Ohio Water Environment Association
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Buckeye Bulletin

OWEA MEMBERS VOLUNTEERING FOR OPERATORS WITHOUT BORDERS

pg. 34-36

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Table of Contents

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Please call (614.488.5800) or email *meganborror@ohiowea.org* with advertising questions.

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The ideas, opinions, concepts, and procedures expressed in this publication are those of the individual authors and not necessarily those of the Ohio Water Environment Association, its officers, general membership, or staff.

For further information on submitting articles or advertising, please contact our organization at:

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Photos in this issue provided by:

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Contact Hour Information:

OWEA training is submitted for contact hour approval. Free Webinars are not submitted for contact hour approval at this time.

Article Deadlines:

1st day of January, April, July, and October

Publication Dates:

Spring, Summer, Fall, and Winter

Photo Requirements:

Please contact the OWEA office regarding photo requirements for covers and articles.

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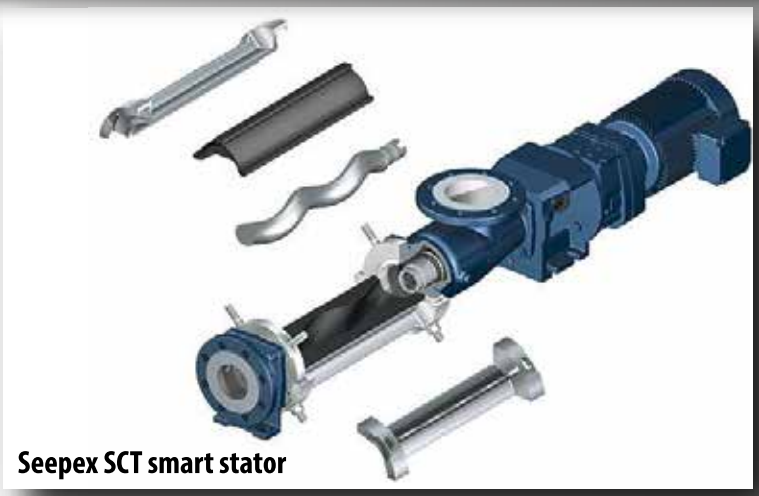
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President's Message

Kim Riddell-Furry
OWEA President

It's hard to believe that my presidency is more than half over as I write this third President's message. Many Past Presidents warned me of how quickly time would pass this year, but suddenly Christmas was over and the New Year had begun and it dawned on me that I'll blink once more and it'll be June and time to pass the gavel... but let's not get ahead of ourselves just yet!

A lot of great work was done in 2019 by our OWEA section membership and the state Executive Committee (EC) and staff and we have even more planned for 2020! The OWEA and our sections offered 259 contact hours at 49 events in 2019. The NESOWEA held another successful Student Design Competition and OWEA sponsored the winning teams' travel to Chicago to compete in the national competition at WEFTEC. Another exciting Ops Challenge Invitational was held at Sawmill Creek during our Annual Conference and Exhibition and OWEA sponsored two Ohio teams - the Columbus Outfalls and the Northwestern Water and Sewer District Dirty Deeds – to travel and compete at the national competition during WEFTEC. We also held a joint WEFTEC mixer with the Indiana WEA in Chicago for the first time and it was well attended and a lot of fun! In addition, I'm excited to report that even while the EC planned for a deficit in spending in 2019, we ended the year in the black for the first time in over five years. This was due in large part to a very successful conference, the diligence of our staff in monitoring spending at every level within the state budget and our amazing sponsors and advertisers!

In addition, the Executive Committee and some section leaders continued to work on and develop strategic planning initiatives for OWEA. Be on the lookout for a few new things like a membership and committee prospectus and a recurring e-newsletter in the coming year. A group of volunteers are currently working on developing the curriculum for the Beginner and Advanced Wastewater Operators courses that OWEA will offer when the Fundamentals manuals are finished by WEF. These courses will be designed around the Ohio and the ABC Need to Know Criteria for wastewater operators. Our Industrial Pretreatment Committee is also working with the EC and WEF to host the 4-day Industrial Pretreatment and Local Limits workshop again in Ohio in 2020. We are targeting October so be sure to look for additional information on that as it becomes available. The Northeast Section conference planning committee is working hard to finalize plans for the 2020 Annual Conference which will be held in Independence this June (Look for details in this edition and the next of the Buckeye Bulletin). In addition, we have another meeting scheduled with the OEPA Division of Surface Water leadership and look forward to continuing the dialogue with them that was began in 2019. And finally, we are gearing up planning to move forward with One Water starting in 2021 in Cincinnati and continuing on for at least the next 6 years!

And finally, I continue to be honored and humbled to serve as your President. I'm blessed beyond measure to work with such an amazing group of volunteers every day! As always, please know that you can reach out to me with any questions or concerns as we move into 2020. Happy New Year! Kim Riddell-Furry, kim.riddell@alloway.com

Upcoming Executive Committee Meeting Dates

February 12th, 2020 April 8th, 2020 June 21st, 2020

Kim is the Director of Business Development for Alloway. She has a Bachelor of Science in Biology from the University of Toledo and a Master's Degree in Organizational Management from Bluffton University. Kim resides in Delphos, Ohio with her husband Eric and her two children. Alex is working on his degree in Wildlife Management at Hocking College and Emmalee is a junior in high school. The family resides in their renovated Queen Anne Victorian home that served the Delphos community as a funeral home for over 80 years. In her spare time, Kim enjoys cooking and hosting family and friends in their home for weekend get-togethers, family holidays and their annual Halloween party.

Safety Awards

How did your Safety Program in 2019 compare to other programs around the state of Ohio? Submit and be recognized at the 2020 Technical Conference this June!

There are three (3) possible levels of recognition: OWEA Safety Certificate, OWEA Safety Award, and the WEF Burke Award!

Deadline to Submit: March 13, 2020

Submit: www.ohiowea.org/safety

Executive Committee Positions Available

Interested in being part of the state executive committee? Nominations are being accepted through May 15, 2020 for the positions of WEF Delegate, Secretary-Treasurer and Vice President. If you are interested in one of these positions, send a letter of interest along with a letter of support from your employer to Nominations Chair, Ted Baker at kingsnu@aol.com.

Welcome New Members

October 2019 - December 2019

Benjamin Barker
Tyler Bergfeld
Radek Bolek
David Brumbaugh
Philip Cummings
Emily Davis
Assem Dewidar
Sean Driscoll
Shane Durnwald
Christopher Feichtner
Jerry Frantz
Tucker Fredericksen
Ken Frost
Andrew Geise
Justin Gill
Brad Hamons
Joslyn Jones
Rian Kaut
Craig Koger
Lori Komorowski
Matthew Leach
Wade Leimeister
Roger Looker
Denise Marmer
Kenn Meyer
Ryan Murray
Matthew Petty
Justin Reinhart
Anum Riaz
Bryon Ringley
Jay Roberts
Chris Ronski
Michelle Rysavy
Martin Schirmer
John Shady
Neel Shah
Stephanie Smith
Drew Sosby
Gabriel Staats
Jimmy Stahl
Butler Stephens
David Teman
Don Whittingham
Mark Windle
Matt Zettler

Thank you for joining the Ohio Water Environment Association and the Water Environment Federation. We welcome your contribution to preserving and enhancing Ohio's water quality environment.

The left photo included on the cover of the 2020 OWEA Calendar is of City of Columbus Jackson Pike WWTP and was taken by David Blayney.

The right photo for the month of January in the 2020 OWEA Calendar was taken by Clifton Fletcher.

2020 OWEA Titanium Sponsor:

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>80 Ohio staff

OWEA Volunteer Support:

- 2 Section EC / Presidents
- OWEA EC / President
- Multiple state section committees

>1,100 national staff

100% of revenue from water engineering

Examples of Hazen's Planning and Design Projects Throughout Ohio:

Cleveland Office

Akron Office

Middlebury Separation CSO Rack 5 and 7

Integrated sewer separation project with green infrastructure that eliminated two CSO's, providing stormwater treatment for 200-acres of urban drainage.

Columbus Office

Marion Long Term Control Plan Phase I – WPCC Enhancement

A new collection system model identified a multi-phase approach to reduce annual CSO volume and eliminate SSOs as required by the approved LTCP with OEPA. Phase I improvements are doubling the wet weather capacity of the WPCC to 51 mgd.

Cincinnati Office

Montgomery County Vertical Asset Management Plan

Hazen performed asset inventory and condition assessment of all water and wastewater pumping, storage, and treatment assets. This data coupled with Cityworks CMMS upgrades, will help the county better manage and maintain its critical infrastructure.

Wastewater | Drinking Water | Stormwater | Reuse

Hazen

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Stantec serves local communities by designing with community in mind.

by Mr. Mark Hudak P.E., PMP, ENV SP, Water Regional Discipline Leader, US North

Stantec has a long successful history of service with a wide range of local communities in the water/wastewater industry. We started in 1954 as a one-person firm, and today, Stantec consists of approximately 22,000 employees working in over 400 locations across six continents with over 300 professionals in Ohio. While our large network and depth of expertise allows us to execute large projects, we also work on smaller projects and embrace the ability to improve the quality of life in any community. We care about the communities we serve — because they're our communities, too. This allows us to assess what's needed and connect our expertise; to appreciate nuances and envision what's never been considered; and to bring together diverse perspectives so we can collaborate toward a shared success.

When it comes to water and wastewater engineering, we optimize every facet. By viewing water as an integrated system, Stantec delivers solutions for the entire water cycle, including the capture and diversion of raw water; treatment and distribution for potable and non-potable uses; wastewater collection, treatment, and reuse; and the return of treated effluent to the environment. This approach applies to groundwater, surface water, and storm water on the raw water side, and municipal, agricultural, and industrial effluent on the wastewater side. We deliver solutions to conveyance, wet weather flow and urban storm water, wastewater treatment, water treatment, and water resource projects that maximize the sustainability of the resource.

For an example of our work close to home, look at the expansion of the City of Fremont Water Pollution Control Center here in Ohio. It was observed that a combination of wastewater and storm water flows would easily exceed the capacity, causing overflows into the Sandusky River. The river has important recreational value to the community and is a spawning area for Lake Erie Walleye game fish. Stantec upgraded and expanded the existing wastewater plant increasing the capacity from 13 to 24 million gallons per day (mgd). The increased capacity has enhanced the environmental protection and the health and well-being of the community.

For another local example, look to the City of Logan, Ohio. In 2016, a major water main ruptured, and Logan's entire city system depressurized, leaving its 7,500 residents without water for three days. The city teamed up with Stantec's office in Logan to assess the water system's condition and develop an improvement plan. That assessment showed that the City needed to invest in a new 2.5 mgd water treatment plant, plus an elevated tank, water line replacements, and at least 3,500 new water meters to bring part of the system up to date. At $18 million, it was a big cost for a small town. Fortunately, our team in Logan has a solid record of securing water and wastewater loans and grants for clients. Stantec went to bat for the City and the citizens of Logan and helped the community secure a $10 million low interest loan and a $7 million grant. The combination of the two provides valuable rate relief to the community, especially for people with low or fixed incomes.

The work we do for our communities can make a big difference in someone's life. We don't just see these as examples of successful projects – they make a real impact on the communities we serve. We are honored to deliver quality service to the many communities we serve and to continue our support of OWEA as a 2020 Titanium Sponsor.

"The things this group has done for the City of Logan are beyond the norm. These are the kind of people I enjoy working with."
Greg Fraunfelter, Mayor of Logan, Ohio

"The automated sludge load out facility and centrifuge dewatering system designed by Stantec has been of great benefit to the City of Marietta. Dewatering and sludge haul out was at one time one of our most time consuming and problematic processes. Thanks to this design that is no longer the case. Thank you for such a well thought out and practical design."
Steve Elliott, WWTP Superintendent-City of Marietta, Ohio

"The Stantec designed integrative approach for our Long-Term Control Plan has provided the City of Napoleon with the opportunity for the financial relief and flexibility we need to effectively plan for capital improvements in the future."
Chad Lulfs, PE, PS, Director of Public Works – City of Napoleon, Ohio

OWEA 2020

JUNE 22ND-25TH

Technical Program

Tuesday

Round Table Seminar

Wednesday

Nutrients

Planning & Design

CSO

Construction & Project Delivery

Collections

Laboratory

Thursday 1/2 Day

Biosolids

Modeling

Utility Management

Operations

Unique Planning Concepts

OEPA Update

Visit www.ohiowea.org/2020 to Register

Registration Options

	Early 3/2/20-5/15/20	Late 5/16/20-6/15/20	Onsite
Full Conference			
Full Conference Member	$325	$375	$395
Full Conference Nonmember	$445	$495	$515
Retired	$175	$225	$235
Student	$50	$75	$85
Partial Conference			
One Day Member	$195	$225	$235
One Day Nonmember	$275	$305	$315
Budget Option One Day Member w/lunch only	$100	**Not available after 5/15/20**	
Budget Option One Day Nonmember w/lunch only	$175		
Golf			
Golf - Team	$360		**Not available onsite**
Golf - individual	$90		
Hole Sponsor	$250		
Exhibitor			
Exhibitor Member	$800		**Not available onsite**
Exhibitor Nonmember	$975		
Exhibitor Passport	$200		
Booth Attendant (max 2)	$165		$185
Extras			
Tuesday Meet & Greet	$100		
Wednesday Awards Lunch	$40		
Wednesday Evening Networking	$65		
Guest Package	$185		
Ops Challenge Guest	$100		

A more detailed breakdown of what each package includes is listed on the conference webpage.

Please be aware online registration is not available after June 15th. Any registrations after this date will need to occur onsite and could involve a significant wait time.

Register early and save!

Schedule of Events

Monday

8:00am - 5:00pm	Registration
8:00am - 5:00pm	Golf Outing
8:00am - 5:00pm	Ops Challenge Events
Noon - 6:00 pm	Exhibitor Setup - Ballroom & Corridoor
1:00 pm - 5:00pm	Plant Tours
6:00pm - 8:00pm	Welcome Reception

Tuesday

7:00am - 5:00pm	Registration
8:00am - 5:00pm	Ops Challenge Events
7:30am - 9:30am	Breakfast
9:00am - 9:30am	Exhbitor Seminar
9:45am - 10:15am	Exhibitor Seminar
10:00am - 12:00pm	Round Table Seminar
10:00am - 11:00 am	Exhibit Hall Tour (earn one contact hour)
10:00am - 6:00pm	Exhibit Hall Open
12:00pm - 1:00pm	Lunch
12:00pm - 1:30pm	President's Lunch (by invitation)
1:00pm - 2:00pm	Exhibit Hall Tour (earn one contact hour)
2:00pm - 3:00pm	Exhibit Hall Tour (earn one contact hour)
4:00pm - 6:00pm	Exhibitor Reception - Including Ops Challenge Awards
6:00pm - 9:00pm	Exhibitor Tear Down
6:30pm - 10:00pm	Meet & Greet

Wednesday

7:00am - 5:00pm	Registration
7:00am - 9:00am	Breakfast
7:00am - 8:00am	Crystal Crucible Breakfast (by invitation)
7:00 am - 7:45 am	Early Bird Technical Session
8:00am - 11:45am	Technical Sessions (5 concurrent sessions)
Noon - 2pm	Awards Lunch
2:00pm - 3:45pm	Technical Sessions (5 concurrent sessions)
2:00pm - 3:00pm	Women's Networking Event
5:00pm - 6:00pm	YP Mixer
5:30pm - 6:30pm	Reception - 5S Induction
6:30pm - 8:00pm	Networking Reception

Thursday

7:00am - 11:00am	Registration
7:00am - 7:45am	Early Bird Technical Session
7:00am - 8:00am	5S Breakfast (by invitation)
7:00am - 9:00am	Breakfast
8:00am - 11:30am	Technical Sessions (5 concurrent sessions)

Exhibition

We will be at the newly renovated Holiday Inn in Independence, Ohio. With more than 600 attendees expected, it's a can't miss show!

Reasons why you want to exhibit:

- Opportunity to meet with hundreds of wastewater professionals
- Booth price includes a full registration
- Booth includes a table, chairs, wastebasket and carpet equaling reduced additional costs
- The OWEA conference schedule is built to give dedicated exhibit time and plenty of networking time outside of the exhibit hall

It's YOUR booth and YOUR choice, you will be able to pick your booth when you register!

BOOTHS SELL OUT EARLY - VIEW THE BOOTH MAP AND RESERVE YOUR SPOT TODAY AT OHIOWEA.ORG/2020!

Golf

The Golf Outing will take place Monday, June 22, 2020 at Seneca Golf Course. Registration will open on March 2, 2020. For more information and to register go to ohiowea.org/2020.

Seneca Golf Course
975 Valley Parkway
Broadview Heights, OH 44147

Accomodations

Holiday Inn Independence
6001 Rockside Rd.
Independence, OH 44131

Group Rate: $119/night

Go to ohiowea.org/2020 to reserve your room or call 216-524-8050 and reference Ohio Water Environment Association

OWEA 2020

JUNE 22ND-23RD, 2020

Operations Challenge Invitational

OWEA is proud to announce they will be hosting an Operations Challenge Competition and National Invitational as part of our 2020 Technical Conference and Exhibition

- 12 team spots available
- 6 spots held for invitational teams

$100 Team Registration (up to 5 people) includes:

- Breakfast on Monday
- Lunch on Monday
- Welcome Event Monday evening
- Breakfast on Tuesday
- Lunch on Tuesday
- Entrance to Exhibit Hall on Tuesday
- Tuesday Reception where Ops Challenge awards will be presented
- Tuesday Meet & Greet

Registration and details at ***www.ohiowea.org***




Process Control
2020 Operations Challenge Invitational
Laboratory
Test Your Skills! Meet and compete with fellow Operations Challenge teams
Collections
Great way to prepare for 2020 National Competition in New Orleans
Maintenance
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Maintenance Event

Wipes, Ragging, FATBERGS… Oh My! A lift station trouble alarm was received via the SCADA system at the Operations Control Center. A crew has been dispatched to troubleshoot the alarm. The teams will need to troubleshoot the electrical control panel, perform routine maintenance on the submersible pump and wet well, and then ultimately restore the pump station back to normal operating condition. While troubleshooting the alarm, it has been decided to replace the impeller of the pump to prevent continued calls due to clogging – all because of wipes. In a first for this event, we will be using a "live" pump and wet well. In the last step of the event the teams will be testing the pump to be sure their work was successful.

Safety Event

While a facility crew is working, two of the workers collapse inside the bottom of a (confined space) lift station unconscious, ladder already set-up in the manhole. It is suspected that one victim has been electrocuted and the second has collapsed for some unknown reason. The in-plant rescue team is immediately called to the scene. Two members of the team will enter the confined space, and rescue the downed workers. After the first victim is removed from the confined space, CPR will be performed while recovery of the second victim is completed. LOTO of electrical will need to be performed for entry and CPR will be administered to one of the victims.

Process Control Event

This event consists of a written test and computerized process simulator meant to evaluate an operator's knowledge of WRRF process control. The written test is made up of four main sections: short math, multiple choice, extended multiple choice and longer process scenario questions. Point values range from 10 for multiple choice to 200 for the process control scenarios in the written portion. The process simulator will be run by each team on a laptop that will be provided. The process simulation software is provided by Hydromantis and will be the same for each team. Each scenario lists a set of goals and points are awarded for the number of goals achieved.

TWO DAY COMPETITION!

AWARDS WILL BE PRESENTED ON TUESDAY AT THE EXHIBITOR RECEPTION.

Collection Systems Event

How long do you think it would take you to cut through an 8" SDR-35 pipe with a hand saw? No battery powered Sawzall® here. 30 seconds . . . how about 45 seconds? Unless you can be around 20, don't even try. The object of the Collections Event is to cut out a 1' – 2' section of broken sewer line from a six foot long pipe, replace it with another unbroken section using two Ferncos®, and install a new saddle connection on the fresh pipe. You have four team members: who cuts what, and when? Choreographed chaos is the best way to describe the event. Complete the whole thing in less than two minutes and you might just be fast enough to be the winners.

Laboratory Event

One of the primary functions of your treatment plant is removing solids from the waste stream. In order to do this effectively and efficiently you must first know where the solids are throughout the plant. The lab event requires you to complete analysis for total suspended solids from samples collected throughout a WWTP. This event will require the preparation of filter paper for drying for each of the samples. You will also complete a total dissolved solids analysis of each sample using a calibrated YSI MultiLAb instrument. Team members will then weigh pre-dried filter paper samples and complete calculations for total suspended solids on each sample. Bench sheets will need to be completed properly in addition to proper performance of such techniques as measuring with graduated cylinders, pipetting, use of a balance, and basic math skills.

A Chat with Collection Systems & Charitable Outreach Co-Chair, Afaf Musa

Interview by Megan Borror

Staff: How did you get your start in this industry?

Afaf: I attended The Ohio State University to earn my bachelor's degree in civil engineering. They offered a myriad amount of resources for students that opened my eyes to a lot of different opportunities, especially being new to the U.S. One of the resources included a career fair that featured a lot of different companies from around the country. At this point, I was still undecided in which direction I wanted to go in for a career and this provided me opportunities to meet companies and learn about the various avenues to pursue. There, I met CDM Smith and quickly became interested in the work they do and could see myself making an impact there. I learned more about them by attending a presentation they gave on campus by two of their engineers. I submitted my resume... long story short, that's how I got into this industry!

But honestly, what really resonated with me that CDM Smith offered, is the chance to work in the water industry. I grew up in a third world country where water is scarce resource. There, water is not available to the public on daily basis, and when it is available, it is not clean for direct use. I learned growing up that drinking the tap water can make you sick! It had to be boiled, or for the fortunate ones, should go through a small treatment system installed in their households. So when I got exposed to this field of engineering, I was really intrigued by how much goes into the water/wastewater industry to provide clean water. People don't think about it and take it for granted – I say that during my presentation I give to kids at the Ohio Children's Water Festival. Do you think before you drink water if it's clean or if it's going to make you sick? Kids often shout out a loud "No" with a surprised look on their faces! Growing up outside of the United States opened up my eyes to ways I can become part of the solution. I wanted to become part of this fascinating side of engineering that has probably the most impact on communities, the environment and public health.

Fireside Chats

The Fireside Chats is a series for the Buckeye Bulletin focusing on leaders in the industry. The Question and Answer Feature will dig into their leadership role and how it has had an impact on the industry. We will be focusing on leaders from OWEA to Plant Superintendents and every leader in betwaaeen. Please nominate your boss, coworker, or someone you admire for a future article by emailing Megan Borror at: megan@ohiowea.org.

Staff: Yeah, definitely. And what do you do for CDM Smith?

Afaf: I am a water resources engineer for CDM Smith. I manage projects across the country and lead technical teams on other projects. I love that I have the balance of managing projects but also still doing the technical work which is the most fun part of all. I am very passionate about building relationships and helping with business development efforts.

Staff: What advice do you have for aspiring leaders in this industry?

Afaf: For the younger generation out there, I would say spend the first couple of years learning from experiences you gain from interacting with project teams and build on what inspired you. Reach out to that person that wowed you with their unique style of leadership and shadow them or ask them to become your mentor.

Leadership to me means knowing the way, showing the way, and leading the way. This means your good at what you do, you create opportunities for others, and you mentor them to be successful. Strong leaders often have the most dedicated and loyal teams because they create happy and satisfying work environment. Start by helping yourself, then help others grow and lead by example.

Staff: Who is somebody that you look up to in this industry, and why?

Afaf: There are a number of people that helped me be the person I am today. First off is my mama, she knew my capabilities and encouraged me to get into the engineering field. I have been very fortunate to cross paths with many technical experts and project managers that have looked out for me and given me incredible opportunities to grow and they all continue to inspire me.

I remember my first two teachers: Julie McGill and Fang Cheng who both took me under their wing when I first started and taught me a lot of the technical skills I take pride in knowing today. Ted Burgess was the first project manager I worked with. Ted challenged me by providing me opportunities to lead tasks on a large project and to support him in managing the project very early on in my career. My manager Bernie Kolb who believed in me. Then there are my mentors from across the country who I continue to learn from their communication styles with their teams, their interactions with clients, and methods to resolve conflict. And finally, Erin Stachler who is my direct supervisor and my rock. Her capabilities to juggle everything and deliver every single time is a super power that I admire!

Staff: What challenges have you had being a woman in this male dominated field? And how have you overcome those challenges?

> "Leadership to me means knowing the way, showing the way, and leading the way."

Afaf: My biggest challenge was the amount of time it took for me to prove myself and build trust with leadership. It took a lot of hard work and many years for some to understand my skills and capabilities. Overcoming any challenge takes hard work, courage and believing in yourself. I focused on delivering good work, taking initiative and expressing interest in taking the next steps, and seeking opportunities as they became available.

Staff: And then why did you decide to get involved with OWEA?

Afaf: When I was a junior engineer, the nature of the work I did was mostly technical and task-focused. As this helped grow my technical skills, I knew something was missing and I wanted to do more outside of the office environment and find ways to volunteer and give back. I reached out to my colleague who was involved with OWEA Collection Systems Committee,

who also suggested that we organize a fundraising event to benefit Water for People. We brainstormed a few ideas to raise funds and bring the Columbus water/wastewater engineering community together for this event. The event was small with 70 people attending. The second year, OWEA hosted the event, and from there the annual Water for People fundraising event started. Now, more than 150 people attend and over $12,000 is raised annually to benefit Water for People and Design Outreach organizations. It's amazing to have been a part of this from the beginning and just seeing OWEA really get behind it.

Currently I co-chair OWEA Collection Systems Committee of 19 members which involves organizing an annual workshop that focuses on topics related to collection systems studies and operation and maintenance, and four hands on workshops that provide educational opportunities for collection systems operators and technicians.

Staff: What makes you so passionate about specifically collections and charitable outreach?

Afaf: My upbringing is why I am so passionate about this. Coming to the U.S. and just being shocked with how clean the water is and how available it is. Water is not an issue here! You can drink it without getting sick or thinking you might run out of it for the day. Thinking of people back where I grew up and learning about more unfortunate communities around the world, and the problems they are facing from diseases being spread and deaths being the normal thing because their water is simply not safe. OWEA focuses some of their efforts on educating people about every single aspect of water and wastewater. I know I'm helping by bringing awareness to the fortunate people to help the unfortunate ones through OWEA.

I just love the things that we do through OWEA for the engineering community locally and around the world. Putting together these events through the Collection Systems and Charitable Outreach committees takes a dedicated volunteer. Our efforts include providing easy access to resources for engineers and operators to get continuing education credits to maintain professional licenses, and most importantly, spreading the knowledge and lessons learned and keeping up with new technologies and innovations. I also get to meet many motivated individuals who share the same passion I have and work with them to achieve one goal outside of the usual business endeavors... It's such a rewarding experience!

Staff: What are your goals for both of the committees?

> "I know I'm helping by bringing awareness to the fortunate people to help the unfortunate ones through OWEA."

Afaf: For the Charitable Outreach committee, I wanted to add more members because the events are growing and the need to expand our efforts to other cities in Ohio – recently two of OWEA's young professional reached out and are eager to help! The ultimate goal for the new members is to take over the committee after they learn the process and get comfortable being on their own. I feel like this will help the organization continue to have a long-term success, build on the incredible foundation already in place and mentor the next generation of leaders.

The Collection System committee has been going strong for many years and has a lot of exciting things on the horizon! The main goal is to continue to provide robust presentations and make it a must-attend workshop every year, especially with other competing conferences out there. We have been focusing our direction where we can to create the most impact. Another goal is to continue to grow the committee by opening doors for people who are interested and have the passion to serve the committee and work well with everyone.

Both committees continue to grow. We're doing something special and people want to be a part of it. It's why I continue

to stay involved and wanting to do more.

Staff: What advice do you have for someone that's looking to get more involved with OWEA?

Afaf: Reach out! We are always looking for more volunteers. Reach out by visiting the organization website or contacting the office. By making the first step and expressing your interest, the organization will be able to align your interest with one of the committees or through the four sections. One of the great things about OWEA is that there are plenty of opportunities someone can get involved with. I promise, it's going to open up many doors for other exciting opportunities.

Staff: What would you like the OWEA membership to know about you as their co-chair of Collections and Charitable Outreach?

Afaf: I got involved out of passion to serve the organization and serve the community. I was impressed by the work I saw at every conference, workshop and meeting I attended. I wanted to become part of their success story. I feel ownership and desire to make a positive impact all the time. The success of any event reflects on all of us and ultimately on the organization. My goal is to ensure that's the case all the time.

Staff: just have one last question that's, is there anything else that you would like to share with the OWEA membership?

Afaf: Getting involved with OWEA strengthened my communication and team building skills, expanded my professional network tremendously, helped promote me as an individual and boosted my self-confidence, and provided me opportunities to create an impact in the engineering community – whether it's through organizing workshops, participating in the Children's Water Festival, or through the charitable outreach efforts. It just opened up many doors and improved my collaboration skills that I can apply to my daily work practices.

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Lick Run Greenway Under Construction

by MaryLynn Lodor, COO and Deputy Director of Operations, Metropolitan Sewer District of Cincinnati & Tom Brankamp, P.E., Strand Associates, Inc.®

Lick Run Greenway Overview

It's all about clean water and the Metropolitan Sewer District of Greater Cincinnati (MSDGC) is completing a large, complex project in the South Fairmount neighborhood on the west side of Cincinnati to mitigate discharges from its largest combined sewer overflow (CSO #5). This 1.5-mile long project, known as the Lick Run Greenway or the Valley Conveyance System (VCS), addresses approximately 10 percent of MSDGC's total annual overflow volume systemwide. Construction began in July 2017 at a cost of $90 million. [Figure 1.]

Figure 1 Pictured is the project corridor just as construction commenced. Outside of the valley are hundreds of acres of wooded hillsides. Photo courtesy of MSDGC.

MSDGC's integrated watershed planning efforts to develop a more sustainable and community-based solution for the Lower Mill Creek watershed began in 2009. A default $500 million deep tunnel was envisioned in MSDGC's wet-weather plan, but the existing conditions, coupled with decades of disinvestment in the community where MSDGC's largest overflow – CSO #5 – was located, resulted in the desire for alternative solutions. MSDGC focused on where it could reduce storm water from entering the combined system throughout the 2,700-acre Lick Run watershed. Recognizing that the cost of the wet-weather program was estimated at more than $3 billion, MSDGC wanted more than just regulatory compliance. They also wanted rate payers' investment dollars to realize tangible, visible benefits for the community. The result was an innovative approach to CSO control termed "Communities of the Future," with the focus on identifying wet-weather projects that accomplish CSO reduction objectives, while maximizing community benefits. The Lick Run Greenway project acts as the "spine" for storm water conveyance and water quality polishing. The Greenway is a large-scale green infrastructure installation that provides flood control, conveyance, and a park-like green space for the 1.5-mile length, which will reinvigorate the neighborhood and act as a catalyst to spur redevelopment in this area. [Figures 2 and 3.]

This urban watershed is unique because it includes large areas of steep, heavily wooded hillsides that

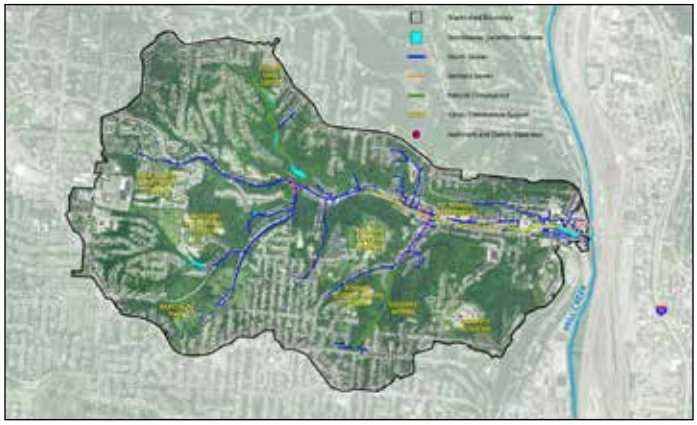

Figure 2 The Lick Run watershed is shown in this exhibit.

Figure 3 This is a graphic of the project corridor with design features. Image courtesy of Human Nature.

convey relatively clean storm water to the combined sewer system (CSS). A key element of this project is the separation of this cleaner runoff from the CSS. Newly constructed storm water conveyance systems now carry this separated runoff through water quality features before discharging to Mill Creek. With MSDGC's integrated watershed approach, the sustainable Lick Run project costs less than the originally proposed deep tunnel solution, plus it provides multipurpose trails, reconfigured roadways, new bridges, enhanced park spaces, and water features.

Community engagement has been critical to the success of the Lick Run project. Early in the planning phase, MSDGC implemented an aggressive community engagement plan that included open houses and community design workshops. Local residents and businesses participated in visual preference surveys where they were asked to voice opinions about the final look and feel of the project. MSDGC also provided monthly updates to the South Fairmount Community Council, developed a project website, and provided a direct line to MSD management. During the design phase, MSDGC hosted multiple public meetings to communicate project details and what to expect during construction. During construction, MSDGC has kept the community informed of progress and traffic alerts through the project website, email blasts, press releases, social media, briefings to the community council, and drone flyover videos to highlight construction progress.

The Greenway Project Components

The project was designed by Strand Associates, Inc.® (Strand), in coordination with a local landscape architecture firm, Human Nature, Inc. Noteworthy infrastructure elements associated with MSDGC's Greenway project include:

- More than 1-mile of daylighted meandering urban waterway where the historical stream once flowed.
- A headwater feature that celebrates the start of the bioengineered waterway.
- More than 1.5 miles of a combination box/arch conduit system to control flooding.
- A 1.8-acre retention pond.
- A storm water recirculation system between the pond and the headwaters to maintain flow in the surface channel.
- 3.3 miles of storm sewer and combined sewer pipe ranging in size from 12 to 84 inches.
- Five new vehicular bridges to span the new urban channel.
- The elimination and realignment of portions of

Magnitude of the VCS project

- 5,600 linear feet (LF) of daylighted stream
- Headwaters feature
- Outfall structure to Mill Creek
- 1.8-acre retention pond
- Storm water Recirculation System
- 15,750 LF of storm sewer
- 2,100 LF of relocated combined sewer
- 8,100 LF of precast/cast-in-place, and arch conduit
- 5 connections to adjacent storm sewer separation projects
- 1 sediment forebay
- 3 structural storm water separators
- 2,100 LF of full pavement reconstruction
- Converting portions of Queen City Avenue from 1-way to 2-way traffic
- 5 vehicular bridges
- 1 pedestrian bridge
- Reconstruction of 11 intersections
- Expanded city park
- Streetscape improvements
- 9,500 LF of sidewalks and a shared-use path network
- Multi-phase Maintenance of Traffic plan

the existing roadway network.

- Reconstruction of signalized and non-signalized intersections.
- An expanded and enhanced city park.
- Streetscape improvements.

See Side Panel for more details on the magnitude of the VCS project. [Figures 5 and 6.]

Figure 5 Construction of the headwater feature. Photo courtesy of MSDGC.

Figure 6 Construction of the headwater feature where water will be reintroduced into the Greenway.

The hybrid design of the Greenway allowed the design team to best utilize the limited horizontal space between the two parallel surface streets – Queen City Avenue and Westwood Avenue – traveled by more than 40,000 vehicles daily. [Figure 4.] The urban waterway is located directly above a subsurface box conduit. Runoff from the smaller, more frequent storm events in a typical year will be conveyed in a rock-lined surface channel. Larger storms, including the 100-year event, will be conveyed through a combination of the box conduit, the surface channel, and its floodplain. [Figure 7]

The box conduit system begins on the west end of the project as a 6-foot high by 10-foot wide pre-cast pipe, transitions to a two-cell and then a three-cell cast-in-place structure (each cell being 5 feet by 10 feet), and finally to concrete arch structures at the east end of the project. The arch structures range in size from 6-foot 6-inches by 30 feet to 9 feet by 33 feet. Five high-capacity inlets along the channel will allow the surface channel and the subsurface box conduit to interact and manage the flows in the Greenway. [Figures 8 and 9] The box conduit system discharges to an outfall feature at the Mill Creek. [Figures 10 and 11]

The project includes two large water quality components at either end of the Greenway. The forebay is a water quality feature at the upstream end designed to provide water quality treatment of flows from the separated areas. The second, a 1.8-acre online pond, provides storage and treatment of runoff prior to discharging to the Mill Creek. The pond is also the source of recirculated water for the low flow channel.

Other water quality features include three vortex separator units, bioretention basins, and manholes with

Figure 4 Lick Run open channel conveyance concept. Image courtesy of Human Nature, Inc.

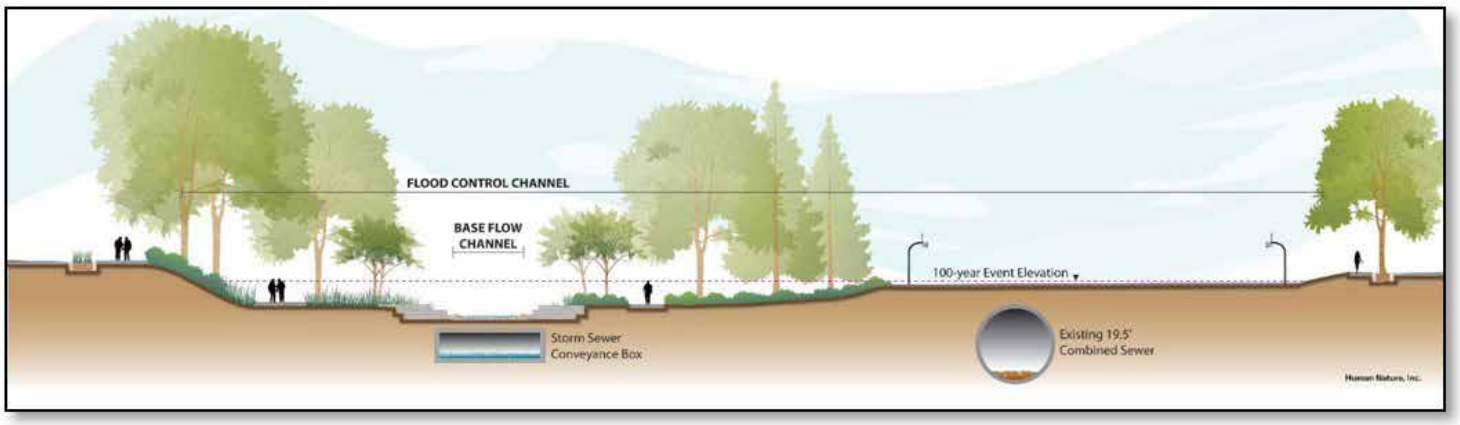

Figure 7 The graphic illustrates the hybrid channel design. Image courtesy of Human Nature, Inc.

Figure 8 Pictured is the construction of the three-cell box conduit. Photo courtesy of MSDGC.

Figure 9 Pictured is the three-cell box conduit during construction. The top of the box conduit serves as the bottom of the urban waterway channel.

Figure 10 Pictured is the construction of the outfall to Mill Creek. Photo courtesy of MSDGC.

Figure 11 Pictured is the construction of the outfall to the Mill Creek.

sumps and hoods. These water quality units improve the quality of runoff from the adjacent storm sewer collection systems before flows enter the box conduit and, ultimately, flow to the Mill Creek.

Challenges and Construction Update

As with any major project in an old urban area, there were many challenges to overcome during design and construction, including locating existing infrastructure, handling contaminated soils, and maintaining traffic flow. See Side Panel for a comprehensive listing of the project challenges confronted.

Identifying and locating the existing utilities, including the large 14- to 19- foot-diameter brick combined sewer, proved to be extremely challenging. The large diameter brick combined sewer snakes through the project corridor. The alignment and shape of the combined sewer required significant investigations using record drawings and field inspections of limited-access manholes. The sweeping longitudinal bends and changes in size and shape of the sewer were further defined using 3D survey scanning equipment and potholing techniques. As expected, both live and abandoned private utility lines, such as water, gas, electric, and communications, crisscrossed the project corridor. The available information was included in the design plans, but ongoing coordination with the private utility companies has been required during construction to relocate the current infrastructure and identify and confirm abandoned lines – this led to delays and some modifications.

Although the presence of contaminated soils was evaluated, determining the exact locations and the extent of the contaminated soils throughout the corridor

was a challenge. A detailed subsurface investigation determined that the 100-year-old, large brick combined sewer had been backfilled with foundry sand from nearby industries. Despite a significant environmental assessment during the design phase, additional contaminated soils were found during construction, which had to be excavated and disposed of properly at an added cost to the project.

Daily, temporary, and permanent maintenance of traffic is a major element of this project. The design drawings laid out an overall traffic plan, but the daily lane closures and shifting of traffic for utility construction, as well as road closures for construction of five bridges, were significant for the project. MSDGC was very proactive in notifying the travelling public of temporary and permanent closures.

By the end of 2019, the overflow was effectively reduced with the underground construction essentially completed and street work wrapping up. The five new bridges were open to traffic, but finishing touches of the permanent railings and pilaster, along with side street construction, final paving and striping of Queen City Avenue, and final traffic signal installation remains.

The rock-lined urban channel construction is well underway and the headwater feature at Quebec Avenue is complete. This signature feature provides a glimpse of what the finished project will look like. [Figures 5 and 6.] With the underground work completed, construction of the 1.8-acre retention pond, the forebay, and the bioretention basins are underway. These improvements, along with the planned city park and streetscape improvements, will be completed in Summer 2020. The entire project is anticipated to be substantially complete by July 2020.

New Operations Challenge

The Lick Run Greenway project will bring a new set of operations and maintenance (O&M) challenges for MSDGC. A total of 3.3 miles of storm sewer and combined sewer pipe ranging in size from 12 to 84 inches are part of this project. While most of MSDGC's assets are sanitary and combined sewers and treatment plants, the storm water infrastructure, such as vortex separator units and manholes with sumps and hoods, are critical facilities and MSDGC and Strand are working together on the development of operations manuals and inspection procedures to ensure maximum benefits are derived from these assets.

With the wide variety of project components, the design team coordinated closely with MSDGC's Wastewater Collections division during design to incorporate O&M features to ease future maintenance tasks. Collaboratively, the group determined locations for the water quality units; access locations to the box conduit/arch conduit system; placement of fire hydrants and pull-off areas to aid in cleaning the sewers and conduit system; and locations for thickened concrete multi-use paths sections for maintenance equipment

Project Challenges

- Major corridor from City to Western Hamilton County
- 40,000 vehicles-per-day
- DOTE Traffic Control Center
- 5 new bridges
- CSX railroad crossing
- 100-year-old brick sewer
- Coordination with sewer separation projects
- Motivating private utilities
- Managing construction traffic
- Contaminated soils
- Property boundary issues

access. The group also discussed the equipment needs and seasonal operations of the recirculation system pump station and force main.

MSDGC has implemented departmental and staffing changes to effectively assign management and operations responsibilities in preparation for this new infrastructure. Policies and procedures are in development that will enable the agency to assume responsibilities from the contractor effectively and efficiently. MSDGC is also working with other City agencies that are well-versed in maintaining such infrastructure to assist. The Department of Transportation and Engineering (DOTE) will own and maintain the new bridges, rehabilitated streets, and traffic equipment. Since it was decided early on that DOTE would own and maintain the new street infrastructure, their representatives have been routinely involved during both design and construction.

Conclusion

Looking back at a decade of plan development, design, and construction of the Lick Run Greenway, it is easy to see that integrated planning has been an extremely valuable tool for establishing an impactful vision for a project. [Figure 12.]

Construction brings its own set of unique challenges. For a redevelopment project, especially in a very old portion of the city, the examples cited above of dealing with existing utilities and the presence of contaminated soils cannot be discounted. These two elements, although not seen after a project is built, are the very foundation for the project and are difficult to fully understand until underground work begins.

Figure 12 Vision graphic of the Lick Run Greenway. Image courtesy of Human Nature, Inc.

Finally, O&M of the built infrastructure must be considered during design. Review anticipated practices and needs with the O&M staff during the design process to ensure the ease of O&M after the project is built. As cited above, the locations of water quality units, access locations, placement of fire hydrants, pull-off areas, etc., are some elements to consider.

MSDGC began this watershed-based project with an initiative called "Communities of the Future", that recognizes the importance that wastewater utilities play in helping a community realize its vision. MSDGC's focus is on integrating regulatory compliance with holistic community-based plans that maximize return on investment for rate payers. The Lick Run Greenway project demonstrates that integrated planning works when it is driven by the utility, focused on utility-specific obligations, and is communicated to the community. Lick Run Greenway also successfully demonstrates that success can be achieved by thinking more broadly about CSO control and having the ability to implement innovative and non-traditional projects.

Project Design Team

The design team included Strand Associates, Inc.®; Human Nature, Inc.; Sustainable Streams, LLC; Johnson, Mirmiran & Thompson, Inc.; Kolar Design, Inc.; CID Irrigation, Inc.; and Gray & Pape, Inc.

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Addressing Burnout and Self-Care from the Inside-Out and the Outside-In

by Anese Cavanaugh

There's a lot in the media about burnout right now; what burnout is, what it costs us, and what to do about it (especially in healthcare where it's estimated that the prevalence of physician burnout is about twice as high as in the general population). With the World Health Organization (WHO) making it an official medical diagnosis and putting it in their handbook (International Classification of Diseases and Related Health Problems), the conversation around burnout is shifting... it's "real."

In my work with leaders and their organizations over the last twenty years, optimizing leadership impact, building positively healthy contagious cultures, and getting in front of (or navigating as needed) burnout and low engagement, I've noticed patterns in actions and mindset. (The actions are always the result of mindset.)

I've noticed the idea of burnout often being seen as weak (something to be embarrassed about), something to be victim to (something that's forced upon or done to one), or even seen as an excuse (something people say when they don't want to work harder). With this, on what could be the preventative side and even an antidote to burnout, self-care is often held as selfish, luxurious, and something to be put on the back burner to address later (the good old "I'll sleep when I'm dead" philosophy).

This combination of beliefs about self-care and burnout obviously do not serve each other and do not bode well for creating change.

So we have to change the conversation.

It seems we are...

Some 411 on Burnout.

If you've missed the news on this, here are some quick highlights:

What is burnout? According to the WHO, burnout is "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: 1) feelings of

The People Place

This Buckeye Bulletin series focuses on the people side of our industry, hence the title: The People Place. Traditionally, the Buckeye Bulletin comes loaded with mountains of technical pieces: plant profiles, industry trends, regulatory insight, project overviews, etc., which, without proper 'people-care' would not be possible! After all, your organization can only be as successful as the health, wellness, and productivity of your people and culture. Focus areas of this series are topics such as leadership, management, health and wellness, succession planning, work/life balance, recruiting/retaining, change management, knowledge transfer, career laddering/branding, etc. We hope you enjoy this series as much as we are excited to bring it to you! If you are interested in submitting an article or specific focus area, please contact Jason Tincu. (jtincu20@gmail.com) Thank you!

energy depletion or exhaustion; 2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and 3) reduced professional efficacy. Burn-out refers specifically to phenomena in the occupational context and should not be applied to describe experiences in other areas of life."

What it costs us: Research has shown that the total annual cost of physician burnout is expected to be higher than $4.6 billion. Physician burnout has been associated with a range of negative consequences, including increased medical errors, poorer clinical outcomes, and lower patient satisfaction. Note that Gallup estimates that actively disengaged employees cost the U.S. $483 billion to $605 billion each year in lost productivity. (In my experience disengagement and burnout are closely related.)

All to say, burnout, disengagement, and all of the above are costing us a ton in resources; time, money, energy, results, impact, and most importantly, the human spirit.

What to do about it: I've seen recommendations ranging anywhere from appointing Chief Wellness Officers (CWO), providing more support for people experiencing burnout, improving the efficiency of electronic health records and systems, increasing empathy, making space for the conversation, being more transparent about workloads and the stress that goes with them, creating more "slack" space in peoples' schedules to get more done, and more.

There's a ton we can do.

In my opinion, for any of this to work and be sustainable, we have to start with our mindset and relationship to this conversation first.

Response-Ability & Opportunity.

I hold this all as an individual and cultural response-ability. We need to be able to respond and be conscious of our own personal needs and to set ourselves up better for greater health (mentally and physically) and productivity so that we get in front of burnout (or tend to it if we hit it). AND as organizations and leaders fostering healthy cultures, we need to be able to respond (proactively, preferably) to the needs of our people, systems, and structures that are contributing to burnout in the first place.

Not only is this a great response-ability, it's a huge opportunity. After all, if the results your organization are getting right now are "good," imagine what happens when people are able to be even more focused on the right things; when they're feeling good, engaged, and intentional about their impact; and when they have more mental and emotional space to do their magic. Likely even better results, while feeling more energized doing so.

So where do we start?

So many places.

Inside-out, outside-in, and everywhere in between. Inside-out first...

The Decision.

The first thing to be done, before anything, is to make the decision that this truly matters and to decide to do something about it. The more honest and solid the decision, the easier the path and the stronger the result.

Don't take this decision for granted. In my experience we humans say we have decided to do something, all the time, and really haven't. (And then we're shocked and disappointed when it doesn't happen, often blaming external circumstances or others. If we're super honest and look back, there's usually a quiet way in which we did not fully decide. Just think of the last time you "decided" to lose weight, get healthy, or make a relationship better. Were you FULLY IN? If so, it likely happened. If not, there may have been a loophole in that decision.)

So, dig deep. Does THIS topic of burnout and self-care truly matter to you and your organization, and if so, are you truly deciding to do something about it?

Whatever it takes? Starting with you first? Are you IN?

If so, you're halfway there...

It has to start with each of us.

The greatest thing we have any control over in the world is ourselves. And we're contagious. Our best bet is to BE and MODEL the changes we want to see. So this has to start with each of us individually leaning in, owning it, and addressing it to be a part of the solution. Leadership starts from the inside out. (In a future article I will talk about how we as leaders leading others, and our culture can address this from the outside-in, and for now, let's each go first and set the tone, shall we?)

Once you have awareness (check!) and you've made your decision (check!), you are now in a position of power to start creating change.

Creating Change from the Inside-Out.

I've found behavior and culture change to be a "go slow to go fast" animal. Hitting things quick, one-time initiatives, a one-time idea exchange often feels fulfilling in the moment, but rarely unlocks the full potential or livelihood of a sustainable desired shift. So let's go slow to go fast here.

The approach I use to work with people from the inside-out, to build that sustainable and authentic change, is based upon my core methodology, The IEP Method® (which I write about in CONTAGIOUS CULTURE: Show Up, Set the Tone, and Intentionally Create an Organization That Thrives, McGraw-Hill, 2015). The methodology helps people work from the inside-out in order to show up better for themselves (first) and, of course, others (organically).

I've found that when you have a culture of people who are taking ownership for their own Intentional Energetic Presence®, for how they show up at work and in their lives, for how they take care of themselves, and for how they treat others — the outcome is more naturally a healthy positively contagious culture. From here, burnout becomes less of an issue.

Instead of working from the outside-in where initiatives are being imposed upon people or someone is trying to make one do something (often not modeling it themselves), when we work from the inside-out, owning these changes for ourselves first, we create a more congruent and powerful shift. This shift is contagious. The more we show up clear, present, intentional, and as a stand for our own well-being, leadership, and service, the more others will "catch it" and be inspired by it, see it as the new norm, meet us there, and create their own version for themselves.

So let's try it, going slow to go fast...

Your Intentions, Energy, and Presence, AKA, Your IEP.

Wherever you are at in your leadership journey, your energy levels, and your relationship with burnout, I invite you to explore the following inquires to get started on up-leveling your leadership impact and addressing (or getting in front of) burnout.

1. How intentional are you with your time and energy and how you spend it? How good are you at holding boundaries for that time and energy?

2. How clear are you on your intentions for impact? Do you know why you go to meetings and what impact you're there to create? Your purpose for doing the work you do? What is your intention?

3. What is your self-care like? Does your self-care practice (i.e. food, exercise, sleep, scheduling, the way you talk to yourself), give you the energy and stamina to do what you want to do? Is the way you treat yourself and your body, life-giving? Are you setting yourself up for success or are you starting below the line before you even engage with your day?

4. How present are you? Truly. Are you here, now in this moment with me reading this (or have you checked your phone/email/whatever since you started)? Are you digesting this article in a way that will support you?

5. How present are you in the moments throughout your day? Are you IN THE MOMENT (where you can be fully informed by your intuition and wisdom of how to address something right NOW), or are you processing the meeting before or planning the meeting or conversation that comes later?

6. How present are you to the human being(s) you are with? Are you truly WITH them (or are you checked out, thinking about the next thing you have to do, OR about the next brilliant thing you're going to say instead of just listening and being HERE)?

7. What's the littlest thing you can do TODAY to elevate any of these? Simple moves? 1) Set your intention for your day and before any meeting or conversation you go into. 2) Pay extra attention to your energy today, taking excellent care of yourself (if only talking nicer to yourself vs. beating yourself up for not doing something "right"). 3) Practice presence. No matter what happens, just keep coming back to presence. Now and now and now. And see what happens.

The great news, is that even awareness of any of these can create shifts. Once we're conscious of our IEP and how we're setting ourselves up well, or not, we have new information and power.

The power is in the awareness and the shift you create with it.

Want to dig deeper? In future articles I'll dig into what we're doing to create our own burnout and what to do instead, as well as how we can address this from a leadership and culture standpoint.

OWEA Members Travel to Bahamas with Operators Without Borders

by Todd Saums

In the fall of 2018, I read an article in the WEF Highlights section regarding an organization that had recently aided in the wake of Hurricane Maria on the island of Dominica. I had no idea such an organization existed, aiding in post hurricane relief efforts strictly regarding water and wastewater infrastructure. After reading the article I knew I wanted to help. I soon emailed the organization, Operators without Borders, and added fellow co-worker Tom McGrain and myself to the volunteer list. In September of 2019, Operators without Borders began taking volunteers and assembling teams to assist Grand Bahama and Abaco Islands, following Hurricane Dorian. Tom and I quickly began to plan and fundraise to help the organization, and our trip.

As we landed at the Grand Bahama International Airport, looking at my surroundings and viewing nothing but damage and dismay, I was not quite sure what I had signed up for. We were escorted to a pop up canopy which was the current baggage claim, this is where we were told that someone would pick us up and begin our work week. We were introduced to Remington Wilchombe, engineering manager at the Grand Bahama Utility Company. Remington quickly began to de-brief us

on the situation, expectations, and possible assignments for the work week.

Tom and I began working with staff from the Grand Bahama Utility Company's water department. These two staff members provided us with equipment, maps, and a vehicle to begin sampling various wells. The assigned well field to sample was the main well field that supplies the island with its drinking water, which had been infiltrated by salt water during Hurricane Dorian. The continuous sampling of the well field was to view trends of

the salinity, conductivity, and total dissolved solids of the wells.

Sampling the well field was our first assignment. The remainder of the week, we worked with a group of hydrogeologists with the company, Water and Earth Sciences from Lake Wales Florida. Two teams were split up and began taking electromagnetic conductivity readings in various locations throughout the island. This was being performed in an attempt to find fresh water wells and a new potential drinking water source. Once finding new potential fresh water sites, wells were drilled and pump tests were performed. The work was vigorous and the terrain was difficult to navigate, but the teams were motivated and eager to help as much as we could.

A total of eight days were spent on Grand Bahama Island, working sun up to sundown. The days were long, but when you're helping others with basic needs those long days are worth it. Being able to provide assistance and better the lives of those in need was such an enriching experience that was not only valuable to the Bahamas but also to me as an individual. I would encourage those who also wish to help, join organizations that can provide these opportunities as well.

WEF Utility Partnership Program

The WEF Utility Partnership Program (UPP) is designed to allow Ohio utilities to join WEF and OWEA while creating a comprehensive membership package for designated employees. Utilities can consolidate all members within their organization on to one account and have the flexibility to tailor the appropriate value packages based on the designated employees' needs. Key benefits include:

- UPP is fully customizable, based on the needs of each utility, and a WEF team member will be on-hand to walk each utility through the enrollment process.
- ALL members at the utility will be enrolled, with synchronized begin and end dates, on ONE invoice, for an easy one-time per year payment.
- All members, who were already WEF members, retain original membership number, credit for all years of membership, and remain a full-voting WEF member.
- ALL employees at the UPP utility will be eligible for membership registration rates at WEFTEC, as well as the early-bird rate for Premium and Standard WEFTEC registration at anytime throughout the registration period.
- ALL employees at the UPP utility will also be eligible for member rates for the OWEA Technical Conference and Exposition, OWEA Workshops, and events.
- All employees at the utility will be eligible to register for a WEFTEC Exhibition-only pass at NO-Charge.
- WEFTEC registrations can be included in the UPP Membership transaction at the time of enrollment or can be grouped and submitted closer to WEFTEC.
- UPP also includes a special, NO-Charge membership for Public Officials designated by the Utility, at their discretion.
- Up to five new WEF/OWEA members can be added by the utility each year, at no charge for the first year of membership.
- UPP utility will be eligible for distributor pricing on all WEF products and services – that's 40% off list pricing. In addition to traditional items this discount also extends to online learning in the new WEF Knowledge Center.
- UPP members will be eligible for special discounted registration for other WEF Conferences and events.

OWEA currently has 33 municipalities signed up for the Utility Partnership Program. To learn about the benefits for your utility visit http://www.wef.org/UtilityPartnership/

Ohio UPP Members

Allen County Sanitary Department

Avon Lake Regional Water

Butler County Water and Sewer

City of Bellevue

City of Canton

City of Celina

City of Columbus

City of Dayton

City of Fairborn

City of Fairfield

City of Harrison

City of London

City of Marietta

City of Mason

City of Newark

City of Oberlin

City of Painesville

City of Solon

City of Steubenville

City of Toledo

City of Troy Ohio

City of Twinsburg

City of Urbana

City of Warren

Clermont County Sewer District

Delaware County Regional Sewer District

Fairfield County

Fremont Water Reclamation Center

Greene County Sanitary Engineering Dept

Lake County Dept. of Utilities

Metropolitan Sewer District of Greater Cincinnati

Montgomery County Environmental Services

Northeast Ohio Regional Sewer District

Williamsburg WWTP — From SBR to BNR in 10 Years
An Approach to Phased, Grant-Funded Improvements

by Sam Swanson, Project Manager, Burgess & Niple

The Village of Williamsburg owns and operates a wastewater treatment plant that discharges treated effluent to the East Fork of the Little Miami River (about five miles upstream of Harsha Lake in Clermont County). Occurring relatively frequently in 2006, permit violations were registered (and mainly attributable to inflexibility of the existing facilities in managing influent flows and solids generated within the system).

The violations, coupled with infrastructure and equipment in the 20- to 50-year age range, lead to development of a three-phase improvement plan that would upgrade all treatment equipment and pumps, provide influent flow equalization and onsite biosolids handling (ending liquid waste sludge transport to a neighboring WWTP), and implement biological nutrient removal (BNR) for phosphorus using a continuous flow process.

Project Development

As part of a comprehensive study updated in 2007, five alternatives were developed to upgrade and expand the WWTP regarding reliability, efficiency, and capacity (from 0.5 mgd to 1.0 mgd) standpoints. Conversion of the sequencing batch reactors (SBRs) and sludge holding tanks to BNR basins was the most cost-effective approach

Phase 2 - New Fine Bubble Diffusers in SBR Basins

in repurposing existing facilities to meet anticipated future, more-stringent permit requirements. Process modeling demonstrated efficient use of converted existing basin volume would allow the Village to double the capacity of their plant and maintain receiving stream effluent loadings (such that OEPA antidegradation requirements were met).

A phased approach was developed to upgrade the WWTP, so the most problematic concerns would be corrected first and allow the WWTP to consistently produce current permit-meeting effluent as the second and third phase improvements were designed and constructed. Goals of the latter two phases were to maximize facility upgrades to meet future permits that will most likely contain nutrient limitations for phosphorus and nitrogen, accommodate additional customers as the Williamsburg area grows in population, and correct operational limitations in the current configuration of the WWTP. Phases were planned in detail to include electrical and building improvements, so that necessary funding for each phase could be planned accordingly.

Phasing also allowed apportioned outlay of Village money for these improvements. The total project cost (construction and engineering fees) for all three phases summed to $6,900,000. The Village's direct contribution was $900,000 and the remainder apportioned between grants ($3,200,000) and low-interest loans ($2,800,000). A summary of each phase's scope and corresponding funding sources follow.

Phase 1 Upgrades

Mitigating peak flows during storm events that washed out excessive solids in the basins, and being able to process those solids onsite were the goals addressed in the Phase 1 improvements. Two concrete storage tanks (254,000 gallons for equalization and 100,000 gallons for sludge storage) were built above grade to correct inflow and solids storage issues. The equalization tank is filled by a self-priming pump station that withdraws up to 700 gpm directly from the influent wetwell. Equalized wastewater is then reintroduced into the screen channel by gravity through a flow meter and flow control valve.

The new sludge storage tank was built adjacent to the existing sludge dewatering building, which housed four abandoned sand drying beds. The new dewatering equipment, which included 0.5-meter belt filter press (BFP), dewatered sludge screw conveyor, progressing cavity BFP feed pump, liquid polymer system, and non-potable water break tank and booster pump system was housed entirely in one of the repurposed sludge drying beds. The original plan was to build a new building (leaving the old drying bed building as Village equipment and materials storage), but grant funding procurement favors existing facility conversion over new construction.

Consequently, excavating the drying bed, placing a new concrete floor, and enclosing the new dewatering system with in a moisture-resistant drywall room was the most interesting aspect of the Phase 1 project. Sludge loadout into a 20-cubic yard dumpster between the building and tank is accomplished with a 12" screw conveyor that passes through the wall of the metal building. The fence was reconfigured, and entrance perimeter road extended so that sludge haulers can remove and replace the dumpster without entering the WWTP site.

The Phase 1 improvements were completed in October of 2010, and were funded primarily using USACE 594 grant and OPWC grant contributions.

Phase 2 Upgrades

Replacing pumps and treatment equipment that had been installed in the mid-1980s was the focus of the Phase 2 WWTP improvements. The critical path upgrade for the project was replacing the UV disinfection system, which was problematic from both consistent operation and replacement parts standpoints. The UV system replacement was coupled with improvements for the entire facility, including rebuilding the effluent pumps, expanding the foundation to accommodate a new motor control center, and placing a metal building over the entire existing and new concrete structure.

The most complex portion of the Phase 2 upgrades

Phase 2 - Upgraded Screening and Grit Removal Facilities

Phase 2 - Disinfection Effluent Pumping Facility Upgrade

Phase 2 - Existing Disinfection-Effluent Pumping Facility

were replacing the four aeration blowers and fine bubble diffuser systems for the four sequencing batch reactors. The upgraded aeration system needed to function as a batch system for three to five years, and then be readily augmented to accommodate a continuous-flow system as the SBRs were converted to a BNR system. Four new positive displacement blowers discharging into a common header were installed with new fine bubble grids that allowed additional headers to be installed to accommodate future diffuser density requirements.

Rounding out the replacement equipment upgrades included replacing the four existing influent submersible pumps, the existing influent fine screen and adding a screenings compactor. Grit removal and processing was enhanced by replacing the grit paddle in the vortex system, adding a concrete vault next to the existing grit hopper and installing a recessed impeller grit slurry pump, and adding a cyclone and grit washer. Both the new screen/compactor and grit washer were protected in separate fiberglass enclosures, and the entire influent pumping and preliminary treatment system controls were upgraded with new panels.

The Phase 2 improvements were completed in May of 2012. The funding for making these improvements was provided through a USDA low-interest loan, which was a necessity because of political conditions at the time (categorizing some federal grants as earmarks) and the desire to replace some of this failing equipment as soon as possible.

Phase 2 - Aeration Blower and Piping Transition

Interim Phosphorus Removal

During Phase 2 and following its completion, phosphorus effluent violations occurred periodically. In October 2012, Ohio EPA placed the Village on a Six-Month Significant Non-Compliance (SNC) watch list. This notification, coupled with a funding lull that was delaying the start of Phase 3 design, required interim phosphorus-reduction improvements to be undertaken.

By early December 2012, several chemical addition strategies had been full-scale piloted, and allowed a full-scale facility to be self-installed by the Village before the end of the year. Full-scale alum testing demonstrated that introduction at the vortex grit removal tank allowed adequate mixing prior to introduction into one of the four SBRs. Alum was added using a metering pump withdrawing from a 55-gallon drum, with both housed in a heated enclosure constructed from off-the-shelf materials obtained at a home-improvement store.

By the end of February 2013, Village staff had optimized the minimum alum dose to produce an effluent total phosphorus concentration averaging 1.4 mg/L. This interim strategy was successful for the next five years in consistently being below the WWTP's 2.0 mg/L TP permit requirement (until Phase 3's BNR facilities were commissioned).

Phase 3 Upgrades

Converting the conventional activated sludge sequencing batch reactors to a continuous-flow BNR system, along with replacing the obsolete electrical and plant-wide control systems that seamlessly tied into the previous two phases' upgrades, were the primary objectives of this final

Phase 3 - New Aeration Basin

phase of the project.

Additional improvements included adding a new 550 KW generator, expanding and remodeling the Operations Building, and providing a non-potable water system that distributed disinfected WWTP effluent for belt filter press belt-washing and yard hydrant supply (to reduce the amount of potable water used at the WWTP). A fifth aeration blower to provide redundant air supply capacity and coarse bubble aeration of the Phase 1 sludge storage tank was added, and a new influent magnetic flow meter and piping to replace the unreliable existing installation rounded out the project improvements.

The new BNR treatment facilities involved repurposing two existing sludge storage tanks and four sequencing batch reactors into a continuous-flow nutrient removal system (consisting of defined anaerobic and aerobic treatment zones initially, with two anoxic zones to be added in the future, if necessary). The two sludge tanks (built in 1962) and four aeration tanks (built in 1962 and 1989) have a combined volume of 0.53 million gallons (MG) and were interconnected by cutting 4 ft wide weir gates into the common-walled basins' walls. Additional fine bubble diffusers and headers were added to those installed as part of the Phase 2 improvements, and four floating mixers were added to the two anaerobic zones.

To allow for 1.0 mgd peak treatment capacity and provide for aeration zone redundancy and future anoxic zone volume, a new 0.18 MG aeration basin (80' long, 13' deep) was built adjacent to the first SBR (which became the fourth pass in the continuous-flow arrangement). The new basin also included a splitter box for the two

Phase 3 - SBR Wall Cutting for Weir Gate

Phase 3 - Wall Cuts for Gate and Channel Between SBRs 2 and 3

Phase 3 - New Aeration Basin, Clarifiers, and Generator

Phase 3 - Converted Sludge Storage Tanks to Anaerobic Selector

new 32' diameter secondary clarifiers, which were built with return/waste sludge and scum pumping wetwells common-walled between the two clarifiers.

The SBR influent distribution piping network was retained for both step-feed capability and redundancy for flow routing during basin maintenance downtime. Under current conditions, only three of the old SBRs are necessary for treatment. The fourth converted SBR and new aeration tank can be used for flow equalization in the interim. The basin conversions were staged so that no bypass pumping was required during the construction period.

The Phase 3 improvements were completed in May 2018. Funding included USACE 594, OPWC, and ARC grants, along with a WPCLF nutrient-removal specific, nominally zero-interest loan through Ohio EPA.

Phase 3 - New Weir Gate and Diffusers in Converted SBR Tank

Phase 3 - New Clarifiers and Alum Addition Enclosure

Treatment plant operation has been consistent throughout the past year and a half, and now focus on restoring sections of the collection system along with extensions of the service area to accommodate commercial development is now the Village's focus.

Project Team

Executing the project plan started with Phase 1 design in October 2008 and concluded with Phase 3's completion in October 2018. We were very fortunate that even with the project spanning a decade, key individuals from the Village and B&N were available throughout its duration to maintain technical focus and consistency.

Kyle Cribbet. Among his many duties with the Village, Kyle was invaluable in coordinating construction activities and as Williamsburg's WWTP superintendent, has operated each improved or new facility efficiently following startup.

Mark Upite. After leading the Phase 2 design and construction observation efforts, Mark conducted the alum addition piloting tests and operational optimization as part of the interim phosphorus removal portion of the program.

Ken Timko. For each phase, Ken provided diligent construction administration and periodic site inspection. His positive interaction with the three prime contractors and eight subcontractors that built the facilities, along with his dedication to consistent quality installation, insured that the phased construction yielded the operational flexibility defined in the design.

With staff in place ensuring consistent design and construction, along with dedication to obtaining funding, a long-term phased improvement project can be executed successfully if its planned thoroughly from the start.

This two day workshop will be an interactive experience that will allow you to learn from experts and each others' experiences.

OWEA 2020 Plant Operations & Lab Workshop

New Dates!

April 22 & 23

Wednesday & Thursday

Nationwide Hotel & Conference Center

Lewis Center

Some Topics of Interest:

"PFAS research outcomes from OSU"

"How to interact with the media when they come knocking on the WWTP door"

"Plant profiles from across the state"

"Social media and how it can affect your plant"

"Shift transition process control communication"

"Asset Management - a consultant's and a utility's perspective"

"Resource recovery - pros and cons from a utility that has walked the path"

"Greene County tornado outbreak disaster preparedness lessons"

11.75 CONTACT HOURS

REGISTRATION OPENING ONLINE SOON AT OHIOWEA.ORG

Passive Operating Flow Equalization Basin Reduces Peak Wet Weather Flows for the Northwestern Water and Sewer District

by Ted Bennett, P.E.

Using a passively operating flow equalization basin, the Northwestern Water & Sewer District (District) and Jones & Henry Engineers (J&H) have solved long standing wet weather flow issues in the District's SS 200 Collection System that contributed to sanitary sewer overflows in the City of Oregon's Collection System. The control philosophy for this basin centers on a concept using sewage flow in a trunk sewer to actuate basin emptying and filling automatically. Flows exceeding a contract limit of 5 mgd are restricted by a flow regulator then directed by a pump station into the equalization basin. When flow rates drop below the 5 mgd limit, the basin empties at a variable rate to maximize capacity up to the contract limit. Control of the system with minimal electronic equipment resulted in significant piece of mind and savings on an operational level.

Equalizing Flow From the Beginning

A wet weather event occurring near the end of the construction phase demonstrated the passive functionality of the SS 200 Flow Equalization Basin. At the time, the basin and all of its components were installed and operational, ready to receive peak flows from 2-inches of rainfall predicted overnight. The District's on-site construction inspector called the next morning and told me, to my dismay, based on SCADA, there was "no water in the basin." As designers are apt to do, my mind began running through the list of things that could have failed; was the diversion structure screen blocked, why did the pumps fail to run, were all of the valves open? Much concerned and defeated, I set out to the site to begin the trouble shooting process. About half-way along my drive to the site, the District's inspector called. When I picked up, the inspector said, "You're not going to believe it, the basin is completely full and did not overflow, everything ran perfectly." The issue was the primary tank level sensor wasn't reading level. As designed, backup controls operated the pump and filled the basin autonomously without any intervention from operations staff. The basin and its simple controls functioned as designed, capturing peak flows. Consequently, the passive operation concept passed its first test and much eased my own personal panic attack.

The Backstory

The District's SS 200 Collection System provides separate sanitary sewer service to approximately 3,000 homes and businesses in Northwood, Walbridge, Millbury, and Lake Township in northern Wood County, Ohio. Sanitary sewer flows from the SS 200 Collection System are conveyed to the City of Oregon for treatment

Excavation for the Wet Weather Pump Station and Flow Equalization Basin

Basin Construction with Shotcrete Coating being applied

at the City's WWTP via the District's 48-inch trunk sewer.

In 2014, the District and City of Oregon agreed to a new contract requiring the District maintain sanitary sewer flow rates into the City's collection system at or below 5 mgd. The average flow from this system is approximately 1 mgd. Inflow and infiltration into the 200 Collection System had been recorded up to 16 mgd during periods of significant or prolonged wet weather. The ultimate goal of these improvements were aimed at reducing downstream sanitary sewer overflows in the City of Oregon.

Preliminary alternatives evaluated to address wet weather flows included; inflow and infiltration (I/I) reduction and flow equalization in the form of pipeline storage or an above ground storage basin. I/I reduction as required to reduce the peak flows to 5 mgd was estimated at $20.5 million and I/I reduction could not guarantee peak flow reductions with certainty. Additionally, the I/I reduction option was expected to require more than the 18-months permitted by the City of Oregon to address flows exceeding 5 mgd.

A 2.0 million-gallon storage pipeline was estimated at $7.8 million while a similarly sized partially above grade basin was estimated at $5.1 million. As a result of a present worth analysis considering initial and annual

Construction of the Basin with a Manlift Being Moved out of the Basin

The District's Construction Inspector David Cromley and Ted Bennett

costs, the above grade basin option was selected.

The flow equalization basin needed to be simple and automatic due to the remote location but robust to avoid surcharges to the City for flow rates exceeding the Contract Limit. To achieve these objectives the above grade storage basin included the following innovative ideas and creative design considerations.

Flow Regulation

Maintaining the flow rate into the City to avoid a surcharge on excess flows made flow regulation the key operational feature. The regulator maintains flow rate for all variations in upstream water level by modulating flow using weights counterbalancing hydrodynamic forces of flowing sewage. The flow regulator was designed to fit within an existing sluice gate chamber downstream of the flow equalization basin. Fitting the regulator into an existing structure, saved an estimated $100,000 in construction cost for a new 35-foot deep structure. The flow regulator was provided by Grande Water Management of Laval, Quebec.

Basin Filling with Each Pumping Using a Dedicated Fill Pipe

Pump Station

As wastewater backs up into the upstream collection system, the water spills into the wet weather pump station. The wet weather pumps lift sewage from the 48-inch trunk sewer at a peak capacity of 7,500 gpm into the equalization basin. The wet weather pumps were designed to operate automatically, once per week, to be ready for wet weather events. Additionally, each pump is provided with a dedicated discharge pipe to maximize flow into the basin.

Trunk Sewer Level Controls

Since the flow equalization concept required surcharging the 48-inch trunk sewer, a feature was needed to bypass the regulator once the basin is full. To accomplish this a bending weir was installed adjacent to the regulator. The bending weir functions without any external energy or power source, balancing the hydrostatic forces of the surcharged water against the force exerted by counterweights, thus maintaining a constant water level while accommodating the overflow discharge around the flow regulator. The bending weir was also supplied by Grande Water Management of Laval, Quebec.

Flow Measurement

The contract with the City included a requirement that the flow rate from the SS 200 Collection System be measured for the computation of a surcharge fee for flows exceeding 5 mgd. Following the passive concept, a Palmer-Bowlus Flume was selected for flow rate measurement because this type of flume can be placed into a gravity sewer without affecting upstream levels. A key factor in the selection of a flume was to avoid the often challenging task of measuring velocity in an open-channel. The flume requires only level measurement to determine the flow rate from a manufacturer's rating chart. A Palmer-Bowlus Flume in a prefabricated manhole by Pastifab, of Tualatin, Oregon was utilized for flow measurement.

Basin Emptying

Following the end of a wet weather event, the basin empties back into the collection system at a variable rate to maintain a total flow below the contract limit of 5 mgd. A plug valve located downstream of the pump station is modulated based upon the basin level and downstream sewer flow rate to achieve the optimal basin emptying flow rate. Table 1 shows the relationship between valve open percentage, tank level and emptying rate. Key to this analysis was to avoid exceeding the contract flow limitation during basin emptying.

Basin Flushing System

The site has no conventional outlet for accumulated storm water, requiring pumping to an off-site ditch. The storm water pump station was designed to capture a portion of the storm water collected on site for use in cleaning the basin floor. The flushing system uses water collected in the basin and storm water pump station wet well for initial basin cleaning, thus eliminating the need and expense of treated water. Additional cleaning of the basin can then be initiated by filling the flushing device with City water if needed. The key component to this concept is that basin cleaning is expected to be required following wet weather, when runoff is captured on site. The flushing system was supplied by Gabriel Novac and Associates of Saint-Laurent, Quebec.

Wet Weather Pump Station, Control Building and Basin

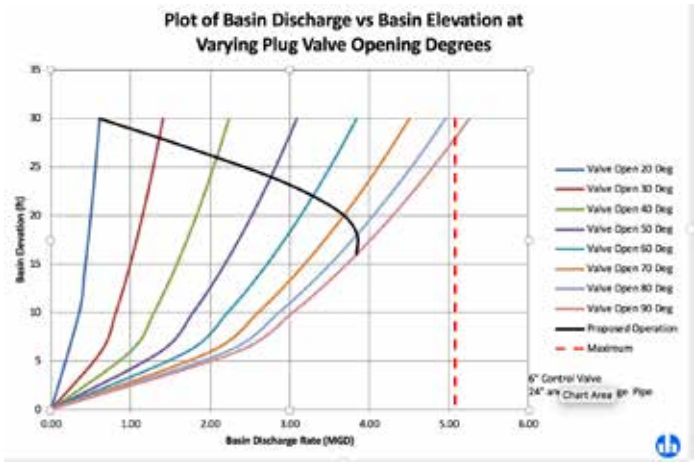

Table 1 - Chart showing variable basin emptying rate with a partially open plug valve and based on water water basin depth

Aesthetics

The selected site was located in view of adjacent residential neighborhoods and the aesthetics of the proposed improvements were a concern for local residents and the City of Northwood. To address the aesthetic concerns, spoil material excavated from the site was incorporated into a naturally planted landscaping mound. The landscape mound was then seeded with a mixture of native trees, grasses, and flowers to match the adjacent woods. Additionally, the partially below

Basin during leakage testing

grade design with an open top was selected to reduce the height of the structure at a cost savings of $200,000.

Funding

The District was able to secure project funding through the Ohio Environmental Protection Agency's (OEPA) Water Pollution Control Loan Fund (WPCLF). OEPA's WPCLF below-market interest rate saved approximately $900,000 in interest costs over a market rate loan.

Construction

Following the completion of detailed design in November of 2015, construction started in May of 2016 and was completed in July of 2017. The general contractor for the project was ES Wagner, Company of Oregon, Ohio. The prestressed wire wound concrete tank was constructed by Preload of Garland, Texas.

The project was completed for a total constructed cost of $5,470,000 with construction related change orders accounting for only 0.8-percent of total construction costs .

Results

Since the project's completion, the basin has activated roughly 20 times, preventing the sanitary sewer overflow of more than 50 million-gallons into Lake Erie from the Oregon Collection System.

A secondary benefit that has been realized during the operation of the flow equalization basin is the attenuation of peak flows in both intensity and time shifting. The preconstruction peak flow from the SS 200 Collection System was on the order of 16 mgd which has been reduced to 12 mgd. Additionally, the peak flow occurrence has been shifted by nearly 12 hours, the time it typically has taken to fill the basin and for water to crest the bending weir. This time shift has helped to reduce the occurrence of sanitary sewer overflows in the City of Oregon's downstream collection system.

Overall, the SS 200 Flow Equalization Improvements have reduced the volume of untreated wastewater bypassed by the City of Oregon into Lake Erie. This reduction in untreated wastewater reaching Lake Erie will help to improve the overall health of Lake Erie for drinking water and ecreational uses.

The Importance of Reading your NPDES permit

by Melodi Clark, City of Columbus Surveillance Lab Manager

When managing a lab, whether a private lab or government lab, one thing is for certain; we all handle samples that fall under some type of permit. It is extremely important to understand what type of permit the samples you are running fall under as that will dictate many things with how you handle the samples.

First, there are many different types of permits. The key to ensuring you are following what needs to be done analytically is knowing what type of permit you are dealing with.

1. NPDES-National Pollutant Discharge Elimination System
2. MS4- Municipal Separate Storm Sewer System
3. Pretreatment/Industrial
4. Storm Water

These are the main permits that most Environmental Labs deal with on a daily basis. There are other more specific permits, but in this article, we will only look at the NPDES permits as they are the most prevalent samples we deal with.

First who is the governing authority over the NPDES permit? Who do we answer to?

The Ohio EPA and USEPA govern the NPDES permit program. They are guided by The Clean Water Act Section 402, Ohio Revised Code 6111.03 and Ohio Administrative Code (OAC) Section 3745.

There are certain groups that fall under the NPDES permit program. One of these groups is wastewater treatment facilities that are categorized as either major or minor facilities.

Major facilities discharge more than 1 million gallons per day (MGD) and minor facilities discharge less than 1 MGD.

There are two types of permits: Individual Permits and a General Permits. General Permits are permits that have been streamlined for specific classes or categories of discharges.

There are five parts to a permit:

1. Title Page which contains the permittee name and location, permit period, authorizing statement, and discharge location.
2. Effluent Limits part I.A which contains applicable technology-based and water quality-based standards. This area is important for the laboratory to understand and be aware of.
3. Monitoring and Reporting Requirements part I.B & I.C which has other monitoring points (sludge, influent, streams, CSO's, etc.) and compliance schedules.
4. Special conditions part II includes the operator of record, staffing, and other requirements.
5. Standard conditions part III which contains boilerplate items that cover legal, administrative, and procedural requirements of the permit.

There are many things in the monitoring tables that need close attention. What units are the results to be reported in? Can you or an outside lab meet the detection limits that are stated in the permit? What type of sample is required; grab or 24-hour composite? What is the sampling frequency?

Make sure to look at the footnotes. This is the area that will spell out certain changes that you want to make sure you are aware of. For example, our last permit had a new Cyanide method that required us to purchase some equipment to be able to meet the new method spelled

out in the permit. The footnotes address specific items in your permit such as how to sample for certain organics or low-level mercury.

Another area of the permit is the compliance schedule. In this area, requirements for the pretreatment program and local limits will be outlined which will require sample analysis from your lab. It will also address any construction that is going to need to be done at the plant for things like bypasses and overflows which will also produce samples for your lab.

There will also be a part that will address previous permit violations or new limits imposed on different constituents.

As the lab, you need to pay close attention to the reporting compliance milestones. When is the data due to the Ohio EPA? If it is missed, it can result in an NOV for the plant which can lead to fines and other requirements. Make sure you can meet the due dates to avoid this.

The Operator of Record is another area that can get the permittee in trouble if not handled the correct way. An Operator of Record form needs to be submitted in writing to the Ohio EPA that states who your operator of record is. Any changes to the Operator of Record must be submitted within three days of the change.

Also look at the descriptions and locations of your outfalls. If they are not correct, get with the Ohio EPA to change them. There are times that the locations might have changed due to construction or a more accessible area was found and this needs to be relayed to the Ohio EPA, so they have the correct information.

Part II of the permit holds a lot of detailed information about the overall permit. Make sure you understand part II as it helps with the rest of the permit. This part goes over the protocol on reporting SSO's and your Annual Sludge Report. It also goes over special conditions like mercury variance, bioassays, and pretreatment.

There is always a draft permit issued before the final version. If your facility is a major or significant minor, a fact sheet will accompany the draft permit. This is the time you need to sit down and go over everything very closely. It helps to have your lab person go over it as well because they will be able to see if methods have been changed for analysis or if the limits have changed. They will need to know these things for planning. Maybe they will need new instrumentation or samples might need to be sent out. **Don't be afraid to ask the Ohio EPA why certain things have changed. They will work with you and sometimes change things. This has to happen in the draft permit phase!!** This also needs to be done in writing before the public comment period is over. Once your permit goes final, it is very hard to get things changed.

In the end when it comes to your NPDES permit, it is not just about the wastewater plant. You will be more successful if your lab people are involved from the beginning because in the end it's all about the sample results and who, but the laboratory knows sample data better.

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11:15 AM – 12:00 PM – "Oxygen Uptake Rate Using Respirometry" by Radek Bolek
12:00 PM - Lunch provided by Alloway
1:00 - 1:30 PM – Plant Tours
1:30 - 3:00 PM - "Advanced Respirometry" by Radek Bolek (additional charge of $30)

Alloway will host the workshop on April 28th, 2020 at the Wooster Water Pollution Plant, 1123 Old Columbus Rd., Wooster, OH 44691 and again on April 30th at the Allen County Sanitary Engineer's American-Bath Plant, 3230 N. Cole St., Lima, OH 45801.

The standard fee for this workshop is $79, with Alloway's routine analytical customers receiving a discounted rate of $49, which includes lunch. A limited number of registrants can sign up for the "Advanced Respirometry" course for an additional $30.

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2020

Hazardous Pharmaceutical Waste Banned from Sanitary Sewers

How does this new rule affect POTWs and pretreatment programs?

Note – the information provided in this article is primarily intended for publicly owned treatment works (POTWs) that discharge to surface waters of Ohio **and** are implementing an approved pretreatment program. A list of POTWs with approved pretreatment programs can be found at *epa.ohio.gov/Portals/35/pretreatment/Approved_Program_Contacts.xlsx*.

What does this rule prohibit?

40 CFR 266.505 prohibits all healthcare facilities and reverse distributors from disposing hazardous pharmaceutical wastes by flushing or pouring down drains. This prohibition is referred to as the sewer ban throughout the rest of this article.

Which industries are affected by this rule?

The descriptions below paraphrase the full definitions found in 40 CFR 266.500.

Healthcare Facilities - any person that is lawfully authorized to:

- Provide services to humans or animals affecting the physical or mental condition, structure, or function of the human/animal body; or
- Distribute, sell, or dispense pharmaceuticals.
- Examples – hospitals, nursing homes, health clinics, optical and dental providers, veterinary clinics, pharmacies, etc.
- Healthcare Facilities do *not* include group homes, independent living communities, assisted living facilities, and the independent and assisted living portions of continuing care retirement communities.

Reverse Distributors - any person that receives and accumulates prescription pharmaceuticals that are potentially creditable hazardous waste pharmaceuticals for the purpose of facilitation or verifying manufacturer credit.

Facilities not affected by this rule

Pharmaceutical manufacturers (unless they also act as reverse distributors), production facilities, or other generators of hazardous waste pharmaceuticals.

Who is responsible for enforcing the sewer ban?

Ohio EPA will enforce the sewer ban through Resource Conservation and Recovery Act (RCRA) inspections of healthcare facilities and reverse distributors.

Are there any updates to the state regulations?

Ohio EPA plans to include the provisions of U.S. EPA's Management Standards for Hazardous Waste Pharmaceuticals rule in Chapter 3734 of the Ohio Administrative Code (OAC). On Dec. 4, 2019, Ohio EPA released the interested party review for OAC 3734, which addresses the prohibition of placing hazardous pharmaceutical wastes in the sewer.

For updates and more information, see the following webpage: *epa.ohio.gov/derr/derrrules/rcra*.

What do POTWs have to do to comply with this rule?

POTWs shall enforce the sewer ban

Starting on the effective date of the federal rule (Aug. 21, 2019), POTWs shall not authorize or accept discharges of hazardous pharmaceutical waste from healthcare facilities or reverse distributors. POTWs with approved pretreatment programs are required by 40 CFR 403.8(f)(1) to enforce pretreatment standards and requirements (i.e. prohibition of hazardous pharmaceutical wastes).

POTWs shall notify industrial users of this prohibition

In accordance with 40 CFR 403.8(f)(2), POTWs with approved pretreatment programs are required to notify industrial users of the sewer ban. The POTW should explain this prohibition (or any more stringent local requirements) to impacted industries. Ohio EPA recommends that this communication is documented in writing and that the POTW maintains this correspondence in accordance with the records retention requirements described in OAC 3745-3-03.

For POTWs without an approved pretreatment program, even though there are no legal obligations to discuss the sewer ban with impacted industrial users, Ohio EPA strongly recommends this approach.

Do POTWs need to submit anything to Ohio EPA as a result of the sewer ban?

No. For POTWs with approved pretreatment programs, if there are any changes to the list of industrial users or their classifications as a result of the sewer ban, then please reflect this in the next annual pretreatment report. For all other POTWs, Ohio EPA does not require notification regarding the sewer ban.

Do POTWs need to update the sewer use ordinance (SUO) to prohibit hazardous pharmaceutical wastes?

No. The prohibition of hazardous waste pharmaceuticals is covered through the specific prohibitions in 40 CFR 403.5(b). Although the prohibitions in §403.5(b) do not specifically identify hazardous pharmaceutical wastes, healthcare facilities, or reverse distributors, they do ban discharges of pollutants creating a fire or explosive hazard, causing corrosive damage, etc. Hazardous pharmaceutical wastes would fall under this prohibition.

Can a POTW take additional action to enforce the sewer ban?

POTWs' legal authority to adopt and enforce pretreatment requirements

In accordance with 40 CFR 403.4, a POTW with an approved pretreatment program may develop and adopt requirements designed to ensure compliance with this sewer prohibition. Examples include updating the local sewer use ordinance (SUO) to include the new sewer prohibition or additional forms to be filled out by affected facilities stating that no hazardous pharmaceutical wastes have been discharged to the POTW.

If a city wants to make changes to their pretreatment program to enforce this rule (or implement more stringent conditions) as a pretreatment requirement, it may do so as long as the pretreatment requirement has been:

- approved by Ohio EPA (or has undergone the procedure described in 40 CFR 403.18); and
- adopted as part of the pretreatment program.

Other pharmaceutical wastes

While the hazardous pharmaceutical waste prohibition only legally applies to healthcare facilities and reverse distributors, U.S. EPA strongly discourages discharges of any pharmaceutical waste in any setting (with few exceptions, such as sterile water, 0.9 percent sodium chloride (saline), and Ringer's lactate solution).

Other Questions

Are healthcare facilities now considered significant industrial users (SIUs)?

No. Although all healthcare facilities are definitely considered industrial users (IUs), as defined in 40 CFR 403.3(j), they might not necessarily meet the definition of an SIU (defined in §403.3(v)).Under certain circumstances, the determination of whether a facility is an SIU may be made at the POTW's discretion. Therefore, POTWs should refer to the procedures specified in their pretreatment programs when classifying IUs. In addition, POTWs may at any time modify their pretreatment programs to update the IU classification procedures.

Does the sewer ban require healthcare facilities or reverse distributors to send a notification to the POTW?

No, this rule does not require healthcare facilities and reverse distributors to notify the POTW that it is operating under 40 CFR part 266, subpart P Hazardous Waste Pharmaceuticals. However, this must not be interpreted to impede the POTW's ability to require its industrial users to provide this (or similar) information.

What if the POTW has historically agreed to accept the prohibited discharge?

Regardless of whether the POTW is willing to accept the discharge, hazardous pharmaceutical wastes from a healthcare facility or reverse distributor are prohibited under federal regulations. The POTW's judgment does not supersede the federal regulations.

Regardless of whether your POTW has an approved pretreatment program, if you need any assistance determining a facility's compliance with this sewer ban, please contact Ohio EPA's Division of Environmental Response and Revitalization in your district office.

References

1 As of December 2019, there are no numerical standards in 40 CFR chapter I, subchapter N applicable to healthcare facilities' discharges to POTWs. Therefore, there are no applicable categorical pretreatment standards; healthcare facilities are not considered Categorical Industrial Users (CIUs).

Pretreatment Rule Equivalences (in order of appearance)

Federal Rule (40 CFR 403)	State Regulations (OAC 3745-3)	Description
§403.8(f)(1)	OAC 3745-3-03(C)(1)	POTWs with approved programs shall enforce pretreatment standards and requirements
§403.8(f)(2)	OAC 3745-3-03(C)(2)	Notify industrial users of applicable pretreatment standards and requirements
§403.5(b)	OAC 3745-3-04(B)	Specific prohibitions
§403.4	OAC 3745-3-02(D)	POTWs have the authority to enforce more stringent requirements, as approved in their pretreatment programs.
§403.18	OAC 3745-3-03(E)-(H)	Procedures to modify the pretreatment program
§403.3(j)	OAC 3745-3-01(I)	Definition of "industrial user"
§403.3(v)	OAC 3745-3-01(S)	Definition of "significant industrial user"

"Flushing of Hazardous Waste Pharmaceuticals is Prohibited!" Ohio EPA, Division of Environmental Response and Revitalization, Hazardous Waste Program (July 2019). Accessed 18 Dec. 2019. <https://www.epa.ohio.gov/portals/32/pdf/Pharma%20Sewering%20of%20HW%2019%2007.pdf>

"Frequent Questions about the Management Standards for Hazardous Waste Pharmaceuticals and Amendment to the P075 Listing for Nicotine Final Rule." US EPA, 26 Nov. 2019. Accessed 18 Dec. 2019. <www.epa.gov/hwgenerators/frequent-questions-about-management-standards-hazardous-waste-pharmaceuticals-and>.

"The Disposal of Hazardous Pharmaceutical Waste from Businesses." Ohio EPA, Division of Environmental Response and Revitalization, Hazardous Waste Program (May 2019). Accessed 18 Dec. 2019. <https://www.epa.ohio.gov/portals/32/pdf/PharmBusinessNov2010rF.pdf>.

Submitting a Pretreatment Annual Report through the eBusiness Center

If you administer an approved pretreatment program, you can now submit your annual report and your quarterly industrial user violation report through the Division of Surface Water's Surface Water Tracking, Reporting, and Electronic Application Management System (STREAMS). The report can be accessed via your personal dashboard (the opening screen in STREAMS which displays your permit list, application list, and reports list). Once you've created a report, it will be included on the report list and you will be able to take additional actions (for example, download a PDF, edit, delete). When you submit your pretreatment reports through STREAMS, there is no need to send paper copies to the Agency.

The paragraphs below describe how easy it is to submit your pretreatment annual report in STREAMS.

On the eBusiness Center home page, click on *Division of Surface Water NPDES Permit Applications (STREAMS)* to be directed to your personal dashboard. To develop your pretreatment program reports, your permit must be added to the permit list. On the right side of your permit list, you will see two columns. One is labeled *Actions*, the other is labeled *Reporting*. Under the *Actions* dropdown, you can remove a permit from your list, terminate a permit, transfer a permit or renew a permit. Under the *Reporting* dropdown, you can access all kinds of NPDES permit related reports. To develop your annual pretreatment report, select *Pretreatment Program – Annual Report Certification* in the dropdown list.

Once the report opens, it is prepopulated with a variety of information from Ohio EPA's database. The first step is to fill in the period coverage dates and the contact person information. Next, complete the Pretreatment Performance Summary which includes the number of significant categorical industrial users (SIUs), significant non-categorical industrial users, the number of effective control documents, and the number of SIUs inspected, as well as significant noncompliance information and enforcement activities. If you have published any SIUs in significant noncompliance in the local newspaper as required by the pretreatment rules, the report allows you to upload the newspaper listing or a include a hyperlink to the online articles. The report also allows you to upload a pretreatment information spreadsheet to track

Screenshot of Ohio eBusiness Center welcome screen

your IUs and IU monitoring. If any passthrough, upset, or interference events occurred in the past year, you can add these incidents to the report. The next screen is the program evaluation report where any changes to your program, funding mechanisms, adequacy of local limits, accomplishments, or problems can be described.

Be sure to save the report once you've entered the required information. If you choose to submit a priority pollutant report, say yes, and click on C*reate Priority Pollutant Report* button. The priority pollutant report file will be created and you will be able to fill in any other details and save the report.

You now have four options: *Validate* to verify that all fields have been properly filled in, *Save, Exit,* or *Submit.* Any saved reports will appear in your report list on your personal dashboard until submitted, deleted or delegated to another individual to submit.

When you click the *Submit* button, a prompt to answer a security question and enter your PIN will appear. By pinning this report, you are agreeing to the certification statement that the information submitted is true and accurate. Enter the information and click *Submit.*

If you save the report without submitting it immediately, it will appear in your reports list on your personal dashboard. Using the *Actions* dropdown on the reports list, you can download a PDF copy of the report that you can save or print for your records. You can also open the report to edit it, delete it, or delegate it to someone else to submit.

A tutorial with screen shots on STREAMS and pretreatment reports can be found on the Division of Surface Water webpage at *https://epa.ohio.gov/dsw/ebs.* For permit specific questions, contact your district office representative. For technical assistance with STREAMS or other Division of Surface Water eBusiness services, contact Katherine Harris in Ohio EPA's Central Office at (614) 644-2135 or by email at Katherine.Harris@epa.ohio.gov.

From wef hq
Leading-edge updates from the Water Environment Federation

States and EPA Coordinating on Best Approaches to Nutrients Permitting

ACWA, WEF and with EPA Host Four Workshops on Nutrient Permitting

by Mark Patrick McGuire and Katie Foreman

For the past two years, the Association of Clean Water Administrators (ACWA; Washington, D.C.) and the Water Environment Federation (WEF; Alexandria, Va.) have been working closely with the U.S. Environmental Protection Agency (EPA) to meet and discuss a broad range of nutrients permitting issues. Beginning in December 2017, a diverse group of representatives from state clean water programs involved in managing nutrient pollution and EPA headquarters and regional staff have been tackling this topic. These meetings will continue through 2021 as part of a cooperative agreement with EPA.

To date, ACWA, with support from WEF and EPA, have hosted four workshops with an additional three set for 2020 and 2021. The workshops' purpose is to help achieve several environmental outcomes by bringing together state, tribal, territorial, federal, and other stakeholders to identify challenges and barriers to nutrient permitting program implementation, highlight opportunities for program improvement and enhancement, showcase innovations and achievements, and identify and attempt to solve the most intractable issues.

Workshop Topics

The first workshop, held in Boise, Idaho in December 2017, was a broad overview of topics regarding nutrients permitting. More than 50 individuals from the states and EPA participated, with presentations given on technologies, permitting flexibilities and innovations, the interrelation of permitting for nutrients and other pollutants, and other issues. A group of attendees also visited the Dixie Drain project in Parma, Idaho.

The second workshop, held in Columbus, Ohio, in June 2018, focused on the relationship between wastewater technologies and nutrient permitting. More than 40 individuals from the states and EPA participated, with presentations given on specific types of technology, optimization and alternative approaches to nutrients removal, costs analyses, operator training, small systems, and more. Also, attendees visited two facilities in the greater Columbus area to learn about treatment processes and technologies.

The third workshop, held in Gulfport, Mississippi, in November 2018, focused on the connection between nutrient permitting and total maximum daily loads (TMDLs). More than 60 individuals from the states and EPA participated, with presentations and discussions focusing on breaking down barriers between TMDL and permitting programs, confined animal feeding operations (CAFOs) and municipal separate storm sewer systems (MS4s), reassessing and reevaluating TMDLs, politics and public perceptions of TMDLs and permits, small systems, variances and compliance schedules, and water quality trading.

The fourth and most recent workshop, held in Alexandria, Va., in November 2019, focused on identifying challenges and building solutions regarding water quality standards and permitting for nutrients. More than 70 individuals from the states and EPA participated, with presentations and discussions focusing on numeric and narrative nutrient criteria, the interaction between technology limits and water quality

standards when permitting for nutrients, small systems, and staff coordination. A group of attendees also toured the Alexandria Renew Enterprises facility to learn about innovative treatment processes and technologies.

Each of the four meetings was live-streamed for individuals who could not attend in person.

Workshop Themes

Through the four workshops some themes have emerged, such as the need for permitting flexibilities, improving communication, working with nutrients criteria, and dealing with small systems criteria.

Regarding permitting flexibilities, state representatives have shared their experiences using watershed-based permits (such as North Carolina and Virginia), water quality trading (such as Connecticut), and integrated planning (such as Ohio). States see permitting flexibilities as a suite of tools to help reduce nutrient pollution in state waters in a more efficient and cost-effective manner.

Communication between state programs and between states and the federal government has been a constant theme. Attendees have expressed that to be successful state permit writers need to have open communication with modelers, TMDL writers, standards and criteria developers, EPA headquarters and regional staff, and outside stakeholders. Breakdowns in communication are one of the main impediments to progress on nutrient pollution reduction.

States such as Missouri and Montana have developed and implemented numeric nutrient criteria. Other states, such as Iowa and Kansas, have narrative nutrient criteria. Both forms of criteria create challenges and opportunities when writing permits for nutrients. State representatives have discussed these challenges in each workshop, working toward solutions to challenges and sharing expertise.

Lastly, the issue of small systems management has been discussed in each workshop. Representatives from EPA Region 7, Kansas, and Indiana have presented together in each workshop on the challenges faced by small systems in communities smaller than 3,000 residents. Challenges include dwindling resources and populations, lack of operator expertise, need for system upgrades, and potential tightening of permit limits. Potential solutions included long-term nutrient reduction plans, regionalization, general permitting, variances, and more.

These four themes are just a few examples of the themes covered in the workshop series.

Future Meetings

ACWA and WEF plan to continue offering interesting and important topics and discussions at the next three nutrients permitting workshops. These workshops provide states and EPA, as coregulators, the opportunity to identify and seek solutions for the diverse challenges associated with nutrient pollution.

In 2020, there will be two workshops, in summer and autumn, with the final workshop of the cooperative agreement to be held in 2021. ACWA and WEF hope to continue to work toward solutions to one of the nation's greatest environmental challenges.

Both authors are from the Association of Clean Water Administrators (Washington, D.C.), the independent, nonpartisan, national organization of state, interstate, and territorial water program managers, who on a daily basis implement the water quality programs of the Clean Water Act. Mark Patrick McGuire is an Environmental Program Manager and Katie Foreman is an Environmental Program Associate at ACWA.

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Office Offerings

It's the start of a new year and that means New Year's resolutions for many of us. I recently read that only 8% of resolutions are kept. That's a pretty low rate of success.

Part of the problem may be that we set the bar too high for ourselves, making the goal unattainable. For example, instead of pledging to be more active, we decide we will go to the gym every day. Then life happens, and we fail and, per statistics throw the whole resolution out the window. We get overwhelmed.

It's easy to get overwhelmed when you set a really high goal, but change doesn't happen overnight, and failure doesn't have to be forever. Let's look at what's going on with our environment right now. Australia is ablaze, Puerto Rico hasn't recovered from the hurricane and is now reeling from multiple earthquakes, the temperature of our oceans is raising at a record rate, even here in Ohio, multiple communities have had devesting tornadoes and most WWTP's are dealing with more storm water issues than ever before. It's completely overwhelming and makes even our water warriors ask what can just one person do?

I want to tell you that one person can do a lot! Change happens in very small increments, not all at once. So even though you might already have broken any New Year's resolutions you made by the time you are reading this, I am going to ask you to make one more and keep this one.

Do something for our environment. How about no longer buying bottled water and instead bringing a reusable water bottle and filling it? Remember, companies that sell bottled water don't make water, they make the plastic bottles that hold the water. What about being a neighborhood hero and ensuring that the storm drains are kept clear of leaves and debris?

If you are reading this and you already do all these things... First off THANK YOU! You are part of the solution and not the problem. So, what can you do? You

can EDUCATE.

How about explaining to bottled water drinkers that tap water is so much better for our environment and their wallet? Consider calling out that no wipe is flushable regardless of what the package says. What about saying with pride you are a water warrior and you protect our most precious resource of water?

What else can you do? You can get involved with OWEA or your local water/wastewater association. Volunteers make these association work. Associations are powerful and effective change makers.

The point of listing all of these small things, is to let you know you have options to make a difference. Big change starts with you and your small changes. Don't feel helpless and overwhelmed, DO SOMETHING – You can MAKE A DIFFERENCE and our environment needs YOU, all of you.

DAWN LARSEN, CAE,
EXECUTIVE ADMINISTRATOR

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Creating a Legacy

by Dale E. Kocarek PE, BCEE, Past President 2010-2011

50th Issue

This article marks my 50th contribution to the Buckeye Bulletin that began for Issue 4 in 2007. It was renamed in 2007 from the SE Section Delegates report as a filler to an issue lacking in material.

The number "50" is significant in our culture. For those of us over 50 years in age, we have achieved a marker as being alive for half a century. For many, attaining this age is often associated with wisdom through a body of life experiences. For this reason, I believe that "50" is worth acknowledging.

WEFMAX 2005

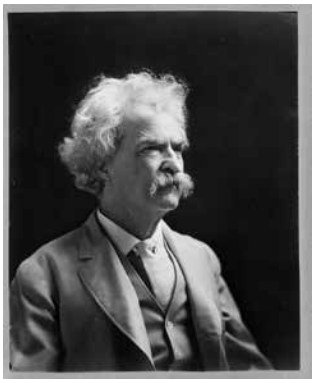
I have been on the OWEA Board each year except for one since June 2004 when I became the newest delegate for the Southeast Section. Inspiration for my series occurred during my first WEFMAX in Toronto, Canada in May 2005. At that time Deb Houdeshell was our OWEA president. She had many WEF relationships and a keen understanding how the organization worked including its relationships with Member Associations (MA's) such as OWEA. At that time, our board was also fortunate to have included talented members including Dianne Sumego, Keith Riley, and Gary Johnson, who all had strong connections with WEF and were able to draw from the myriad of strengths and talents that WEF has to offer.

It was in May 2005 in Toronto that I realized OWEA was part of an international organization dedicated to the purpose of enhancing the water environment. As a new section delegate, I was searching for my own role and how I may best contribute to this organization. From that point on, which was May 14, 2005, I was focused on helping unify our sections, State MA and WEF. I believed then as I do now, that the prospect of bringing groups together with a common cause is priceless. This series began by helping bridge the gaps between these groups.

Inspiration

In deciding to write this series, I had to find a voice. I did not want to come across as a know it all or be opinionated. I wanted to my series to be interesting, drawn from history and conversational in nature. While I am an engineer, I did not want this to be a technical series. I borrowed from the style of 19th century writer Mark Twain (1835-1910). Born Samael Langhorne Clemens in the East in 1835, he life bridged over much of the 19th century into the 20th.

In addition to being a noted and popular writer, Twain drew from his experiences as a river pilot on the Mississippi River in the 1850s in a historical and at times comical way. He gave life and personality to an important river and spoke of its power, majesty, beauty, and importance to river towns such as St. Louis and New Orleans. He made the mighty Mississippi into almost a person as he referred to its temperament. What struck me about Twain was the reverence for this river. WEF and OWEA share that same belief towards our water resources.



(ca. 1907) "Mark Twain"., ca. 1907. May 20. [Photograph] Retrieved from the Library of Congress, https://www.loc.gov/item/2004672770/.

One aspect of Mark Twain that is unique was his knack for chronicling events of the era and his ability to amuse audiences with stories. To earn a living in the 1890s, he went on a world wide tour making public appearances.

While I personally do not have talents similar to those of Mr. Twain, I do like meeting with and attending meetings across the state and meeting our members and studying history, particularly American History. I also wanted to make my involvement in OWEA showcase the talents and accomplishments of others while stepping into the background.

I was also personally inspired for my service to OWEA for 20 years by Uncle James Kocarek (1914-1995). An outgoing and gregarious man that grew up in the depression to immigrant parents, he enjoyed a period later in life on the City of Solon Chamber of Commerce in 1977-1986. While I believe that played a small role in helping his community grow in a positive way, he greatly enjoyed this part of his life and also giving back to a country and state in which his parents settled in 1904.

Creating a Legacy

I think it is important that each of us create a legacy in the time we have on this planet. It does not have to be grand or fancy. In making this statement I acknowledge that time, resources and opportunities all play a role. While I entertain thoughts of compiling a small book, on my stories, I feel that my greatest legacy has been working with a group of immensely talented and dedicated people through the years. Together we have helped move the needle for the water environment.

In closing and in mind of the Impeachment Hearings that have occupied the news lately, we have carried our message with dignity and civility. In an increasingly hostile and intolerant world, we should be proud that we carry our message of clean water to every country and citizen of the world with kindness and consideration to our audience.

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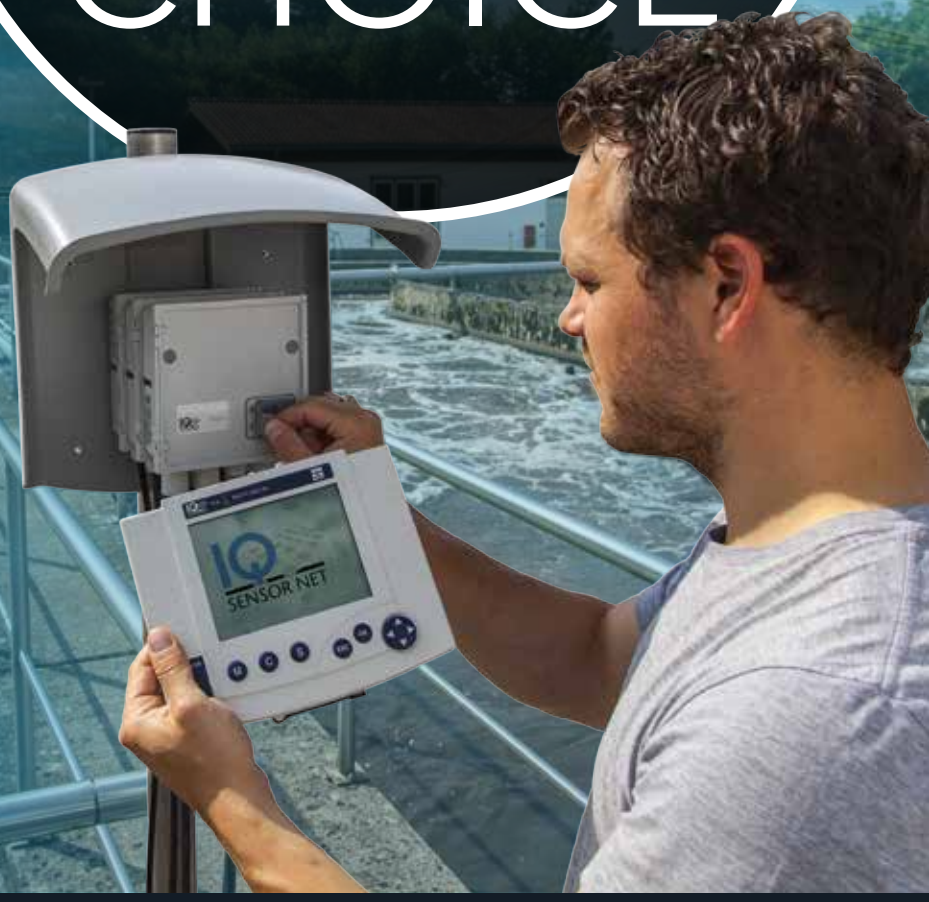

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SWOWEA

Erik Torgersen, President

New Year's Resolution

Our committee has yet to meet in 2020 so on behalf of the committee I am making a New Year's Resolution – to improve the value of membership to our organization. We will try to reduce the cost of our events while at the same time trying to improve the experience. Thanks to the wonderful support we get from our exhibitors, sponsors, and advertisers, our section has a strong fiscal status. We will be looking at ways to reduce costs for attendees at events. Improving value is not just about cost though. We are also looking at ways to get more engagement from the members. Stay tuned for ideas at upcoming events, and if you have any ideas, please share them with someone on one of the committees.

Committee Change

Brandon Leeth took a new job which will require frequent travel and as a result, he felt it would be best to resign from the committee. Brandon stepped down from first-year director, so Justin Bahar becomes the new first-year director and Kevin Stilwell jumps up to the second-year director. And now we welcome Ed Smith from Mason to the committee as the new third-year director. Thank you and congratulations Ed!

We wish Brandon well in his new job. Brandon provided a lot of great insight to the committee and he is very passionate about our industry. He was a great asset to our committee and had a very positive attitude in all that he did. We will miss him greatly. He is not moving though so hopefully we will still get to see him at some of our events.

Recent Events

On November 14th the SWOWEA Plant Operations Committee put on the Plant Operations Seminar at the Manor House in Mason, OH. Process control systems, proper chemical dispersion, and rotary lobe pump operation were just some of the topics covered. We even had our very own OWEA President, Kim Riddell-Furry, present on water and wastewater laboratory sampling. The event was well attended with about 115 attendees. Afterwards there was a social at the Sonder Brewing that was also well attended.

On December 6th the committee hosted the Past Presidents and 5S Luncheon. This is a time to honor those that put in years of dedicated service to our organization. Each year it is enjoyable to hear some of the funny stories and learn more about the history of our section. Barb Swafford was the first President to host a Past Presidents Luncheon in 1998 and its continued ever since.

Past Presidents and 5S of the Southwest OWEA Section

Upcoming Events

This is a busy time of year for SWOWEA. Please check out the events calendar later in the newsletter for a complete listing of events. And be sure to check the OWEA website too for any changes or updates.

Here is a partial list of upcoming events in our section.

- March 12, 2020 – The March Section meeting will be taking place in Dayton, OH and will be organized with the help of the SWOWEA Collections Committee.

- April 24, 2020 – Operator Education Day will be at the Montgomery County Environmental Services Offices. This training is for those preparing for their wastewater exams.

- May 14, 2020 – The May Section meeting will be a return to Miamisburg, OH. Miamisburg hosted a section meeting several years ago prior to their major plant improvement. Come see their new and improved plant and attend the tech sessions.

SEOWEA

Chris Tarr, President

Happy New Year to all OWEA members. I hope everyone had a wonderful time during the holidays and ample time to spend with family and friends. Not to mention I hope that everyone was able to get away from work and recharge their batteries for the year 2020!

Recent SEOWEA Events

The SEOWEA section closed out 2019 with a couple great events. First, we held our Ethics and Supervisor/ Management Workshop hosted by the City of Columbus Sewerage and Drainage on October 23rd. This was the first time in recent history that our section has held an ethics and management training workshop. We had approximately 50 people attend this workshop and we had very good feedback after this event. Because of the positive feedback, the SEOWEA executive committee is discussing the possibility of holding another similar event again in the fall. A big thanks goes out to Melodi Clark, the SEOWEA program chair, for organizing the workshop. Also, I would like to thank the workshop presenters, which included some SEOWEA executive committee members, for their outstanding presentations.

On October 29th, the SEOWEA Young Professionals held an event which began with a tour of the Olentangy Environmental Control Center located in Delaware County. There were approximately 25 people that attended the event, and the tour led by the OECC staff was well received. After the tour, YP Co-Chairs, Cody Allison and Tucker Randles hosted a happy hour mixer at the Nocterra Brewery. Please stay tuned for future SEOWEA YP events in 2020.

On February 20th, 2020, the Southeast section held the SEOWEA Pretreatment & Industrial Workshop. This event began with a tour of The Village of Commercial Point WWTP in the morning. Following the tour, there were three technical presentations at Cooks Creek Golf Club. This workshop offered four contact hours for attendees.

Upcoming SEOWEA Section Events

As a part of the SEOWEA biosolids and regulatory section meeting held every May, we will be presenting our annual section award winners. In the coming weeks, we will be asking our membership to submit nominees for our section's awards. Details of the awards will be included in the awards nomination announcements. Please consider nominating a co-worker or any other SEOWEA member you feel is worthy for consideration of one of our section awards.

SEOWEA YP OECC Tour

NWOWEA

Mark Lehnert, President

Greetings and Happy New Year from the Northwest Section. As we are a couple of months into the new year with Spring just around the corner, we are gearing up for our March Section meeting. By the time this publication comes out registration should be open on the OWEA website. We are planning on holding our section meeting March 18th at the Minster Wastewater Treatment Plant with tours of the plant as well as tours of the Dannon Yogurt Treatment System. Following the morning tours, we will be holding technical sections along with lunch in the afternoon. The location of this meeting offers an opportunity for those in the Southwest Section to join us.

My younger self always enjoyed reading and I have read many books through the years. I mostly enjoyed reading for the pleasure of reading and not necessarily for learning or advancing my knowledge. With the computer and the internet readily available for researching most any problem, I find myself reading less books and more "articles" on relative matters. Over the last year I was introduced to a book that has been out for over 30 years and I have heard about it and even listened to people quote from the book, however I never gave any thought to reading it myself. The book I'm talking about is "The 7 Habits of Highly Effective People", written by Stephen R. Covey. When I first started to read the book, it grabbed my attention right from the start and I found it to be an easy read. The one area of the book that I wanted to share with all of you reading this is titled "Making and Keeping Commitments".

At the very heart of our Circle of Influence is our ability to make and keep commitments and promises. The commitments we make to ourselves and to others, and our integrity to those commitments, is the essence and clearest manifestation of our proactivity.

It is also the essence of our growth. Through our human endowments of self-awareness and conscience, we become conscious of areas of weakness, areas for improvement, areas of talent that could be developed, areas that need to be changed or eliminated from our lives. Then, as we recognize and use our imagination and independent will to act on the awareness – making promises, setting goals, and being true to them – we build the strength of character, the being, that makes possible every other positive thing in our lives.

As the wastewater field has advanced over the years, we need to be open to change and learn from what has worked and what has not worked. It is the integrity of the professionals such as yourself that makes working in the wastewater field a satisfying and rewarding career opportunity. A friend of mine told me; "A measure of a person's integrity can be gauged on what he does when no one else is watching". This statement is so true in a profession that relies on self-monitoring and reporting.

A new generation of wastewater operators, maintenance technicians, engineers, collection personnel, sales persons and regulators are just starting out in this career field. This newer generation may not know where we have been in years past and how we got to where we are today in the advancement of the wastewater field. In 2020 I want to make it my goal to share my knowledge with those individuals willing to learn and want to make the wastewater profession a career, not just a job.

If you have any interest in holding a section meeting at your facility or you would like a topic covered at future section meetings, please send me an email.

Mark Lehnert – mlehnert@cityofefiance.com

NESOWEA

Doug Harris, President

Welcome to 2020! I hope everyone had an enjoyable and restful holiday season. It's hard to believe that Y2K is now 20 years in the past. And, before you know it, another 20 years will also pass. So, take a moment to think of all of the personal and professional accomplishments that you have made in the last year, 10 years, 20 years; and think about what you want to accomplish in the next 20 years. Hopefully, involvement with the NESOWEA can be a part of these plans!

This is the time of year for popular events in the Northeast Section including our annual sellout seminars in January and February. The Section's upcoming events for mid 2020 include the following:

- April 23, 2020 – 2nd Annual Innovation Seminar (*FREE*) – Summit County MetroParks, Brushwood Pavilion
- May 21, 2020 – Annual Business Meeting, Training and Tour –City of Niles WWTP
- July 17, 2020 – BioMass'ter's Golf Outing – Grantwood Country Club
- Stay tuned for event updates!

Over the past several months our section has conducted multiple training and networking events, including a Fall Meeting with tours of the Kenneth W. Hotz Water Reclamation Facility in Medina; our annual Supervisors and Ethics Seminar at the Summit County MetroParks; the Collection Systems Hands-On Workshop at the ULAB, Lake County Training Facility; the annual Clambake at the Akron Zoo; and our Past President's Holiday Luncheon at Lock 15 Brewing Co. in Akron. Feedback I've received from attendees has been very positive and special thanks are due to the volunteers who developed the programs for these events. Special thanks also to Phil Cummings and staff from the Kenneth W. Hotz Water Reclamation Facility who went above and beyond to conduct tours and host our fall meeting.

Annual scholarship applications and essays are due by April 15th. The 1st Place Scholarship Award is in the amount of $1,500 and Honorable Mention Awards can be up to $1,000. Please feel free to email me directly for more information regarding this scholarship opportunity.

The 2020 Student Design Competition is underway. Once again Krishna Chelupati (Stantec) has developed a great program and we are excited to have 4 teams competing from 3 colleges (Cleveland State University, Case Western Reserve University, and Kent State University). Thank you Krishna for all of your hard work!

We are looking forward to hosting the 2020 State Conference this year. A special thank you goes out to Jennie Celik (HDR, Inc.) and Angelina Hotz (EnviroScience) for volunteering as co-chairs for this huge event!

We have a great group of leaders who are always looking for support and to grow their committees. If you are a member and do not participate in a committee, I ask that you consider joining one or two committees to participate in. Our current section committee leadership can be found on nesowea.org

I look forward to seeing you at our upcoming events. I hope you reach out to the leaders and express interest in joining a committee. And, as always, thank you to the extensive list of current volunteers that help make this organization great!

Douglas J. Harris
NESOWEA President, doug.harris@cantonohio.com

Past President's Holiday Luncheon

Laboratory Analysts Committee

Co-State Chair & SE Chair
Melodi Clark
(614) 645-1239
MLClark@columbus.gov

Co-State Chair & NW Co-Chair
Anthony Hintze
(419) 334-3876
tjhintze@gmail.com

SW Co-Chair
Jim Davis
(937) 496-7051
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SW Co-Chair
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NW Co-Chair
Terri Brenner
(419) 872-8041
tbrenner@ci.perrysburg.oh.us

NE Co-Chair
Bev Hoffman
wwlab@genevaohio.gov

NE Co-Chair
Tom Zocolo
tzocolo@akronohio.gov

Laboratory Analysts

by Melodi Clark and Tony Hintze

Greetings from your state lab co-chairs and Happy New Year! We just came back from a very successful WEFTEC. We are in the planning stages to launch two Lab Analyst review workshops a year, one in the fall before the test in October and one in the spring before the test in April. We will hold it at the City of Columbus Surveillance Lab and continue to have half of the day be a hands on training in the lab. We have switched around what the focus will be on for the fall and the spring. Focus in the fall will be for the 2 and 3 license and the spring workshop will be for the 1 and 2 licenses. We are always looking for speakers for different events throughout the year so if you are interested, please reach out to us. We can use your skills. We are also planning the Plant Ops Lab Workshop as well and again going to have two days of lab content!! The workshop has moved to April. Be on the lookout for registration and if you are interested in presenting please reach out to Tony or I so we can chat. We are always looking for good lab people to help out at the section level and at our workshops so if you or someone you know is interested please let us know so we can help you get involved. There are a lot of new things coming for our labs and it is going to be an exciting year!!

Southeast LAC

Happy New Year from the SELAC! I hope 2020 brings awesome things to you all. My plan for this year is to try and have four meetings: one each quarter and at least one will be back at YSI. The other three I am still planning. We might try and do one here in Columbus with a tour at one of our wastewater treatment plants. As always if you are willing to host or present at one of our LAC meetings, please reach out to me and let me know. Looking forward to seeing many of you this year at one of our meetings.

Northwest LAC

Happy New Year from the Northwest Section! We hope you all enjoyed the holidays and had a chance to spend some time with your families. We had a great turn out at our October meeting in Lima, where attendees had the opportunity to receive 3.5 contact hours. We'd like to thank our speakers for their great presentations and to Alloway for not only hosting the meeting but providing lunch as well.

If you haven't done so already, come join us in our Facebook Group, NWOWEA Lab Analysis Committee and join our email list as well. Contact Terri or myself for more info. (thintze@fremontohio.org or tbrenner@ci.perrysburg.oh.us)

If anyone has a topic they would like to see presented or if you know of someone who would like to present a topic at one of our meetings, please let us know! And of course always remember, working in the lab is just like cooking in your kitchen, just don't lick the spoon!

Student Design Competition

by Muralikrishna Chelupati

The Northeast Section of the Ohio Water Environment Association (NESOWEA) launched the 2020 Student Design Competition (SDC). This is the fourth consecutive year in which NESOWEA collaborated with various universities in Northeast Ohio to launch the program. This competition is modeled after the WEF Student Design Competition held annually at WEFTEC. The purpose of the competition is to promote "real world" design experience for students interested in pursuing an education and/or career in water and environment science and engineering. The competition is typically geared towards upper class students and/or graduate students; however, all students are encouraged to participate.

Students from Cleveland State University (CSU), Case Western Reserve University (CWRU) and Kent State University (KSU) are participating in the 2020 Student Design Competition. Kent State University's team is a new addition to the SDC this year. CSU is continuing their inter-disciplinary course and students enrolled in Dr. Sanda Kaufman and Dr. Julie Wolin's class are participating in the competition to meet class requirements. Paul Solanics and Muralikrishna Chelupati developed the competition guidelines and advised CSU faculty in developing the class syllabus. Students formed teams and selected a problem statement provided by NESWOEA. A kickoff meeting was held with students, faculty from CSU, CWRU and KSU and NESOWEA members on Friday, January 24th at CSU campus.

We would like to thank Dr. Kurt Rhoads from CWRU, Dr. Sanda Kaufman and Dr. Julie Wolin from CSU and Dr. Xiaozhen Mou from KSU for their support and encouraging their students to participate in the SDC. Thanks to Doug Dietzel from the City of Lorain for providing a storm water problem statement and Christen Wood from Summit County for providing a wastewater problem statement. In addition, we would like to thank Meredith Cariglio, David Gleason, Georgia Fuerst and Thomas Zocolo, for graciously volunteering their time to advise the students. Many thanks to Doug Harris, Mike Cook, Mike Welke, Paul Solanics and NESOWEA Executive Committee for their support and funding for the competition.

Four teams will compete against each other when they present their innovative ideas at the final competition to a panel of NESOWEA judges on Friday, April 24, 2020 at Cleveland State University. OWEA members interested in attending should RSVP to Muralikrishna Chelupati by Friday, March 6th at Muralikrishna.Chelupati@stantec.com.

Young Professionals Commitee

by Lindsey Hassenauer, Hazen and Sawyer, Chair

As we kick off a new year, I encourage all Young Professionals to make this the year you become involved in OWEA at the section level or the state levels. From the Collections to Residuals and everywhere in between, there is a committee for you! Contact the chair of the committee you are interested in participating on, or let me know and I'll connect you.

I am also looking for YPs interested in joining the state-level Young Professionals Committee to help plan YP events for the state conference, coordinate YP articles, and potentially plan other YP events throughout the year. Please contact me if you are interested!

Northeast Update

On November 7th, the northeast YP group was invited to tour the Northeast Ohio Regional Sewer District Easterly WWTP. The Easterly WWTP was originally constructed in 1908, the wastewater treatment plant treats on average 85 MGD with a peak treatment capacity of 400 MGD. Attendees saw how the recently completed construction projects have improved the facility's ability to treat wet weather flow from a combined sewer service area. We had two tour groups tour the plant, and all attendees received 1 contact hour. Afterwards, the group gathered at Nuevo in downtown Cleveland for networking and appetizers sponsored by NESOWEA.

Southwest Update

The SWOWEA YP Committee along with OAWWA YP Committee hosted a sustainability tour of the Cincinnati Zoo and Botanical Garden on December 6th, 2019. The event offered a two hour tour of the storm water system at the zoo. The group got to see Fiona at the zoo!

On January 23rd, 2020, the SWOWEA YP Committee hosted an evening Mmxer after the SWOWEA Industrial Waste Seminar at 16 Lots Brewing Co. All SWOWEA members were welcome to attend- even if you're not a YP! Contact Pooja Chari at pchari@fishbeck.com to receive YP updates and events.

Northwest Update

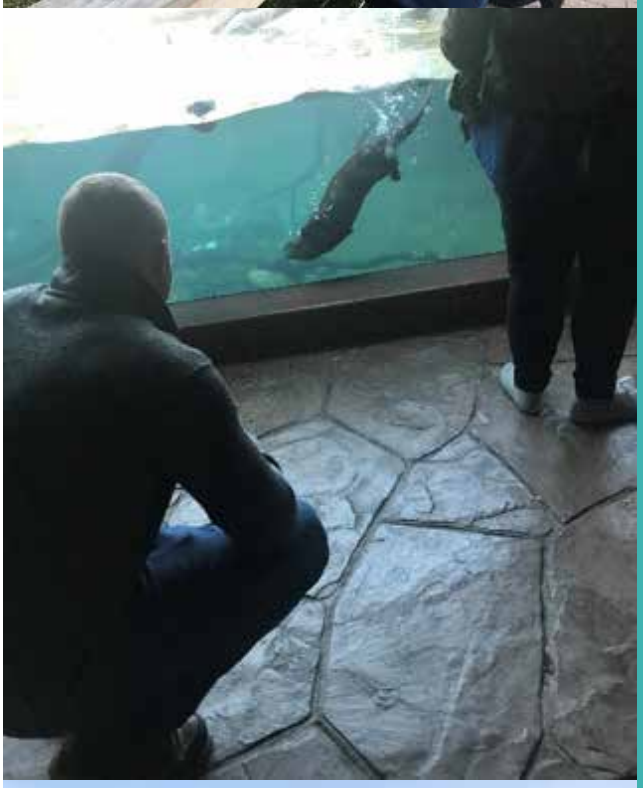
The NWOWEA YP Committee hosted a joint YP event with OAWWA's YP group on October 24th, 2019 at the

Northeast YP's Tour of NEORSD Easterly WWTP

Toledo Zoo, which included a tour of the water filtration and the storm water systems at the zoo.

The Northwest OWEA Young Professional Organization is hosting another joint event this spring along with AWWA. Join us on April 2nd at Maumee Bay Brewing Company for another free event. We will meet in the Ottawa Room at 4PM for a behind the scenes tour highlighting the water filtration systems involved in the brewing process. We will follow the tour with a happy hour and networking event with free appetizers and a cash bar.

This event is open to anyone in the water or wastewater field, even if you do not qualify as a young professional. Send the NW YP chair Kevin Connor an email if you wish to receive YP updates and information on future events.



Northwest YP's Tour of the Toledo Zoo

Young Professionals Committee

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Southwest Chair
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FTCH
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Certification Commitee

by Kathy Richards and Kathy Beckett

Greetings all and welcome to 2020! A new year calls for some new beginnings, and I am very excited to announce that OhioWEA now has a new Director of the Board of Certification! Please let me take this opportunity to introduce Kathy Beckett, who has graciously accepted this title.

Kathy is a Wastewater Chemist II supervisor who oversees the City of Columbus Surveillance Laboratory Quality Assurance/Quality Control program with 25 years of wastewater laboratory experience. She holds an OWEA Class IV Wastewater Analyst certification, and recently retired from the U.S. Army Reserve after 31 years of service. I believe she is a terrific choice for this position, in no small part due to the fact that you won't have to learn a new first name for your Director.

I have enjoyed my tenure in this position and will still be available to help as Kathy takes the reins. Please join me in welcoming her!

Happy New Year everyone! I am Kathy Beckett and am honored to step into the OhioWEA Director of the Board of Certification role. I previously served as OWEA examination proctor under the tutelage of Kathy Richards and Mike Heniken. Their mentorship and support will be invaluable as I step into this new role.

As 2019 is officially behind us, please join me in congratulating the following examinees who passed the ABC Wastewater Analyst examination this past October.

Class I Wastewater Analyst: Emily G. Darnell, Paul E. Howard, Linh Duy Nguyen, and Michael A. Plenzler

Class II Wastewater Analyst: Alyssa R. Blair

Class III Wastewater Analyst: Thomas L. McGrain

Class IV Wastewater Analyst: Walter F. Schroder

Looking forward into 2020, Association of Boards of Certification (ABC) examinations will be held April 17, 2020 and October 16, 2020. Examination application deadlines are March 20, 2020 for the spring exam and September 18, 2020 for the fall exam. Applications and additional information for the OWEA lab analyst examination can be found on the OWEA website at https://www.ohiowea.org/lab_analysts.php

Examination preparation is crucial and ABC offers information on their website to assist in exam preparation. Resources include Need-to-Know criteria, formula/conversion tables, exam references, study guides, and sample exam questions which can be found at this link http://www.abccert.org/testing_services/certification_study_resources.asp. If you plan to take certification examinations this year, start preparing for it now to ensure success. Please feel free to reach out to me if you have any questions at kmrish@columbus.gov.

Wishing you happiness, success, and prosperity in 2020!

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- Membership is designed for the specific needs of students - offering a solid foundation on which to build careers and gain credibility with water quality leaders.
- The Ohio Water Environment Association is offering a year-long OWEA/WEF membership to students with an interest in the water quality/wastewater field. This is a dual membership with OWEA (as the state member association) and WEF.
- Students must be enrolled in a minimum of 6 credit hours in an accredited college or university.
- Encourage students to apply for a free year-long OWEA/WEF membership at: https://www.ohiowea.org/membership.php

CONTACT

OHIO WATER ENVIRONMENT ASSOCIATION

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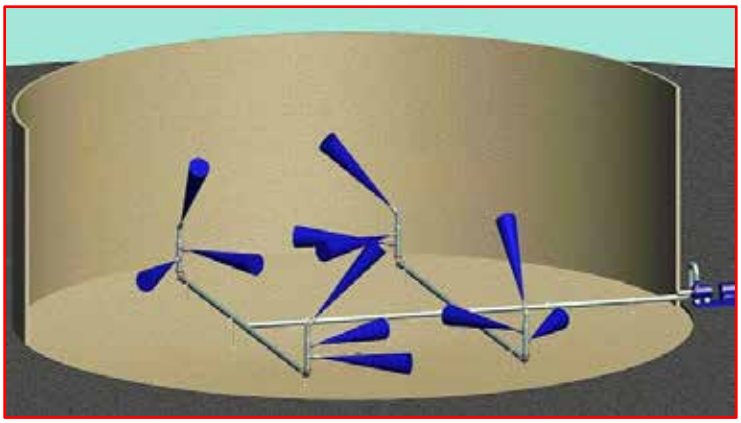

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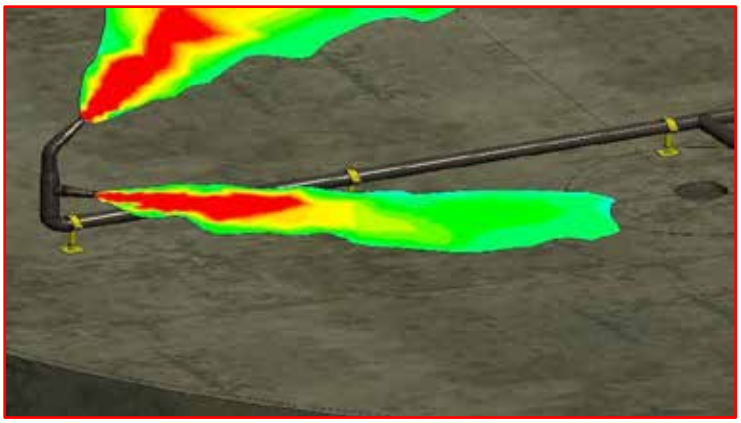
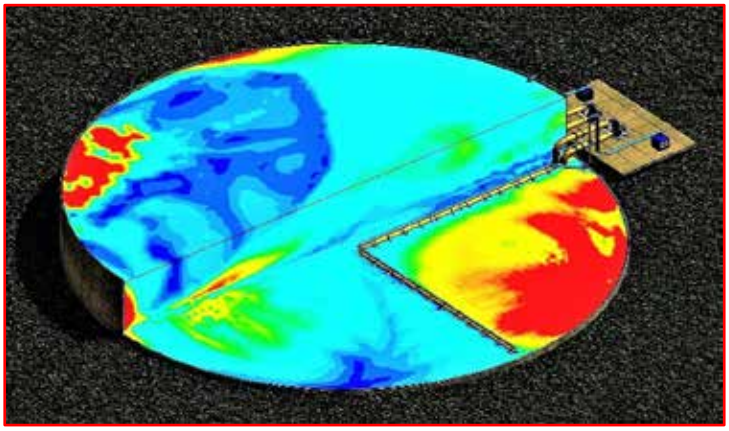


CFD ANALYSIS



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- No rotating equipment in digesters

HYDRAULIC SLUDGE MIXING BENEFITS

- Energy efficient
- Stainless steel nozzles
- Nozzles hardened to a Brinell hardness of 450+
- Chopper pumps
- CFD mixing analysis
- High chrome mixing nozzles
- 1 inch wall thickness

MIXING SYSTEMS, INC.

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Web site: www.mixing.com
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