6		Virginia State Science and Engineering Fair	Berglund Hall, Virginia Tech
Mid- to late April	N/A	SJWP paper judging	Work from home!

The WEF Stormwater Institute Announces its 2018 MS4 Award Winners

On October 1, 2018, 22 agencies received recognition by the fourth annual WEF National Municipal Stormwater and Green Infrastructure Awards Program. The winners received their awards at the Stormwater Congress Luncheon held at WEFTEC® 2018 in New Orleans, LA.

Housed within the WEF Stormwater Institute, this awards program was developed to encourage innovation among municipal separate storm sewer system (MS4s) programs nationwide. The MS4 awards are intended to inspire leaders to seek new and innovative ways to meet and exceed regulatory requirements in ways that are technically effective and financially efficient.

The three award categories are Program Management, Innovation, and Overall Highest Score, which indicates the best performing programs. Each category has winners in both Phase I and Phase II communities. Phase I communities are medium and large cities or certain counties with populations of 100,000 or more. Phase II communities are smaller entities that operate an MS4.

The 2018 National Municipal Stormwater and Green Infrastructure Award winners are listed below.

Phase I Winners

- Lexington-Fayette Urban County Government, Division of Water Quality – Program Management and Overall Highest Score
- Louisville Metropolitan Sewer District, Kentucky – Innovation

Phase II Winners

- City of Alexandria, Virginia — Innovation and Overall Highest Score
- City of Auburn, Alabama – Program Management

In addition to the winners, the other applicants have been categorized into levels signifying their status among other MS4 communities nationwide. Each MS4 received a certificate indicating Silver or Gold status in both program management and innovation. [e](#)

Phase I Recognition

	Program Management		Innovation	
	Gold	Silver	Gold	Silver
Anne Arundel County, Maryland	x			x
City of Dayton, Department of Water, Ohio	x			x
City of Glendale, Water Services Department, Arizona	x			x
City of Los Angeles, LA Sanitation and Environment, Watershed Protection Division	x			x
City of Pensacola, Florida		x		x
District Department of the Environment, Washington, D.C.	x			x
Fairfax County, Department of Public Works and Environmental Services, Stormwater Planning Division, Virginia	x			x
Jefferson Parish, Louisiana	x			x
State of Hawaii Department of Transportation, Highways Division, Oahu District	x			x

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Phase II Recognition

	Program Management		Innovation	
	Gold	Silver	Gold	Silver
Capitol Region Watershed District, Minnesota	x			x
City of Richmond, Department of Public Utilities, Virginia	x			x
East Lampeter Township, Pennsylvania	x			x
Lake Havasu City, Arizona	x			x
Metropolitan St. Louis Sewer District, Missouri	x			x
Sewerage and Water Board of New Orleans, Louisiana	x			x
St. Tammany Parish Government, Louisiana		x		x
Town of North Hempstead, New York		x		x
Town of Yarmouth, Massachusetts	x			x



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The Joint VWEA/VA AWWA Student Activities Committee Announces the Winners of the 2018 Digital Knowledge Competition

Digital Knowledge Competition
Congratulations to the 2018 WaterJAM Digital Knowledge Competition winners! \$500 is awarded to each first-place winner and \$250 is awarded to each second-place winner, along with bragging rights!

Student Activities Committee Winners:

1st Place: Akshay Jain, "Bioelectrochemical Systems" – Virginia Tech
2nd Place: Kyung Sun Chung, "Template Assisted Crystallization (TAC) for Reverse Osmosis" – Virginia Tech

Young Professionals Committee Winners:

1st Place: Mehdi Ketabchy, "Simulation of Watershed-scale Practices for Mitigating the Thermal Pollution of Urbanization" – Gannett Fleming, Inc.
2nd Place: Michael Schindler, "Crushed Glass, the Valuable Resource Nobody is Thinking About" – Fairfax County

These innovative videos can be viewed at <https://vwea.site-ym.com/page/DigitalKnowledge>. Please contact Rebecca Holgate (rholgate@hazenandsawyer.com) for more details! 



The VA AWWA/VWEA Lab Practices Committee is Looking for Members

By Mignonne Wint, Committee Chair

The Lab Practices Committee membership is represented by a variety of municipal wastewater and drinking water laboratories, commercial laboratories, regulatory agencies, and vendors. The Lab Practices Committee provides a professional,

friendly, and relaxed venue where members can network, share information, and collaborate on important issues. The Laboratory Practice Committee invites you to be a part of this awesome committee.

Remaining meeting dates for 2019

are March 20, April 17, June 19, and October 16. Meetings start at 10 a.m. at the Henrico Operations Building, 10401 Jessie Chavis Drive, Glen Allen, VA 23060. For further information, please contact Mignonne Wint at mignonne.wint@norfolk.gov.



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THE MOST INCREDIBLE THING WE'VE ENGINEERED IS OUR TEAM

The Sustainable Utilities Committee Introduces Sustainable Event Planning and Tracking to VWEA Events and Beyond

The WVEA/VA AWWA Sustainable Utilities Committee aims to lead the growth and advancement of sustainable practices in the utilities industry through communication and educational opportunities among our members and Virginia water professionals. Through this objective, we also recognize our Association’s need to “walk the talk” to help demonstrate our commitment to sustainable practices.

The Sustainable Utilities Committee has developed a Sustainable Event Planning Strategy and Tracking Register (hereafter, the Register) as a simple way to identify and track opportunities to make our events much more sustainable. While our events furnish excellent opportunities to grow our professional capabilities, they also tend to have a significant resource footprint. Checklists included in the Register address many typical components included in event planning and execution and identify strategies to increase sustainable performance.

The Register PDF allows editing and saving of information for each sustainability component, which can assist in action items, tracking, and reporting of any item. For convenience, it is broken into the major event components that are often applicable to VWEA (and VA AWWA) events. The components include:

- Registration and Program
- Exhibit Hall
- Field Trips and Tours
- Food and Beverage
- Offsite Network Events
- Venue Overall
- Event Hotel
- Overall Event Planning

We hope you will download the Sustainable Event Planning Strategy and Tracking Register and use it for your next VWEA committee-sponsored event. This checklist is available for download on the “Commit-

tee Resources” page on the VWEA website (<https://vwea.site-ym.com/page/CommitteeResources>).

Additional coordination is underway to promote the Register for use at sister association events and for national-level events hosted by AWWA and WEF. Please help us spread the word about this new tool and share your experience with its application with us. For feedback and questions, please contact Evan Bowles at ebowles@hazenand-sawyer.com or Matthias Wittenberg, Sustainable Utilities Committee Chair, at wittenbergm@cdmsmith.com. ☺



WaterJAM 2018 – A Virginia Green Certified Sustainable Event.

Sustainable Event Planning Action Plan Checklist for Field Trips and Tours.

Field Trips and Tours	
Sustainable Practice	Action Plan
Provide event information via website or smartphone app in lieu of print	
Use recycled/sustainably-sourced biodegradable consumable materials	
Recycle materials at end of useful life	
Provide audiovisual components appropriate for the event rooms (e.g., screen size, sound amplification)	
Provide lunch options/items that minimize packaging	
Encourage carpooling and rent hybrid/high occupancy transport vehicles for offsite events or hotel transport	
Ensure offsite event disposal options include a recycling receptacle	

Sustainable Event Planning Matrix.

Sustainable Practice	Registration and Program	Exhibit Hall	Field Trips and Tours	Food & Beverage	Offsite Networking Events (e.g., Golf)	Venue Overall	Event Hotel	Overall Event Planning
Recognize and reward exhibitors that use sustainable practices in their exhibit		•						•
Ensure venue can provide adequate lighting, accessibility, safety, and HVAC		•	•		•	•	•	•
Request a privacy room for use by attendees (e.g., nursing mothers)						•	•	•
Communicate sustainability goals/performance in <i>Conduit</i> and <i>Tap into Virginia</i> magazines								•
Communicate sustainability goals/performance with signs and announcements at events	•							•
Purchase carbon offsets for event carbon footprint								•
Select event venues nearby to the main event venue			•		•		•	•
Select event venues local to targeted event attendees			•		•	•	•	•
Select event venues nearby mass/public transit options			•		•	•	•	•
Advertise availability of nearby mass/public transit options in event planner	•							•
Provide bike rack storage outside of main event venue						•	•	•
Provide electric vehicle charging stations at main event venue						•	•	•
Provide mapping of vicinity around event in planner and/or app	•							•
Eliminate use of bottled water		•	•	•	•			•
Provide pitchers of tap water		•	•	•	•			•
Encourage use of green cleaning products						•	•	•
Contract with hotels that have made commitments to sustainable practices							•	•





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The 2019 VWEA Public Official Award

The Public and Government Affairs Committee is now taking nominations for the 2019 VWEA Public Officials Award. The Public Officials Award is presented to an elected or appointed public official **that has made a documented, significant contribution in the areas of clean water legislation, public policy, government service, or another area of public prominence that resulted in improvements to the water environment.** The award can be presented for public service at the local, state, or federal level. The Public and Government Affairs Committee evaluates the nominations and makes a recommendation to the VWEA Board

for approval. If approved, the Public Official Award is presented at WaterJAM. Winners of the VWEA Public Official Award are nominated for the WEF Public Officials Award.

If there is a person you believe should be considered for this award, please contact James Grandstaff, Public and Government Affairs Committee Chair, at 804-501-7689 or gra@henrico.us. A one-page biography of the nominee, a list of the specific reasons for the nomination (two pages maximum) relating to their work in improving the water environment, and any other supporting material relating to the award criteria are required for each nomination. Nominations must be received by **March 15, 2019**.



The 2019 VWEA Al H. Paessler Environmental Stewardship Award

The Public and Government Affairs Committee is now taking nominations for the 2019 VWEA Al H. Paessler Environmental Steward-

ship Award. Al Paessler was one of the initial employees of the State Water Control Board, which was formed in 1947. He served as Executive Secretary from 1949 to 1972 and

was the longest-serving Executive Secretary of one of the precursor agencies to the Virginia Department of Environmental Quality. He was President of the Virginia Water Pollution Control Association (now the Virginia Water Environment Association) from 1959 to 1960. By naming this award after Mr. Paessler, we **emphasize government employee service to the water environment field and to VWEA.** The Public and Government Affairs Committee evaluates the nominations and makes a recommendation to the VWEA Board for approval. If approved, the Al. H. Paessler Environmental Stewardship Award is presented at WaterJAM.

If there is a person you believe should be considered for this award, please contact James Grandstaff, Public and Government Affairs Committee Chair, at 804-501-7689 or gra@henrico.us. A one-page biography of the nominee, a list of the specific reasons for the nomination (two pages maximum) relating to their work in improving the water environment, and any other supporting material relating to the award criteria are required for each nomination. Nominations must be received by **March 15, 2019**. ☺

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VWEA Scholarship Committee Now Accepting Applications

By Stacie Crandall, Committee Chair and Allison Lee, Committee Vice-Chair

The New Year represents new beginnings and future plans. High school seniors and their families, including many VWEA members, begin making plans for their future, and many of these plans include college or entry into the water profession. For currently enrolled college students, this time of year means achievement of milestones through completion of another semester and planning for the future – such as planning for summer and the following school year. Some prospective high school graduates are planning to start a career in our industry as operators, and experienced operators are planning to attend short school at Virginia Tech to further their career.

VWEA supports these new beginnings and opportunities for education through its Scholarship Program. One of the most important missions for the association is education – both for our members and for our industry. We have all heard about how encouraging the next generation of operators, laboratory scientists, and engineers will ensure we have the best-trained staff to continue the important work of providing clean and safe water to our communities. VWEA is committed to this important mission – and we put our money to work! The college scholarships are all for \$2,500 and the Operator Scholarship covers tuition and boarding for one student and tuition for two more attendees.

VWEA is offering five scholarships this year – serving everyone from college freshmen and community college students to graduate engineering students and operators. The scholarships are:

- **Rising Freshman:** Open to all 2019 high school graduates planning to attend Virginia universities or community colleges and studying civil or environmental engineering or physical/environmental sciences. VWEA will award \$2,500.
- **Undergraduate:** Open to all undergraduates attending Virginia universities or community colleges and studying civil or environmental engineering or physical/environmental sciences. VWEA will award \$2,500.
- **Sonny Roden Memorial:** Open to all graduate students enrolled in civil or environmental engineering or physical/environmental science graduate programs at Virginia universities. VWEA will award \$2,500.
- **Operators:** Open to all operators employed in the wastewater treatment profession in Virginia. VWEA will award up to three scholarships for operators to attend the Operator Short School at Virginia Tech (one award will include full tuition and boarding; two awards will be for tuition only).
- **Member Dependent:** Open to all children of current VWEA members enrolled at Virginia universities or community colleges in a civil or environmental engineering or physical/environmental science undergraduate program. VWEA will award \$2,500.

The Member Dependent Scholarship is one of the most important direct member benefits that VWEA offers, and the Scholarship Committee encourages dependents of VWEA members who meet the criteria for this scholarship to apply. All of you who have college-aged children studying civil or environmental engineering or physical/environmental

science at a Virginia university or community college should ensure your kids apply for this very special benefit!

Applications for all of the VWEA scholarships are available on the VWEA website (<https://vwea.site-ym.com/page/Scholarships>). The Operator Scholarship applications are due **April 30, 2019**. Applications for all other college scholarships are due **May 24, 2019**.

Please spread the word among your co-workers, your kids, your kids' schools, and anyone who could use a boost to help pay their education expenses. You might be helping the next plant superintendent, chief chemist, director of engineering, and future VWEA leader!

The Scholarship Committee is also looking for individuals to volunteer as members or application scorers. If you are interested in these opportunities, please contact Stacie Crandall (scrandall@hrsdc.com) or Allison Lee (alee@hazenandsawyer.com).

The winners of the 2018 scholarships are:

Virginia Tech Short School Operator Scholarships

William Cleary, Chesterfield County
Randall Sullivan, Town of Abingdon 



Sonny Roden Memorial Graduate Student Scholarship

Jigme Tenzin, George Mason University



VWEA Undergraduate Scholarship

Michael Schindler,
George Mason University



VWEA Undergraduate Scholarship

Sarah Shay, George Mason University



VWEA Rising Freshman Scholarship

Anika Iyer, University of Virginia



VWEA Member Dependent Scholarship

Grant Rabalais, James Madison University

THE VA AWWA/VWEA LAB PRACTICES COMMITTEE SEEKS CANDIDATES FOR THE 2019 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 listed in the table 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 that 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

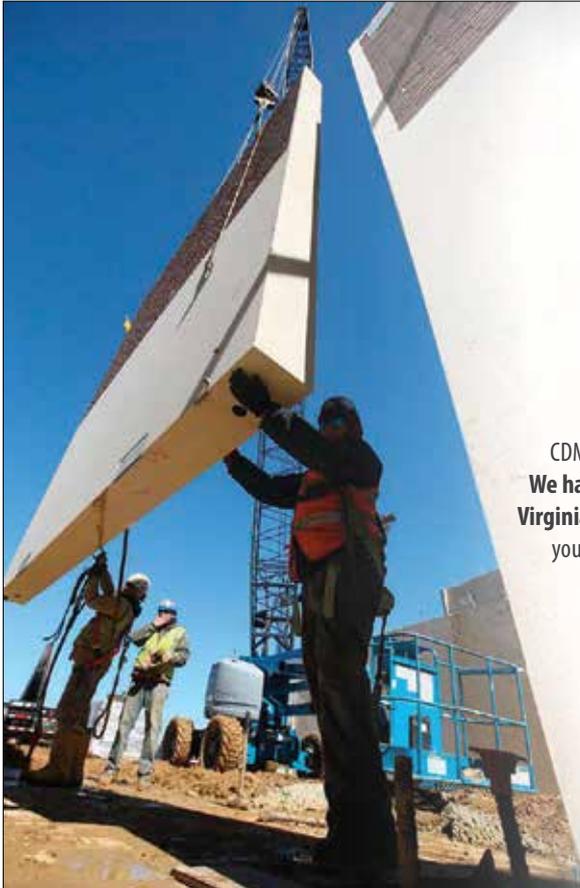
- **INITIATIVE** — The nominee must have shown initiative in pursuing innovative bench or field technique improvements.
- **PERFORMANCE**
 - * The nominee must have performed duties consistently as outlined by laboratory or field sampling/analytical methods.
 - * The nominee's performance must demonstrate 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 15, 2019**. It's never too early to nominate. 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 Rd., Chester, VA 23836
Phone: 804-768-7351
Fax: 804-748-4692
brooksdl@chesterfield.gov 



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Member Spotlight

Each year the VWEA 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. Seven people joined our ranks between mid-December 2018 and **early March 2019**. We formally extend a warm welcome to our new additions. If you see these folks around, please say hello and introduce yourself.

Amy Ballard, Brown & Caldwell
William Boston, City of Richmond Department of Public Utilities
Andrew Cockram, Prince William County Service Authority
Thomas P. Daughtrey, HRSD
Travis E. Farmer
Raymond Grover
Alan Karnovitz, Hazen and Sawyer
Styliani (Stella) Koutoupi, HRSD
Maria J. Larson, AlexRenew
Elizabeth Maloney, Stantec
Matt Reynolds, Aegis Environmental, Inc.
Trey Rogers, HRSD
Michele Siminari, Fairfax County Water Authority
Brian Williams, TA Sheets General Contractors



Name: NICOLLE BOULAY

Month or Years with VWEA: About 20 years.

Company/Profession: DC Metro Water Business Sector Leader for Stantec.

Years of Experience: I have nearly 20 years of experience in water and wastewater treatment plant planning, design, and construction across the Washington, D.C. metro area.

Home Town: Attleboro, MA; I currently reside in Herndon, VA.

What kind of projects do you work on? My experience is mostly in planning, design, and construction of water and wastewater treatment facilities. I recently worked as the Program Manager for the Potomac Water Supply Program for Loudoun Water. This program included the

design and construction of a new water treatment plant and an intake on the Potomac River. Currently I am working with a team at Stantec on a project to rehabilitate the Advanced Water Treatment Facilities at the Upper Occoquan Service Authority.

What drew you into joining VWEA? I worked at the Blue Plains Advanced Wastewater Treatment Facility in Washington, D.C. when I began my career and many of my colleagues on that project were involved in VWEA, so I decided to sign up. I have found a lot of value in being a member of VWEA, including networking, leadership opportunities, and lots of learning.

What is your favorite thing to do outside of the office? Run, hike, and hang out with my husband, daughter (12), and son (10).



Name: MATT REYNOLDS

(New member!)

Month or Years with VWEA: 1 month

Company/Profession: Project Scientist, Aegis Environmental, Inc.

Years of Experience: 6 months

Home Town: Richmond, VA

What kind of projects do you work on? Water quality sampling and data management; soil sampling and data management; Phase I and II environmental site assessments; site characterization and risk assessment reports; spill prevention, control, and countermeasure plans; and Title V permit applications.

What drew you into joining VWEA? I value the condition of our water resources in Virginia and would like to interact and network with people who share similar interests.

What is your favorite thing to do outside of the office? Skiing. ☺

35TH ANNUAL INDUSTRIAL WASTE & PRETREATMENT CONFERENCE

Something's Always Brewing in the
Pretreatment World

VWEA's Industrial Waste & Pretreatment Committee cordially invites all wastewater professionals to attend the 35th Annual Industrial Waste & Pretreatment Conference on **March 4-5, 2019** at the Omni Hotel in Charlottesville, VA. This year's theme will be "**Something's Always Brewing in the Pretreatment World.**" There will be a variety of timely topics covered, including breweries, dental amalgam separators, industrial user inspections, electronic reporting, toxicity, hauled waste, septic waste, and water balance. Featured speakers from the U.S. Environmental Protection Agency, the Virginia Department of Environmental Quality, and the Virginia Water Environment Association are also on the agenda. Awards for outstanding Virginia industrial facilities will

also be presented. As always, a room full of industry-related exhibitors will be on hand to display the latest technology in the field of industrial waste and pretreatment. Operator CPEs and engineering CECs will be available for registered attendees.

Please visit the VWEA website at www.vwea.org/event/35thIWP for the detailed brochure and registration information.

If you would like to get involved with the Committee, please contact Beau Dodge at 703-228-6881 or wrdodge@arlingtonva.us.

2019 VWEA EDUCATION SEMINAR

Pulling Common Threads –
The Water-Energy-Nutrient Nexus
The Westin Richmond, 6631 W. Broad St.,
Richmond, VA

Wednesday, May 8, 2019
from 6:30 p.m. to 9:30 p.m.
(Evening Social Event and Reception)
Thursday, May 9, 2019 from 8:00 a.m.
to 5:00 p.m. (Conference)

Mark your calendars for the 2019 VWEA 2019 Education Seminar. This year's seminar, Pulling Common Threads – The Water Energy Nutrient Nexus, focuses on industry trends to reduce energy use and meet increasingly stringent nutrient limits while preserving and protecting the water environment. Session topics include case studies on in-house optimization of resource recovery facilities, approaches to sustainable master planning for utilities, and updates on the latest research in the industry. This year, we are also including a special "mock trial" where industry experts will debate the value of using carbon for BNR vs carbon for energy recovery. Speakers include national experts, municipal utility personnel and administrators, plant operational personnel and administrators, regulators, consultants, industry representatives, citizens, and equipment manufacturers.

The Education Committee is pleased to announce an exciting opening event trifecta:

Speakers:

- **Dr. Nancy Love**, Borchardt and Glysson Collegiate Professor of Civil & Environmental Engineering at the University of Michigan
- **Jim McQuarrie**, Director of Strategy and Innovation at the Metro Wastewater Reclamation District, Denver Colorado

Mock Trial:

Carbon for Energy or Carbon for BNR: A Landmark Case for Resource Management

- **Dr. Chris Wilson**
(Chief of Process Engineering and Research, HRSD)
- **Sam Jeyanayagam** (Jacobs Engineering and WEF Fellow)
- **Dr. Wendell Khunjar** (Director of Applied Wastewater Research, Hazen & Sawyer)
- **Beverly Stinson** (VP, AECOM)

Three concurrent sessions dedicated to understanding **operator optimization, collaborative planning, and applied research within the Nexus** will be offered in the afternoon, and attendees will be offered CPE credits for attending the technical sessions.

In addition to the technical program, the Education Committee has partnered with the Central Virginia Regional Activities Committee to develop an expanded social event on Wednesday, May 8 from 6:30 p.m. to 9:30 p.m. Tickets to this event may be purchased separately and will include access to the exhibition hall, heavy hors d'oeuvres, and two drink tickets.

Registration for the Education Seminar, Social Event, and hotel rooms will open on March 4th 2019.



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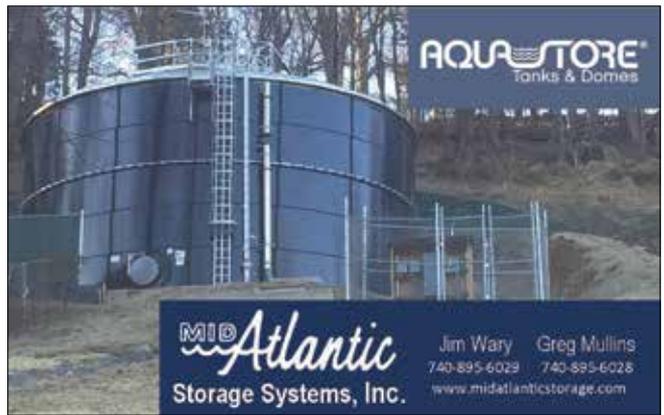


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