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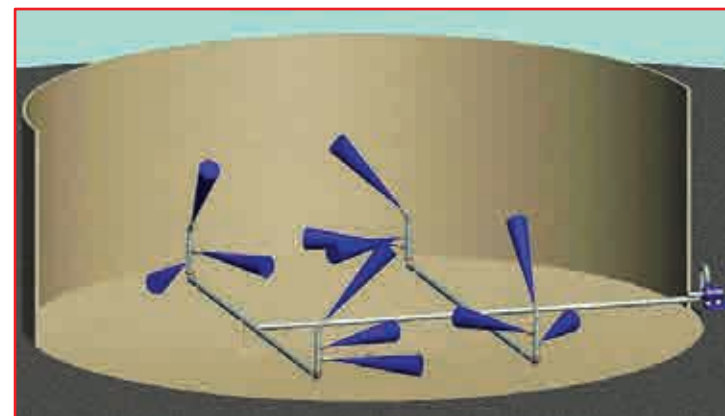
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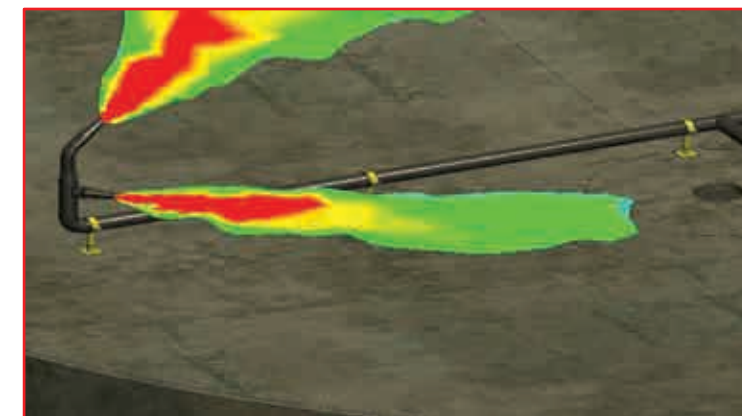
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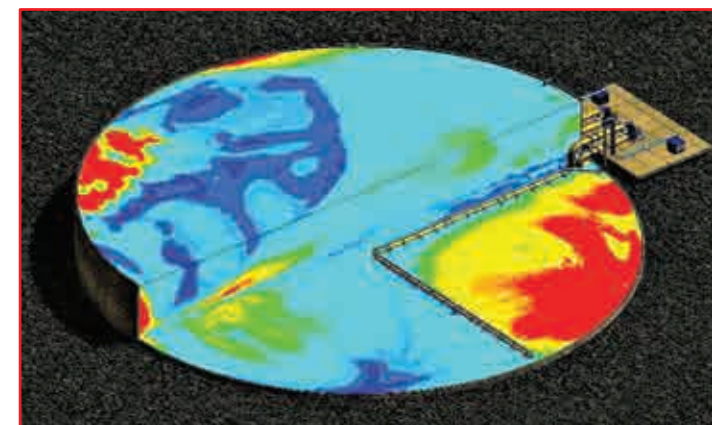
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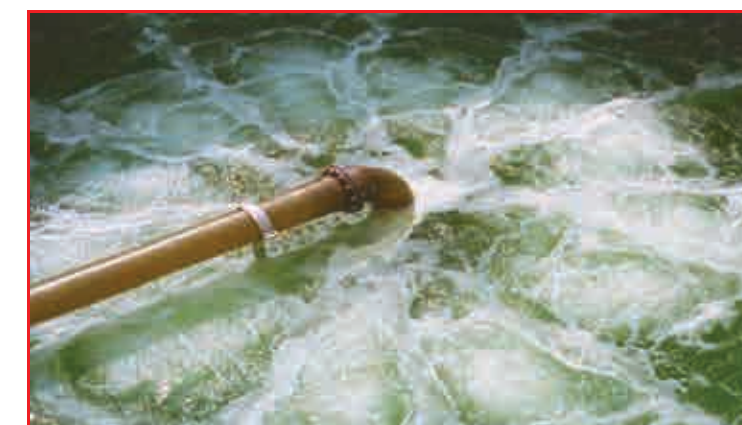
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The Buckeye Bulletin (BB) is the official publication of the Ohio Water Environment Association, Inc., a not-for-profit corporation founded in 1926, dedicated to the improvement of water quality in Ohio and the continuing education of water professionals. It is one of the top five member associations of the Water Environment Federation.

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I'm so excited! Fall is finally here! This is my favorite time of year and also my busiest time of the year – in both my personal and professional life. There are a host of OWEA Section meetings, the AWWA Annual conference, WEFTEC and Operations Challenge, the OWEA Plant Ops and Laboratory workshop, LAC meetings in our various sections and I know the list goes on. And on the personal side, there's the Delphos Canal Days Festival, Homecoming festivities, our annual Halloween Party and volleyball games galore with my daughter Emma. Still as busy as it is, I wouldn't trade it for any other time of the year. The leaves are changing, there's a chill in the air and I get to pull my comfy sweaters and boots out of the closet!



Kim Riddell-Furry

OWEA President

I had the pleasure of representing OWEA as our President at WEFTEC in Chicago in late September. What an amazing event! I spent Saturday and Sunday preparing for the new Operations Challenge Laboratory Event which we rolled out on Monday for the first time at the national competition. If you want to learn more about the new event you can check it out in the September 2019 issue of WE&T. I had the honor of working with a very dedicated group of water quality professionals to put on an exceptional Operations Challenge competition on Monday and Tuesday. There were 47 teams from around the

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.

country, Canada and Denmark competing this year – that's more than any other year in the history of the competition!

OWEA was represented by two teams at WEFTEC – The Columbus Outfalls and the NWWSD Dirty Deeds. They both represented OWEA well. Out of 40 teams in Division II, they placed 11th and 12th in the laboratory event, Dirty Deeds placed in the top 10 in the safety event and 13th overall; while Columbus placed 22nd overall. Great job ladies and gentlemen and a huge thank you to their employers for supporting their participation! In addition to the teams representing OWEA in Operations Challenge, we had over 25 volunteers and judges assisting with the events. Thank you also to the OWEA members and Executive Committee for going to cheer the teams on! I know your support was appreciated! We also had a team from Youngstown State represent OWEA in the Student Design Competition on Sunday this year. They also did an outstanding job! And finally, we held our first joint WEFTEC Mixer this year with the Indiana WEA. It was very successful and a lot of fun! I look forward to doing this again next year in New Orleans!

As I drove home from Chicago just a few short weeks ago, I found myself reflecting on how I got involved in OWEA and WEF almost two decades ago (boy, has it really been that long ago?). First, it's in the ask. Keith Radick stood up at a NWOWEA Section Meeting he was attending and indicated that the WEF Plant Operations and Maintenance Committee (for which he was the incoming chair) was looking for new blood, new suckers... I know he meant new members. Second, it's in the encouraging word. Mike Agin, my supervisor at the time in Allen County, encouraged me to get involved, to apply to the committee, to be that new blood. I probably would have eventually gotten involved, but not just yet... not

2019-2020

Executive Committee Meeting Dates

December 10th, 2019

April 8th, 2020

February 12th, 2020

June 21st, 2020

President's Message

just then. You see, I didn't feel like I had anything to offer yet – that I was still learning so much myself about our business. But with an ask, and encouragement, I jumped in and joined the WEF POMC and the contacts I've made, the friends that I have, the amazing experience in being a member and a servant leader would not have been possible without my involvement in this organization. So – my question to you all is – when was the last time that you asked or encouraged someone new, inside or outside of your organization to get involved? We cannot sustain the organization alone! We need new blood! It is vital to our success! So I challenge each of you as we enter this season of Thanksgiving, be grateful and thankful for the

good things that OWEA and this industry have brought into your life and ask someone new to get involved and encourage them to join or volunteer.

Happy Holidays to you all and as always, if you have any questions or concerns, please know that I'd love to talk to you about them.

Kim Riddell-Furry

kim.riddell@alloway.com, 419-223-1362

Welcome New Members

July 2019 -September 2019

Michael Abraham

Joshua Adith

James Aitken

Kevin Alspach

Justin Batt

Ellie Bodnar

David Bridenstine

Eric Browne

Benjamin Cario

Louis Coccia

Robert Collins

Tim Crago

Mike Crane

Kevin Crowley

Maria Deluca

Spencer Desalvo

Doug Dixon

Emily Doleh

David Donkin

Ella Guyo

Melissa Hall

Willow Kenneda

Jenna Kieley

Frank Klarich

Daniel Knife

Aubrie Koontz

Rick Kremer

Manoj Kumar

Marcus Leibas

Chris Ludle

Jeff Macomber

Jordan Martin

Brynn McGrail

Donald Merrill

Christopher Metzinger

Bobby Noplis, Jr

Oluwaseun Olubodun

Christina Onyskiw

Sunjeong Park

Megan Pelton

Nathan Podoll

Shelby Rapp

Vijay Rengaraju

Douglas Rix

Josephine Rose

Matt Sabo

Michael Scheeser

Miranda Scheitlin

Megan Shaw

Madeline Shumaker

Michael Slauter

Tyler Stratton

Corbin Sweat

Dominic Taylor

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Doan Valley Relief & Consolidation Sewer

AECOM Designed a 72" and 48" sewer to relieve two of NEORSD's CSO's in an urbanized area. Due to subsurface conditions in part of the alignment, microtunneling was required for installation which included dual-curved segments to shafts outside the ROW to minimize public disruption and utility impacts.



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- » Full co-digestion implementation
- » 4 MGD flow plant to be energy neutral
- » Pre-digestion Class "A" System
- » Long-term biomass sourcing services



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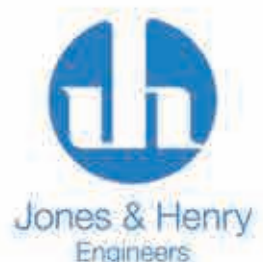
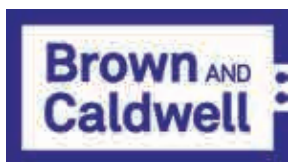
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WEF Utility Partnership Program Member Utilities

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- ◆ 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 29 municipalities signed up for the Utility Partnership Program.

To learn about the benefits for your utility visit <http://www.wef.org/UtilityPartnership/>

Or contact OWEA, info@ohiowea.org, 614.488.5800

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City of London Ohio	City of Twinsburg	
City of Mansfield	City of Warren WWTP	
City of Marietta WWTP		

What the Hog Sucker Tells Us About Water Quality

Article Courtesy of NESOWEA

Here we are, ready to begin our journey through another watershed article. For no reason whatsoever I looked at previous articles written for this watershed section, trying to get a flavor for what had been discussed, maybe looking for a new angle. I think one has been found. Many wonderful articles have been printed on subjects ranging from specific watersheds to green infrastructure planning, yet one thing seemed to be missing: discussion about who we are protecting. The Clean Water Act begins with Section 101 stating “The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Biological integrity includes organisms each of which tells a story about their relationship to the water they live in or equally important, why they don’t live there. So, for this brief discussion we will focus on one of the many critters living in Ohio’s waterways, which is part of the reason we all do what we do in honoring Section 101 of the Clean Water Act.

Meet *Hypentelium nigricans*, the Northern Hog Sucker.



This fascinating fish is found in streams across our state provided that good water quality and decent habitat are present. The Hog Sucker is one of 21 native species in the sucker family (Catostomidae for Latin fans). It has been found in all 88 counties in Ohio.

The Northern hog sucker has a very streamlined body and bony head shaped to deflect the flow of water upward,

in turn, pushing their body down. This allows them to sit effortlessly on the stream bottom in fast flowing riffles. They have a very distinctive large sucker mouth with eyes positioned on top of their heads. Northern hog suckers are a mottled reddish brown with four to six dark saddles or bands across their back. Adults are usually 10-15 inches and 1 pound or less, but they can reach up 24 inches in length and weigh 4 pounds.

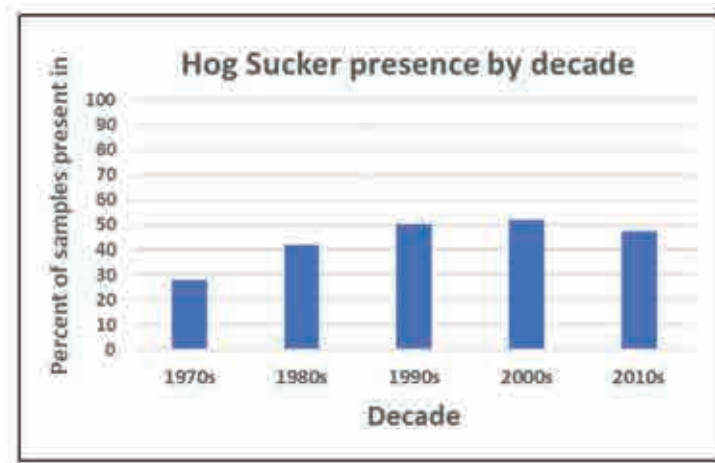
Hog suckers spawn in April or early May. A female and often several males stir up the bottom sediments to form a slight depression where the eggs are broadcast and abandoned. Spawning can last for an extended period with the female laying eggs at irregular intervals. Young are often found at the edge of pools over a sandy substrate.

Northern hog suckers are found in relatively clear streams with clean substrates free of silt. They prefer the fast-flowing riffles during most of the year but are found in pools during the colder months. Like most suckers, they often migrate long distances to spawn in smaller streams in spring. These guys use their mouths to overturn rocks and stir up the sediment as they seek aquatic insects and other invertebrates. The fish can be found in or next to riffle areas in warm water, medium sized creeks and small rivers. It can also occur in cold water streams, tiny creeks and large rivers and on occasion in reservoirs. Their diet primarily includes insect larvae, crustaceans, mollusks, diatoms, and bits of vegetation. While feeding, it scrapes off the top surface of rubble, turns over stones on the bottom, and sucks the loosened material which contains a variety of small organisms. As they feed, other fish, such as shiners and smallmouth bass position themselves downstream to feed on the free-flowing materials the Hog Sucker stirs up. The Hog Sucker, like other species of fish, is an important host in the life cycle of some mussels. The larval stage of the mussel derives nourishment and transportation while attached to the gills, fins, or body of the host fish.

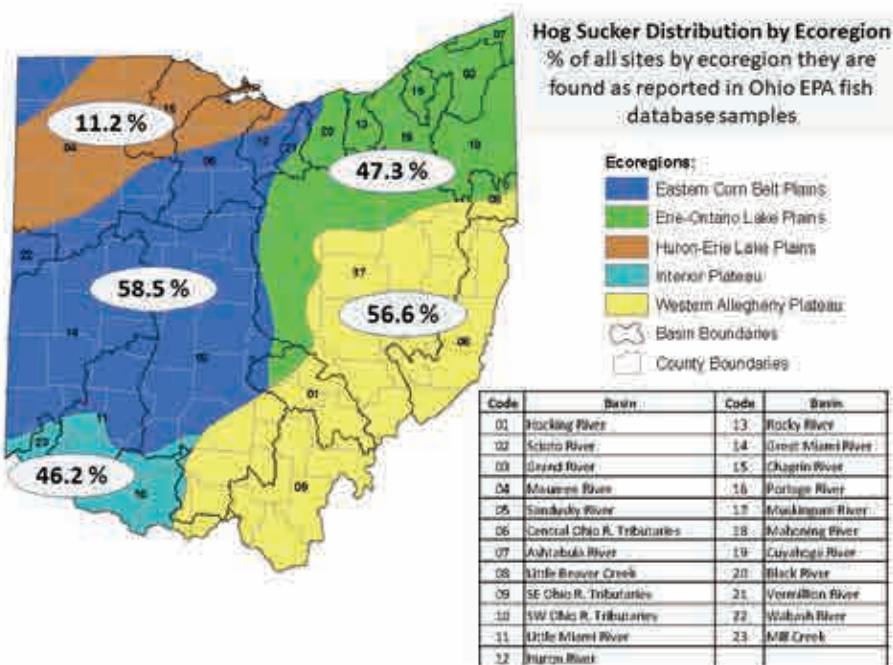
The Northern Hog Sucker is a biological indicator of stream health, as it prefers clean water. As discussed

by Ohio's great ichthyologist Milton Trautman (1981), they are intolerant of habitually turbid waters and other industrial and domestic pollutants. So now that we know a little bit more about the Hog Sucker let's explore what it can tell us about water quality in Ohio. We are fortunate to live in a state with a rich history of biological data collection. Of the many collections we have, one of the most detailed and comprehensive is that of the Ohio EPA. Since the 1970's Ohio EPA has pioneered the use of biological data to determine compliance with state water quality standards. Fish community data (collected with a consistent protocol) is used to generate a biological grade point average if you will for the section of stream sample. By utilizing consistent and defined methods data can be compared across the state many ways. So, what can the Hog Sucker tell us? We are going to ask four questions of the lovely Hog Sucker: 1) have you changed over time, 2) what regions do you prefer to live in, 3) how big are the streams you like to live in, and 4) what does your presence at a site tell us about biological health using the IBI score.

As we are all aware water quality has greatly improved over time. With the implementation of the modern Clean Water Act in 1972 we have had definite improvements in water quality. So there Northern Hog Sucker, what have you to say about this?



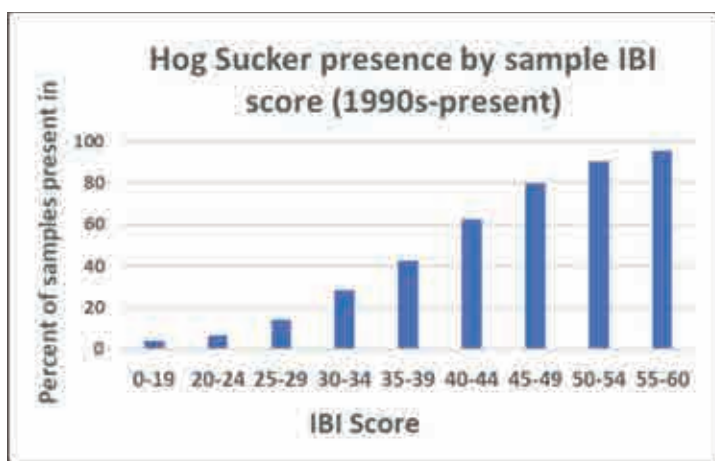
As can be seen in the graph, the 1970s had less than 30% of sample collections which contained Hog Suckers



compared to the approximately 50% of samples they have been found in since the 1990s. Early naturalists described them as present in every running stream in Ohio in 1882 (from Rice and Zimmerman, 2019), clearly things changed.

Now that we see they might be on a population rebound where do they live in the state now? Ohio is broken up into a series of ecoregions, defined as broad areas of similar type, quality, and quantity of environmental resources. These ecoregions help to serve as a basic geographic framework for placing biological expectations to assist management actions within the state. As a relevant example let's discuss the Huron/Erie Lake Plain (HELP). This region is defined by its broad, flat, and fertile plains. Today, most of the area has been cleared and artificially drained and contains highly productive farms producing corn, soybeans, livestock, and vegetables; urban and industrial areas are also extensive. Stream habitat and quality have been degraded by channelization, ditching, and agricultural activities (for additional reading see Omernik, 1995). Now we can look at the distribution of our new friend the Hog Sucker by ecoregion, the poorest populations in Ohio are found in the HELP ecoregion described above. Knowing what you know from the above ecology discussion it isn't too surprising that a fish which likes clear fast flowing streams would avoid the sluggish turbid streams found in the HELP ecoregion. Science is so cool.

And if that wasn't enough, we will end on something really neat as extracted from the Ohio EPA fish database. For many folks the IBI, or Index of Biotic Integrity, provides insight on the quality of a fish community. This number or score (with a maximum value of 60) is compared to Ohio Water Quality Standards. Our standards have minimum expected values based on a stream's listed aquatic life use: warm water habitat or exceptional warmwater habitat for example. If you do not achieve the minimum score a site can be in nonattainment, resulting in things like TMDLs and stricter permit limits in some cases. How does this relate to Hog Suckers? Well, on a whim Hog Sucker presence/absence percentages at collection sites were graphed by IBI scores.



Typically, a score of 38 or 40 meets the warmwater habitat criteria. The graph shows something really cool and while not unexpected, illustrates why this fish is considered a clean water indicator. As IBI scores increase so does the likelihood that you will find Hog Suckers with 95.6% of collection sites showing the highest IBI score ranges having these fish present. The higher quality fish communities have this indicator fish found there compared with 3.8% presence in the lowest IBI scores indicative of poor fish communities, more cool science.


So ends our little journey into the life and times of the Northern Hog Sucker.

Bibliography

- Omernik, J.M. 1995. Ecoregions - a framework for environmental management, in Davis, W.S. and Simon, T.P., eds., Biological assessment and criteria - tools for water resource planning and decision making: Boca Raton, Florida, Lewis Publishers, p. 49-62.
- Rice, D. and B. Zimmerman. 2019. A Naturalist's Guide to the Fishes of Ohio, Special Publication of the Ohio Biological Survey, vii + 391 p.
- Trautman, M. 1981. The Fishes of Ohio With Illustrated Keys, Ohio State University Press, 782 p.

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The Eastern Ohio Regional Wastewater Authority

by Jeffrey A. Vaughn, P.E., Vaughn, Coast & Vaughn, Inc.

Valerie Moore, Executive Director, EORWA

Mike Dobbs, Operations Manager, EORWA

The Eastern Ohio Regional Wastewater Authority (EORWA) was formed in 1958 in Belmont County. It was created to intercept the combined sewage outfalls from the communities of Bellaire, Bridgeport, Brookside, and Martins Ferry, convey the collected sewage to a central treatment plant, treat the sewage, and discharge the effluent to the Ohio River. The original facilities were constructed in 1964. The facilities were comprised of a primary treatment plant; 47 regulators and diversion manholes; interceptor sewers; and 16 lift stations. The collection facilities intercepted old community sewers discharging to the Ohio River and creeks and routed them to the treatment plant. In the early 1980s the plant was expanded to secondary treatment with the addition of pure oxygen activated sludge and secondary clarification. In addition to the treatment plant, EORWA began taking wastewater from the western part of Belmont County that was being serviced through small package plants. During the period 1998-2000 several upgrades were made

to the plant including renovations to the activated sludge process that included converting the pure oxygen system to extended aeration; a new headworks facility; addition of an egg-shaped anaerobic digester and Ultra Violet disinfection. EORWA treats waste for approximately 14,000 residents in the above municipalities along with other County residents through agreements with the municipalities and Belmont County Sanitary Sewer District. Average daily flow is around 4.45 million gallons a day with wet weather flows recorded at over 8.5 million gallons a day. EORWA is staffed by a dedicated crew of 8 Operators and 4 office personnel. The staff consist of Valerie Moore, Executive Director; Michael Dobbs Operations Manager Class III Ohio EPA Wastewater Operator; Lori Hendershot, Office Manager / Biosolids Manager; Colleen Walton, Billing Clerk; Scott Antonik, Collections Operator Class III Ohio EPA Wastewater Operator; Dana Kalinski, Collections Operator Class III Ohio EPA Wastewater Operator; Don Johnson, Plant Operator Class II Ohio

Plant Overview



Plant Profile

EPA Wastewater Operator; Erik Canter, Assistant Plant Operator Class I Ohio EPA Wastewater Operator; Dylan Garloch Biomass Operator Class I Ohio EPA Wastewater Operator; Lloyd Christy, Plant Operator Ohio EPA Class II Wastewater Operator; Chad Buksa, Maintenance Operator Class III Ohio EPA Wastewater Operator and Matt Ford, Operator / Laboratory Analyst.

In 2013 EORWA began discussions with Quasar Energy Group to upgrade the anaerobic digestion facilities at the plant for receiving and processing biomass materials to produce additional methane gas for the production of electricity at the plant. The impetus for this was to be able to gain additional revenue through tip fees generated by waste haulers bringing in biomass materials and through producing the amount of electricity that the plant normally purchases from the local utility. This addition would allow for EORWA to become a neutral energy facility. In order to become an energy neutral facility, EORWA introduced co-digestion to their plant. Traditionally, food wastes, fats, and expired beverages that are generated in the area would be sent to landfills and buried. Today, these energy dense materials can be accepted with EORWA's new liquids and solids receiving equipment, and then mixed with sludge

from the plant to be “digested” with their anaerobic digesters to produce biogas for renewable energy. The biogas is converted to electricity with a microturbine that has enough capacity to offset 100% of the electrical use at the wastewater plant.

Preliminary Treatment

Flow enters the wastewater plant from the lift stations through two force mains. An 18-inch force main flows from the south and a 20-inch force main flows from the north. The wastewater passes through a Duperon automatic bar screen that removes solids greater than 1/2" prior to entering the Smith & Loveless vortex grit trap. Next a Wemco hydrogritter pumps a constant flow to a Lakeside grit classifier and screw auger to dewater the grit which is trucked to a nearby landfill. EORWA removes an average of 9.5 tons of grit and screenings per month.

Primary Treatment

The flow proceeds to two 130' x 37' x 9' deep primary settling tanks with a design detention time of 2.6 hours. Primary sludge and scum are pumped to the Egg-Shaped Anaerobic Digester (ESD) by two Dorr-Oliver diaphragm type pumps. On average 50% of the Total Suspended

Primary Clarifiers



Solids (TSS) and 30% of the Biological Oxygen Demand (BOD) is removed from the wastewater in the primary settling tanks.

Secondary Treatment

Flow from the primary settling tanks is routed to two 19' long x 6' diameter Archimedes screw pumps which lift the wastewater to the aeration basins. The aeration basins consist of four tanks that are 35' x 35' x 14' deep. All four tanks are equipped with fine bubble diffusers. Aeration is provided to the diffusers by three Spencer centrifugal blowers at a rate of 2750 cfm each and driven by 100 HP motors. The wastewater in these aeration basins is called activated sludge. Bacteria in the activated sludge process break down the dissolved and colloidal organic solids. The activated sludge leaves the aeration basins and flows to the two 106' x 60' x 12' deep final clarifiers with a design detention time of 4.5 hours. Return activated sludge is removed from the final clarifiers by two Aurora 3500 centrifugal pumps driven by 20-HP motors and returned to the first two aeration basins to supply fresh, hungry "bugs" to the wastewater. The waste activated sludge is removed by two Aurora 200 gpm centrifugal pumps driven by 5-HP motors and pumped to a 35' diameter x 15' deep aerated



Laboratory

Gas Conditioning Skid and Microturbine





Egg Shaped Digester



Trojan UV Disinfection Unit



Aeration Tanks

holding tank. The aerated waste activated sludge from the holding tank is pumped to a 1-meter Ashbrook Simon Gravity Belt Thickener (GBT) that removes water from activated sludge and is then pumped to holding tank to be heat treated to produce Exceptional Quality biosolids.

Disinfection

The final clarifier effluent flows to the Trojan UV4000 ultra violet light disinfection system. The UV system is a flow paced unit that increases and decreases the ultra violet intensity with the fluctuation of the flow. There are two control banks with 5 modules of 5 bulbs for a total of 40 bulbs that are mounted horizontally in the flow channel that disinfect the wastewater prior to its discharge into the Ohio River. EORWA is required to disinfect all year long.

Sludge Treatment

Sludge from the primary settling tanks and gravity belt thickener is heated to 165-degree Fahrenheit and held for 10 minutes to meet pathogen requirements for Exceptional Quality biosolids. Once heat treated the sludge is pumped to the 450,000-gallon egg shaped anaerobic digester for further treatment. Biomass that is received at EORWA as either a liquid or a solid is pumped to a 75,000 gallons storage tank. From this tank the biomass is heat treated to 165-degree Fahrenheit and held for 10 minutes to meet pathogen requirements for Exceptional Quality biosolids. Once heat treated the biomass is pumped to a 450,000-gallon circular anaerobic digester for further treatment. During the digestion phase of volatile solids reduction methane gas is produced and stored on site for heating of buildings, digesters and to run the microturbine. Excess methane is flared off into the atmosphere. After digestion the biosolids are held in a 450,000-gallon storage tank. Biosolids are then pumped from the holding tanks to a 2.0-meter Roediger Belt press which removes water from sludge and produces an 18 to 20% cake solid. This is then land applied to soils as an Exceptional Quality biosolid.

Performance Overview

Plant performance and operation is very good with very few exceedances of the National Pollutant Discharge Elimination System (NPDES Permit) over the last several years. Most NPDES exceedances were related to excessive

wet weather flows causing the treatment plant to exceed the Total Suspended Solids and Fecal Coliform limits. In 2018 EORWA had an average Total Suspended Solids removal of 95.8% and average CBOD removal of 97.2%.

EORWA Resource Reovery 2018 Data

Design Flow: 5.0 MGD

Average Daily Flow: 4.45 MGD

Average Raw TSS: 126.86 mg/L

Average Raw CBOD: 98.83 mg/L

TSS Discharge Limit: 45 mg/L weekly

Average TSS Discharge: 5.28 mg/L

CBOD Discharge Limit 40 mg/L weekly

Average CBOD Discharge: 2.81 mg/L



Staff: Back Row Left to Right Dylan Garloch, Biomass Operator; Chad Buksa Maintenance Operator; Lloyd Christy, Plant Operator; Dana Kalinski, Collections Operator; Matt Ford Operator / Lab Analyst; Scott Antonik, Collections Operator; Erik Canter, Assistant Operator; Don Johnson, Plant Operator; Jeff Vaughn, Consulting Engineer Front Row Left to Right Lori Hendershot, Office Manager / Biosolids Manager; Roger Stewart, President Board of Trustees; Valerie Moore, Executive Director; James Schramm Board of Trustees member; Marvin Husarik, Board of Trustees member; Michael Dobbs, Operations Manager.



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Good Communication: It's More Than Just Conversation

by Tom Merritt, President, H.R. Gray, a Haskell Company

This article is the third in a series that examines company management and leadership, focusing on long-term as well as short-term success.

The need for good communication is a given in managing today's public improvement projects, but how, exactly, is "good communication" defined? For any organization, true communication is a complex process that involves multiple skills and daily practices. Strong organization leadership, combined with an effective leadership training program, can impart these skills.

In many communities, capital projects that have a higher visibility may require interaction with the media, public or residents to address unintended consequences or hardships of the construction in the community. Issues that arise in the field may require an agency to go back to their constituents and communicate an entirely new set of project needs. Day-to-day issues that occur on the project site need to be evaluated for their possible impact on the public agency. No one in a public leadership role wants to be advised of an "issue" by their local media or a disgruntled constituent. When an issue is resolved in the field, communication with the public remains important. Key players such as the owner's project manager, agency

executives and elected officials must be informed of project details and demonstrably manage them so they can maintain the trust of their constituents. Firms that participate in public projects must understand which details to communicate, as well as when and how to communicate them.

Managing this situation begins on the jobsite. From there, an effective chain of command—via project managers, consultants, and other stakeholders—must be in place to relay information to the project owner. Adhering to a few best practices will ensure that this information exchange takes place. As a foundation, project staff must understand what a client sees as important [link to article 2: [https://www.ohiowea.org/docs/Aug_BB_19_web.pdf#page=\[34\]](https://www.ohiowea.org/docs/Aug_BB_19_web.pdf#page=[34])]. Building upon that knowledge, communication becomes the critical tool.

True communication involves various steps, or levels. Leadership training at H.R. Gray – a construction management company and consulting firm – [link to article 1: https://www.ohiowea.org/docs/May_2019_BB_

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!



Web.pdf#page=[36] is aligned with these steps. It relies on basic communication from day one, starting dialogues between members and brainstorming ways to improve understanding. But the end goal of the program is a deeper form of communication, one that can't exist without the foundation of H.R. Gray, a Haskell Company's core values of TEAM (team, excellence, service and trust). A deeper look at those values explains why this is.

Team: A team comprised of a few superstars, but no supporting contributors rarely succeeds, but those teams that recognize the individual strengths of every member can create success. The team analogy works well applied to leadership. Leaders must act as both a coach and manager. As a coach, he or she looks for ways to improve and identifies new techniques and technologies that can enhance the performance of individual employees, while keeping an eye toward the big picture. As a manager, he or she should use the strength of the team to develop a strategy to deliver.

Excellence: When organization leaders recognize employee needs that extend beyond the workplace, they build loyalty as well as create an environment where honest communication and a practical approach to problem solving can flourish. Finally, giving back to the community—which is a good end in itself—can have the added benefit of improving employee satisfaction and fostering a team spirit that builds up the company as a whole.

Service: More than 50 years later, Senator Robert F. Kennedy's "Ripple of Hope" speech still has relevance to the concept of service, even in everyday operations. In the speech, Kennedy stated that acts of courage and service begin tiny ripples of hope and those ripples build a current that can improve the lives of people everywhere. Kennedy's words are a reminder that each individual can make a difference with acts of service and that every good deed adds up.

Trust: Leaders must not only set an example by acting in a way that builds trust but must also trust that everyone will act in a way that benefits the organization. Trust creates openness and stimulates ideas. It permits diversity to

flourish and diversity, in turn, provides for a more creative, innovative and productive workforce. It is also important to trust that success is more likely when divergent ideas are considered—diversity in the workforce and diversity of ideas leads to greater overall strength.

Training for Communication

A year-one goal for the H.R. Gray training program is to not only build employees' communication skills, but to help them understand how their communications are received. It can be a real help to people to think through not only what they have to say, but what their listeners are hearing. After all, for communication to be effective, it has to be accurately understood.

Moving into the second year of training, the program shifts its focus to the way a person communicates and manages when he or she is executing job duties. In general, there is a message that more communication is better. Just because something doesn't matter at the project level doesn't mean there won't be implications in another area. Talking through a situation with co-workers can help bring those scenarios to light.

H.R. Gray's Director of Construction Bryan Celik, PE, CCM recalled that a theme repeated throughout year two was that one manages things but leads people. This is an important reminder that the skills one brings to bear when working with others are complex and nuanced. Simply, repetitive tasks are for non-complex systems—or "things"—only.

The third year of training shifts to a dedicated focus on the TEST leadership qualities, helping participants understand how those are important to the organization. Participants learn how to think strategically before acting. They practice delivering and accepting difficult feedback, motivating others, and peer coaching. Third year training also involves high-level questioning and peer-to-peer activities that test the skills learned. For this phase of training, exercises are longer in duration and involve greater complexity, so current and future Haskell leaders meet outside of the workplace and conduct in-person meetings—a total of seven in all.

An important point conveyed to leaders-in-training is that communication can take place outside the four walls of the company. Wherever an employee is acting as a company representative, whether at a job site or a social function, there is an opportunity to increase his or her knowledge and make an effort to communicate with other stakeholders.

Communication with owners on the job is important, internal organization communication is equally important. At H.R. Gray, inclusiveness and diverse job teams are critical to building effective communication across the company. Haskell's Women's Network [link to article 2: [https://www.ohiowea.org/docs/Aug_BB_19_web.pdf#page=\[34\]](https://www.ohiowea.org/docs/Aug_BB_19_web.pdf#page=[34])] sponsors learning and development activities and focuses on truly mentoring women. Mentoring offers an enormous opportunity for sharing knowledge. Mentors can help their mentees understand the back story behind a given project decision, as well as why that decision was made. Understanding this story will help the employee

decide what information is worth passing along to others on the team, and also gives them guidance on how to communicate. Mentoring women is especially important in the construction industry—which has remained male-dominated longer than some other industries—because it helps women navigate the industry, understand its history and help shape its future.

Effective delivery of public projects requires quick, accurate communication of project details as well as project challenges. The reputation of a firm—and the reputations of public officials—depend upon this communication. It is essential, therefore, that company leaders offer employee training that builds communication skills...and that they exemplify these skills in their own daily interactions.

Read more on how leadership training can promote communication and efficient project execution in Parts 1 and 2 of this article series.

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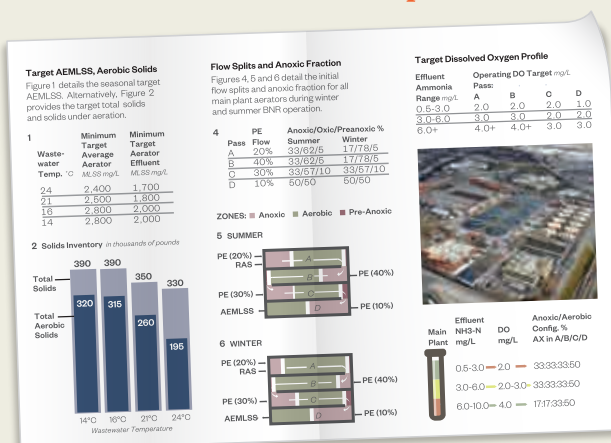
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Achieving Chesapeake Bay Nutrient Limits at a Large Wastewater Treatment Plant

by Robert J. Andryszak, P.E., Director, Wastewater, RK&K

The City of Baltimore, Maryland (City) upgraded its 81 mgd Patapsco Wastewater Treatment Plant (WWTP) to achieve stringent Chesapeake Bay effluent nutrient standards with a facility addition that met the City's goals for a highly reliable, readily operable and low-maintenance facility. The design of the facility addressed a unique combination of challenging influent wastewater characteristics and site constraints.

Implementation of stringent nutrient effluent standards resulted from the need to improve the Chesapeake Bay's deteriorated water quality which manifested itself in the 1970s by decreased water clarity, increased hypoxia, declined fisheries and decreased submerged aquatic vegetation. The Chesapeake Bay is the United States' largest estuary with a drainage area of 64,299 square miles in New York, Pennsylvania, West Virginia, Maryland, Virginia and the District of Columbia. While harvests are greatly diminished from the past, the Bay continues to have immense ecological diversity, a notable characteristic of an estuary. The Bay is a major regional economic driver with key activities involving shipping to Baltimore's port, commercial and recreational fisheries, recreational boating and development of valuable shoreline real estate. The Chesapeake Bay is a national resource that is worth restoring.

The upgrade consisted of the construction of facilities to achieve enhanced nutrient removal (ENR) to reduce nitrogen and phosphorus discharged to the Patapsco River, a tributary to the Chesapeake Bay. The Maryland Department of Environment's ENR level of treatment requires the annual total nitrogen (TN) mass discharged (pounds per year) to be less than the equivalent concentration of 4 mg/l, and for facilities to be designed to meet monthly TN and total phosphorus (TP) concentrations of 3 mg/l and 0.3 mg/l, respectively.

Prior to construction of the ENR Facility, liquid treatment consisted of grit removal followed by screening, primary

clarification, biological treatment in suspended growth high purity oxygen (HPO) reactors with secondary clarification, chlorination for disinfection, dechlorination and post aeration with discharge to the Patapsco River (Baltimore's harbor), a tributary to the Chesapeake. Solids treatment consists of gravity thickening of primary and secondary sludges followed by privatized heat drying/pelletization and hauling of pellets off-site for beneficial use.

Baltimore's wastewater system has separate sewers. The influent to Patapsco is of domestic, commercial and industrial origin, with a significant industrial component. Although there are separate sewers, Patapsco's wet weather peak flow has approached 300 mgd on an average daily flow of 64 mgd. Pre-design evaluations determined the ENR Facility capacity should be limited to 150 mgd and the portion of flow in excess of 150 mgd should continue to receive secondary treatment, disinfection, dechlorination and post aeration. The evaluation determined that the quantity of untreated nitrogen discharged when flows exceed 150 mgd would not result in violating annual effluent load limits. The traditional pollutants in Patapsco's influent wastewater are characterized as being of average strength and the low temperature as moderately cold. For the 14 months since start-up in May 2018, when there was unusually high precipitation in the mid-Atlantic region, the average flow was high and concentrations weak as summarized in Table 1:

Average influent flow, mgd	Average concentrations, mg/l				Minimum temperature, °C
	BOD ₅	TSS	TKN	TP	
82.8	159	136	22.8	3.2	12

Table 1 – Selected Influent Data, May 2018 - June 2019

The only area available for the ENR Facility at the Patapsco WWTP is shown in Figure 1. This area was created in the 1970s to provide space for additional

treatment tanks by filling in the Patapsco River using steel sheeting with tiebacks as a bulkhead and the placing fill material. Typical of other industrial areas filled around the Baltimore Harbor decades ago, the fill material contained chromium tailings. The challenges of building on this site in the 2010s era included: limited land area, low structural bearing-capacity soils, high groundwater, presence of hexavalent chromium in the soils from site filling activities and an adjacent stockpile, and the near proximity of active treatment units and large hydraulic conduits. During construction, it was necessary to make watertight connections to hydraulic structures in a manner that would minimize the risk of interrupting treatment. These challenges had a significant influence on the treatment processes selected and in the ENR Facility configuration.



Figure 1 - ENR Facility Site

To achieve ENR, it was necessary to fully nitrify the non-refractory nitrogen remaining after primary treatment at the design low temperature of 12°C. Previous attempts to consistently fully nitrify in the HPO reactors were unsuccessful, which was attributed to the presence of an unidentified nitrification inhibitor in the influent wastewater. Process alternatives were explored for fully nitrifying the primary effluent. On-site pilot testing demonstrated that attached growth biological aerated filters (BAF) treating the settled effluent from the HPO reactors and clarifiers could achieve full nitrification. While the HPO system appeared to mitigate the inhibition, the mitigation mechanism was never determined. A submerged, attached growth, downflow

sand filter with supplemental methanol addition was the selected technology to treat the BAF effluent to achieve the requisite low nitrate concentrations. A significant advantage to utilizing the BAF and denitrification filter (DNF) technologies was that they each have high unit volume loading rates allowing them to be located on the site, which was severely constrained in size.

For achieving nitrification, Kruger's BIOSTYR® BAF was chosen from among three vendor-based systems, using a competitive selection approach in which economic and non-economic factors were evaluated. At the time of the vendor selection, BAFs were considered to be an emerging/innovative technology in the U.S. due to there being a limited number of domestic installations. BIOSTYR® is an upflow BAF that uses buoyant 3.6 mm spherical polystyrene bead media. Water backwashing is in the gravity downflow mode using the BAF effluent. A caustic soda feed system was provided to maintain sufficient alkalinity for complete nitrification.

From among the small number of denitrification filter vendors having large-system experience at the time the ENR Facility was designed, De Nora's (formerly Severn Trent Services) TETRA™ technology was selected. TETRA™ filters had been successfully used at 12°C to achieve denitrification. The silica sand media is 2-3 mm in diameter. Air and water are used for backwashing in an upward flow mode. A methanol feed system provides supplemental carbon.

The design wastewater characteristics of the HPO secondary clarifier effluent to be treated in the ENR Facility at 81 mgd are summarized in Table 2:

	BOD ₅	TSS	NH ₃
Average concentration (mg/l)	8.1	10.8	14.8
Maximum design concentration (mg/l)	37	46	24

Table 2 – Selected Influent Characteristics for Flow to ENR Facility

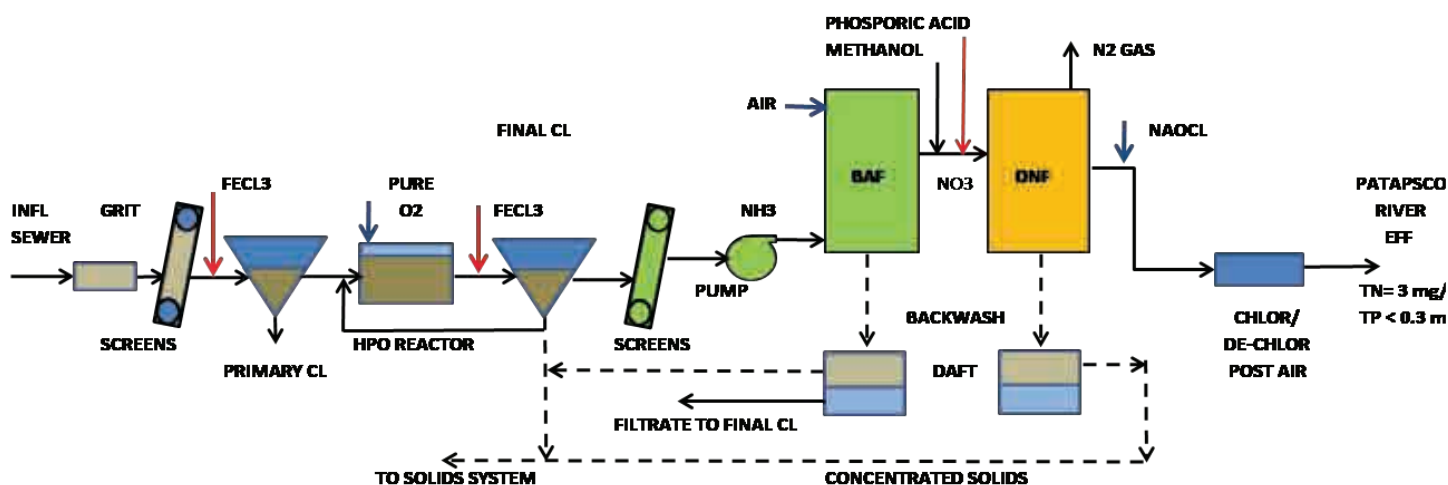


Figure 2 - ENR Facility Process Schematic

To meet the ENR criteria and the City's goals, the following key concepts guided the design: 1) BAFs would be used strictly for nitrification; i.e., no capacity would be provided for treating BOD; 2) the degree of nitrogen removal previously being achieved in the primary clarifier and HPO processes should be maintained; 3) BAF nitrification process stability would be best achieved by minimizing the opportunity for seeding the HPO reactors with nitrifiers from the BAF backwash; thus, BAF backwash solids would be conveyed directly to the sludge processing system; 4) BAF and DNF backwash solids should be concentrated to prevent hydraulic overloading of the sludge processing system; 5) phosphorus should be removed mainly by multi-point chemical addition, with precipitation in the primary clarifiers and HPO secondary clarifiers; 6) BAFs should be protected from clogging with 6 mm mechanical screens on the secondary clarifier effluent; and, 7) BAF and DNF operations should be fully automated. The resulting process schematic is shown in Figure 2.

A supplemental phosphoric acid feed system was provided in the event ferric chloride is overdosed that could potentially result in phosphate-limiting conditions for the denitrification microorganisms.

The BAF has 22 cells, each 56.67 ft x 28 ft, with a media depth of 11.5 ft. The BAF has an average/maximum design loading rate range of 18.3 - 45.9 lb ammonia / 1000 cf of media/d. The allowance for hydraulic head loss through the BAF structure is approximately 11 ft. Including

mudwells, galleries and equipment rooms, the total BAF structure footprint is approximately 61,300 sf.

The DNF has 34 cells, each 100 ft x 11.5 ft, with a media depth of 6 ft. The DNF has a design loading rate of 44.3 lb nitrate/1000 cf of media/d. The allowance for hydraulic head loss through the DNF structure is approximately 8 ft. Including clearwells, mudwells, galleries and equipment rooms, the total DNF structure footprint is approximately 72,000 sf.

To minimize the expenses of safely handling soil (including excavation, hauling and disposal), groundwater and dust contaminated with hexavalent chromium, the BAF and DNF reinforced concrete structures were designed to minimize the quantity of excavation required. Minimizing the excavation quantity, coupled with the hydraulic head loss allowances, resulted in the top of the BAF structure being approximately 38 ft above grade, not including the superstructure; and, the top of the DNF structure being approximately 26 ft above grade. The height of the BAF and DNF structures dictated that the HPO secondary clarifier effluent would be pumped to the BAF. A pump station (PS), known as the Tertiary PS, was provided which has a capacity range of 30 to 150 mgd. Five vertical turbine variable speed pumps capable of passing solids were provided, each with a nominal capacity of 37.5 mgd.

In Figure 3, the BAF structure is in the right foreground, the DNF structure is in the left foreground and the Tertiary

PS structure is in the background. Other improvements included in the project were the addition of an Operations Building dedicated to the ENR Facility and an upgrade to the plant-wide process control system with an ABB 800xA Distributed Control System.



Figure 3 - ENR Facility – Looking East

Due to there being low bearing capacity soils, the Tertiary PS, BAF and DNF structures bear on approximately 2,200 steel pipe piles, 24-in. diameter, driven to a depth of approximately 100 ft. An impermeable geomembrane liner on the exterior of the structures below grade protects the concrete from crystallization due to the chromium. Over 40,000 cy of reinforced concrete were placed for the ENR Facility.

The BAF is featured in Figure 4 with the Tertiary PS to the right and the DNF in the background.



Figure 4 - ENR Facility – Looking North

Initial start-up and testing of the ENR Facility occurred from May 2018 – June 2019 during an extended period of high precipitation in the mid-Atlantic region when in plant influent flows averaged 82.8 mgd, approximately 28 percent greater than the normal average of 64 mgd.

Nitrogen removal performance from initial start-up in May 2018 through May 2019 is shown in Figure 5 and phosphorus removal performance is shown in Figure 6. Gaps in the nitrogen data and TN excursions above 3 mg/l occurred when Patapsco was experiencing intermittent operational difficulties in the solids processing system, with the consequence of solids being recycled to the primary clarifiers and HPO reactors, resulting in high sludge blankets in the HPO secondary clarifiers. At those times, pumping to the ENR Facility was either 1) stopped and flow conveyed directly to the disinfection facilities, or 2) reduced to minimize the temporary overloading of solids to the BAFs. However, secondary treatment, disinfection, dichlorination and post aeration were maintained at all times.

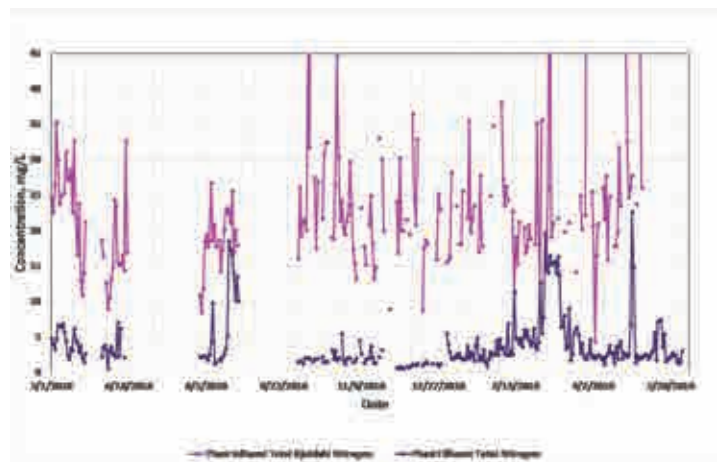


Figure 5 - Nitrogen Removal Performance

Similarly, gaps in data and TP excursions greater than 0.3 mg/l are attributed to the intermittent solids processing difficulties and the consequence of it being difficult to consistently dose ferric chloride in the appropriate amount.

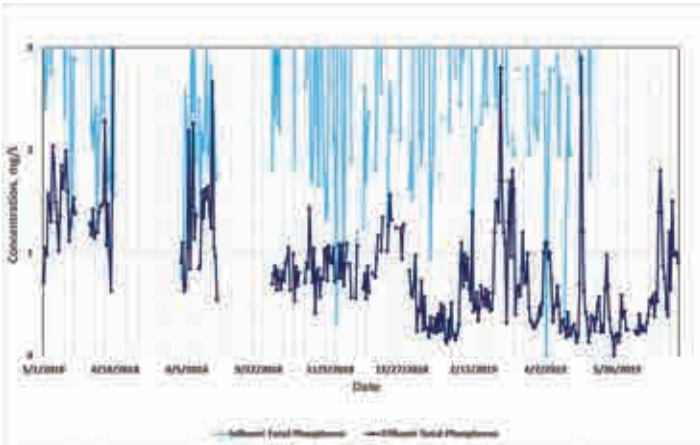


Figure 6 - Phosphorus Removal Performance

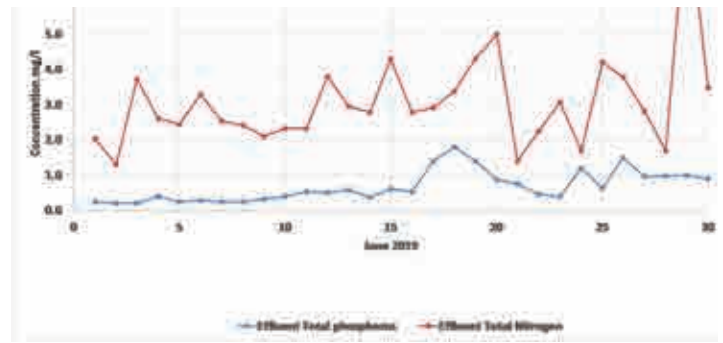


Figure 7 - ENR Performance - June 2019

Figure 7 illustrates TN and TP effluent concentrations in June 2019. It is expected that, as the intermittent solids processing difficulties are resolved and process optimization continues, annual effluent mass loading criteria will be consistently achieved.

Performance data demonstrates that stringent ENR criteria and project goals can be achieved at a large municipal wastewater treatment that has challenging wastewater characteristics and site constraints. The new ENR Facility provides approximately a 25% reduction in Maryland's point source TN loading to the Bay.

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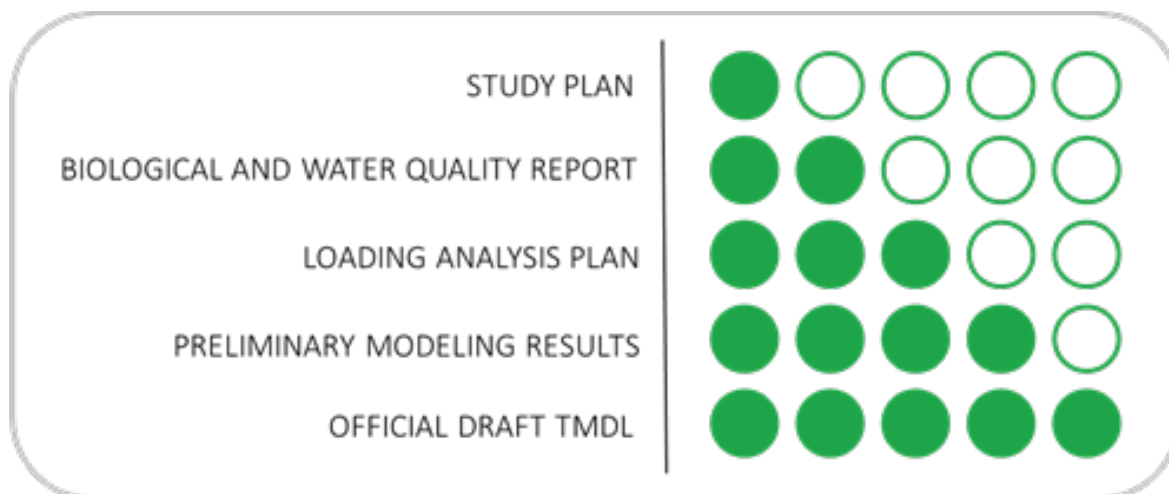
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Getting Involved in Ohio EPA's TMDL Process

by Melinda Harris, Ohio EPA, Division of Surface Water, Central Office



As part of Ohio EPA's revamped Total Maximum Daily Load (TMDL) program, stakeholders now have five formal participation steps. Participation can include reviewing documents, submitting comments, and requesting and attending meetings.

What are the Five Steps?

The TMDL development process, which starts at planning a watershed survey and ends with a U.S. EPA approved TMDL report, covers a variety of activities. At five points in the process, Ohio EPA will provide a document for stakeholder review and comment. These are summarized below:

- The **study plan** details the sample types and locations used to assess the watershed.
- The **biological and water quality report** summarizes major findings and provides results from individual sampling locations to determine their attainment status.
- The **loading analysis plan** discusses the proposed TMDL modeling approach and lists actions to be taken by the Agency for sampling sites and/or assessment units found to be impaired for a beneficial use designation.

- The **preliminary TMDL modeling results** include allocations and permit limits necessary to achieve water quality targets, in addition to a preliminary implementation plan.
- The **official draft TMDL** details all the information collected during the TMDL development process, wasteload and load allocations and a completed implementation plan. Once the public participation in this step is complete, the TMDL will be submitted to U.S. EPA for their approval.

With these five steps occurring for multiple projects at the same time, it will be easy to get reports confused. To help identify which step is being released for a given project, a simple graphic will be included on the front page of all TMDL related fact sheets and reports. The graphic consists of five green dots – the number of dots filled in corresponds to the step in the TMDL process.

Benefits of getting involved

The development of TMDLs can result in more stringent effluent limits for wastewater treatment plants through the National Pollutant Discharge Elimination System (NPDES) permit program. Being involved throughout the process can spawn innovative solutions to address water quality

impairments. Understanding the health of your watershed and potential stressors can:

- Better inform asset planning and management
- Generate proactive, sometimes reduced cost, solutions

How do I stay informed?

Ohio EPA sends announcements regarding stakeholder comment opportunities. To receive electronic notification, please subscribe to Ohio EPA's TMDL listservs at: <http://ohioepa.custhelp.com/ci/documents/detail/2/subscriptionpage>

Documents available for review and comment are posted on Ohio EPA's website at: <https://epa.ohio.gov/dsw/wq>

To learn more about which watershed your facility is located in, where Ohio EPA has collected water quality data and watershed health, check out following two interactive maps:

- Water Quality Monitoring Stations and Hydrologic Units (<https://oea.maps.arcgis.com/apps/webappviewer/index.html?id=9bd5463db1dd4a0bb0ef428368ea75b3>)
- Integrated Water Quality Report (2018) (<https://oea.maps.arcgis.com/apps/webappviewer/index.html?id=5df599f41fd241be8de26576ed4d6aae>)

When in doubt on how to get involved or what the results of water quality sampling mean to your facility, please contact your Ohio EPA, Division of Surface Water District Office.

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TMDL Legislation Provides Limited Window of Opportunity for Ohio's Sewer Utilities to Challenge Existing Permit Limits

by Stephen P. Samuels, Member, Environmental Practice Group, Frost Brown Todd LLC

On March 24, 2015, the Ohio Supreme Court issued its decision in *Fairfield County v. Nally*, ruling that Ohio EPA cannot base NPDES permit limits on standards set forth in Total Maximum Daily Load (TMDL) reports unless the standards are first formally promulgated as a rule. Because none of the dozens of TMDLs issued by Ohio EPA had gone through the rulemaking procedures prescribed by Revised Code Chapter 119, the decision arguably invalidated all previously-issued TMDLs, and potentially all NPDES permit limits and pretreatment limits that were based on the TMDLs.

Confronted with this quagmire, Ohio EPA's issuance of new or modified TMDLs ground to a halt for the next three years. Faced with pressure from U.S. EPA and environmental organizations to end the delay, Ohio EPA decided to seek a legislative fix that would exempt TMDLs from the rulemaking process. Because Frost Brown Todd represented Fairfield County in the litigation, the firm was asked to assist Ohio EPA in developing the legislation. The joint work product found expression in the enactment of H.B. 49 by the 132nd General Assembly, which was codified in Revised Code Sections 6111.561-6111.564. The legislation reinstated all pre-existing TMDLs, and established a robust stakeholder involvement protocol for future TMDLs.

The new law also created a limited window of opportunity (RC § 6111.564) for NPDES permit holders and indirect dischargers to POTWs with TMDL-based limits to challenge those limits in the first renewal or modification of their existing permit. Although § 6111.564 does not state that an appeal of such limits can only be brought after the first renewal or modification of an existing permit, Ohio EPA would have a strong timeliness argument that

a subsequent challenge should be dismissed based on the legal doctrines of waiver and estoppel.

Because of the limited window provided under the new law, it is essential that Ohio's sewer utilities and permitted industrial users carefully review their next draft NPDES permit renewal or modification to determine if existing TMDL-based limits are included, particularly phosphorus limits. Nearly all phosphorus limits are based on TMDLs, most are extremely restrictive (frequently costing many millions of dollars to meet), and many are based on TMDLs with limited or questionable scientific or environmental merit.

If a renewal or modified permit contains a TMDL-based limit—even if the limit has not yet come into effect—a potential appeal of the permit should be carefully evaluated. Otherwise, there may not be a second opportunity to do so.

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A Primer on PFAS

by Tom Zocolo

Poly- and perfluoroalkyl substances as a class have acquired a great deal of buzz in the water sector. As an emerging contaminant, they reside in that no-man's-land between regulation and responsibility. Unfortunately for us, we will only be able to treat and remove them with great pain and modification to our existing treatment infrastructure. They constitute a diverse class of chemical compounds used for a myriad of useful purposes. They are of anthropogenic origin, have no natural analogues, and are used in products as diverse as non-stick cookware to fire extinguishing foam. They are of particular note in our business thanks to their insistent recalcitrance, the good fortune of their abundant C-F bonds. Wastewater plants are unfortunately not traditionally equipped to remove them from the waste stream, and drinking water plants have often only limited capability to do so. This brief write-up will hopefully give you a baseline context for appreciating the nature of these complex molecules and the environmental compliance challenges they are sure to pose in the coming years.

PFAS consist of a carbon chain that is either partially (poly) or totally (per) fluorinated with the exception of terminal functional group, often a carboxyl or sulfonate. The carbon-fluorine "tail" is often both hydro- and lipophobic, whereas the "head" is polar and hydrophilic (ITRC, 2018). Shorter PFAS with less than 6 fluorinated carbons may not exhibit hydrophobic character at all (Ritter, 2011). Because this class constitutes by one count 4,730 and potentially many, many more compounds (Lim 2019), we'll focus on two of the most common problem children:

perfluorooctanoic acid (PFOA), and perfluorooctane sulfonate (PFOS).

These two compounds are no longer produced for commercial purposes domestically following phase-out programs instituted by EPA (USEPA, 2019a), but persist in the environment and within the population at measurable concentration. What's more, newer PFAS that have been created to replace them may ultimately pose similar environmental and public health quandaries (Lim, 2019). Other, better understood, PFAS can degrade into these compounds. For instance, Polyfluoroalkyl phosphoric acid diesters, which are used to give fast food wrappers lipophobic properties, leach into the food which they are used to wrap. After ingestion, biological processes transform these molecules into PFOA (D'eon et al. 2009). Another example: fluorotelomer alcohols, used in industrial polymer and surfactant production, also break down into PFOA and other PFCAs (perfluorocarboxylic acids) (Ritter, 2011).

Within human beings, the half-life of PFOA and PFOS is relatively long, 3.8 and 5.4 years respectively (Ritter, 2010). Because of their extensive use in our industrialized world, they can be readily detected in the blood serum of virtually everyone (CDC 2019). This is problematic as elevated concentrations of PFAS in blood serum have been associated with a myriad of human disease, including but not limited to: pregnancy induced hypertension, testicular and kidney cancer, thyroid disease, ulcerative colitis, high cholesterol, and low infant birth weights (Fletcher et al., 2012)(USEPA, 2017 & 2018b). They have even been associated with semi-compromised antibody development in response to vaccination (Lim 2019). Thankfully the CDC data suggest that PFOA and PFOS blood serum concentrations are trending down (CDC 2019). That is not to say that the health risk is altogether mitigated. Research to determine the real thresholds of exposure coincidental with human disease, as well as definitive biochemical pathways stimulated by PFAS are ongoing, and much more work needs to be done to establish a comprehensive

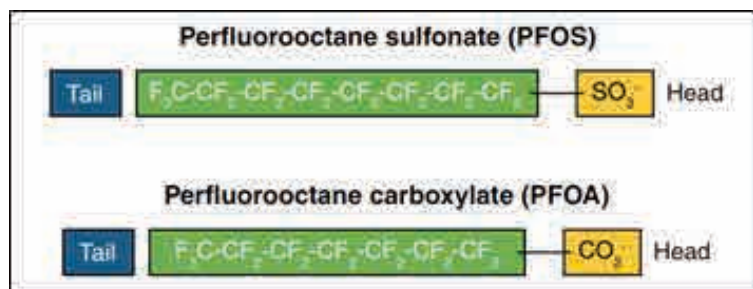


Figure 1: PFOS and PFOA structure. Taken from ITRC 2018, see references for additional information.

understanding of the potential health risks posed by these compounds in both the populace and environment.

The legal environment regarding PFAS is beginning to evolve rapidly. With the disbursement of the US EPA's PFAS Action Plan, the agency moved to classify PFOA and PFOS as hazardous substances under CERCLA, commonly known as Superfund (USEPA 2019a). This grants them enforceable regulatory authority regarding the release of these substances, but it not authority to impose permit limitations on discharge. The agency has also published a Health Advisory under the Safe Drinking Water Act for combined PFOA and PFOS of 70 parts per trillion (ng/L) lifetime exposure in drinking water (USEPA 2019a). To be clear, this value represents the maximum combined concentration that may be consumed with regularity throughout the course of one's life with no expected adverse health effects. In support of this decision, EPA has provided internal documents that contain peer-reviewed data and toxicological studies. I encourage you, if you are so interested, to peer through them at your leisure, as they are voluminous (see USEPA 2017).

It is worth noting, however, that this health advisory is non-enforceable and non-regulatory. The agency is instead encouraging local governments and tribal entities to develop their own limitations based on national guidance (USEPA 2019a). In line with this, the state of Michigan has developed its own limitations for drinking water for 7 different PFAS. The limitations are much more stringent than the national health advisory, at 8 ppt and 16 ppt respectively for PFOA and PFOS (Ellison, 2019).

In Maine, state EPA director Jerry Reid has moved to screen biosolids for both PFOA and PFOS. Here, if solids do not meet limitations of 2.5 and 5.2 ppb in turn, they are ineligible for land application (NACWA, 2019). The magnitude of risk is unclear, but PFAS from biosolids have been demonstrated to leach to ground water after agricultural application (Sepulvado et. al 2011). To complicate matters, there currently exists no approved federal method for the determination of PFAS in biosolids. The language from their official memorandum stipulates their biosolids program licensees must: "...test their material for PFOA, PFOS, and PFBS. [And their] Sampling and Analytical Work Plan (SAWP)...[is] to include sampling and analysis for these compounds on an ongoing basis." (Burns, 2019).

The precedent set by these two early adopters of regulatory limitations poses some stringent challenges for WWTPs and public utilities seeking compliance. For instance, the methods of treatment enumerated by EPA include: granular activated carbon, powdered activated carbon, ion exchange resins, nanofiltration and RO (USEPA, 2018). These techniques are difficult to employ in the context of waste treatment thanks to high rates of membrane/media fouling, high energy consumption, or both. And what's more, if partitioning PFAS to biosolids renders the solids themselves hazardous waste and subject to CERCLA/RCRA, how can a utility bear the cost of disposal? Landfilling the material would be out of the question – parcel with similar risk of ground water contamination, and incinerating it comes with its own unique challenges and environmental hazards.

<i>†Geometric Mean, Blood Serum Concentration (ug/L)</i>					
Years	PFOSt	Sample Size	Years	PFOAt	Sample Size
2011-2012	6.31	1904	1999-2000	5.21	1562
2013-2014	4.99	2165	2003-2004	3.95	2094
2015-2016	4.72	1993	2005-2006	3.92	2120
			2007-2008	4.12	2100
			2009-2010	3.07	2233

Figure 2: Average blood serum data in among samples of US citizens. Data obtained from CDC National Report on Human Exposure to Environmental Chemicals

While I don't have the answers to the questions raised here, it seems certain that some measure of PFAS limitation for WWTP effluent and biosolids is inevitable. To this end, it serves us to become familiar with the analytical method employed for the determination of PFAS concentration. Only one federally approved method exists thus far for PFAS measurement, and it is only approved for finished drinking waters. That said, with modifications to account for different sample matrices, it can likely be applied after modification to wastewater effluent and biosolids.

Method 537.1 was required for drinking water plants participating in UCMR3 (unregulated contaminant monitoring rule) which came to an end in 2016 (USEPA 2019a). The method itself is complex and requires advanced analytical equipment that most WWTP labs will not have available. To summarize, there are three generalized steps that occur. Samples are subjected to solid phase extraction using a polystyrene/divinylbenzene cartridge which sorbs the method analytes. The analytes are then eluted from the solid phase with methanol, and the extract is concentrated. A 10 µL injection is administered to the LC equipped with a C18 column and then reaches the tandem mass spectrometer (Shoemaker et al. 2009).

Sampling correctly for this analysis must be done with care. Contamination is easy to come by, so the use of nitrile gloves and good hand washing practice is paramount. Samples should be collected in a 250mL polypropylene bottle. Preservative should be added to remove free chlorine, as well as to exert antimicrobial pressure to stop the breakdown of less recalcitrant PFAS that may be in sample. The method specifies a preservative with the trade name trizma (2-Amino-2-(hydroxymethyl)-1,3-propanediol). Alternatively, sodium thiosulfate may be used as a dechlorinating preservative.

PFAS as a class of emerging contaminants will likely become more charismatic and garner greater regulatory scrutiny as time goes on, and our collective understanding of the risk they pose to both human and wildlife continues to mature.

References

- Burns, D. (March 22, 2019). Requirement to analyze for PFAS compounds. [Memorandum]. State of Maine Department of Environmental Protection. Retrieved from: https://www.maine.gov/dep/spills/topics/pfas/03222019_Sludge_Memorandum.pdf
- Centers for Disease Control and Prevention. (2017). Per- and Polyfluorinated Substances (PFAS) Factsheet. Retrieved from: https://www.cdc.gov/biomonitoring/PFAS_FactSheet.html
- Centers for Disease Control and Prevention. (2019). National Report on Human Exposure to Environmental Chemicals – Updated Tables Volume 1. Retrieved from: https://www.cdc.gov/exposurereport/pdf/FourthReport_UpdatedTables_Volume1_Jan2019-508.pdf
- D'Eon, J.C., Crozier, P. W., Furdul, V. I., Reiner, E. J., Libelo, E. L., Mabury, S. A. (2009). Observation of a Commercial Fluorinated Material, the Polyfluoroalkyl Phosphoric Acid Diesters, in Human Sera, Wastewater Treatment Plant Sludge, and Paper Fibers. *Environ. Sci. Technol.* 43, 4589-4594. Doi: <https://doi.org/10.1021/es900100d>
- Ellison, Garret. (2019). Draft limits for PFAS in drinking water move to Michigan governor's office. Retrieved from: <https://www.mlive.com/news/2019/09/draft-limits-for-pfas-in-drinking-water-move-to-michigan-governors-office.html>
- Fletcher, T., Savitz, D., & Steenland, K. C8 Probable Link Reports. (2012). Retrieved from: http://www.c8sciencepanel.org/prob_link.html
- Interstate Technology Regulatory Council (ITRC). (2018). Environmental Fate and Transport for Per- and Polyfluoroalkyl Substances. Retrieved from: https://pfas-litrcweb.org/wp-content/uploads/2018/03/pfas_fact_sheet_fate_and_transport_3_16_18.pdf
- Lim, X. (2019). Tainted water: the scientists tracing thousands of fluorinated chemicals in our environment. Retrieved from: <https://www.nature.com/articles/d41586-019-00441-1>
- NACWA. (2019). NACWA Takes National PFAS Perspective on the Road; Learns from Maine Public Clean Water Agencies. Retrieved from: <https://www.nacwa.org/news-publications/news-detail/2019/09/18/nacwa-takes-national-pfas-perspective-on-the-road>
- Ritter, S. (2010). Fluorochemicals go short. *Chemical & Engineering News* 88: 12-17 doi: 10.1021/cenv088n005. Retrieved from: <http://pubsapp.acs.org/cen/coverstory/88/8805cover.html?>
- Sepulvado, J. G., Blaine, A. C., Hundal, L. S., Higgins, C. P. (2011). Occurrence and Fate of Perfluorochemicals in Soil Following the land Application of Municipal Biosolids. *Environ. Sci. Technol.* 45, 19, 8106-8112. Doi: <https://doi.org/10.1021/esl03903d>
- Shoemaker, J. A., Grimmett, P. E., Boutin, B. K. (2009). EPA Method 537. Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA/600/R-08/092
- USEPA (2017). Supporting Documents for Drinking Water Health Advisories for PFOA and PFOS. Retrieved from: <https://www.epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos>
- USEPA (2018a). Treating PFAS in Drinking Water. Retrieved from: <https://www.epa.gov/pfas/treating-pfas-drinking-water>
- USEPA (2018b). Basic Information on PFAS. Retrieved from: <https://www.epa.gov/pfas/basic-information-pfas>
- USEPA (2019a). EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan. EPA 823-R-18-004. Retrieved from: https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf
- USEPA (2019b). Draft Interim Recommendations to Address Groundwater Contaminated with Perfluorooctanoic Acid and Perfluorooctane Sulfonate. Retrieved from: <https://www.epa.gov/pfas/draft-interim-recommendations-addressing-groundwater-contaminated-pfoa-and-pfos>

Re-imagine Credentialing with the Professional Operator Program

Courtesy of ABC

Two letters after a name can have a big impact on a career—just look at the RN or PE. Those designations add a level of credibility to the professional, impact their pay scale, and show they have the knowledge necessary to perform their jobs to the best of their ability.

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

Operators are front line protectors of human health, either through ensuring safe drinking water or the safety of waterways through effective wastewater management. They are the lifeblood of every community and deserve a way to be showcased as professionals. And so—built by operators for operators—the Professional Operator (PO) program was born.

Join a community

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

Grow as a professional

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

“I became a Professional Operator because of the chance to test my knowledge and accelerate my career,” said Brian

Faist, Professional Operator in Rivergrove, Oregon. “The PO designation has made me a more appealing candidate for promotion.”

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

Ensure accountability

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

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

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

Increase mobility

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

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

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

Begin your journey

PO certification is offered to operators in four levels (from Class I through Class IV) for water treatment, water distribution, wastewater collection, and wastewater treatment. Joining the PO movement is simple and the entire process can take as little as a few weeks.

Step 1: Create an Online Profile

The path to becoming a PO starts by creating a profile at portal.abccert.org. An operator will be asked to add information like work history and education.

Step 2: Submit an Application

The operator submits an application and ABC reviews the operator's profile to ensure basic criteria have been met. Applications are accepted from anywhere in the world, any day of the year.

Step 3: The Exam

In some cases, operators may have already passed a certification exam that ABC will accept. If not, the operator will schedule a time to take an ABC certification exam. Once the exam is passed, the operator will receive a certificate, be invited to a POWER event to be formally recognized, and join the PO community.

For questions or additional information, please visit ProfessionalOperator.org or email directly at Info@ProfessionalOperator.org.

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

Graphics of Brian and Georginna at a POWER event (quoted POs):



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A Chat with 2013-2014 OWEA President, Dan Sullivan

Interview by Megan Borrer

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

Sullivan: I have family in New England (where I'm originally from) that are in the water and wastewater industry. I went to work for a filter screen manufacturer that my family represented up in New England. They needed an engineer and they hired me. I moved to Florida and went to work as an applications engineer, eventually working my way into a sales engineer role at this filter screen manufacturer, and I was there for about three years or so.



from the Clearwater area, up to the Cincinnati area to start my career as a manufacturer's rep.

Staff: Did that lead you into opening Sullivan Environmental?

Sullivan: Yes, I worked for that first company for about ten years. Eventually I started my own company and I've owned Sullivan EnvTech for 17 years this November.

Staff: What do you do at Sullivan Environmental?

Staff: So how did you get to Ohio?

Sullivan: I still don't live in Ohio, never have, but I moved to Northern Kentucky. What happened was my representative in Southern Ohio and the State of Kentucky, that repped filter screen company, hired me to come up here to become an outside salesperson. I moved

Sullivan: Well, I do a little bit of everything. I'm the president, but I handle and am responsible for representative contracts, bidding, marketing, business development, aftermarket services coordinator, and key project manager. The majority of my work is business development, and the day day-to-day running of the business. You have to wear many hats.



Fireside Chats - Looking for Recommendations!

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 between. Please nominate your boss, coworker, or someone you admire for a future article by emailing Megan Borrer at: megan@ohiowea.org.

Staff: How did you get involved with OWEA?

Sullivan: I befriended some people that were on the Executive Committee in the Southwest section. Don Cuthbert, Steve Morrison, Mark Livengood, Tom Kutcher, Sue Kutcher, to name a handful that I became friendly with and worked alongside of. They got me involved in the technical program at section meetings coordinating that, and then from there I started working on conference planning committees. Eventually, I was actually a conference chairman a couple of times, and that's how I got into becoming a third-year director.

I went through the chairs in the Southwest section and when I was the past president of the Southwest section, I became the delegate for the state then I went through the chairs at the state level. It was 16 straight years. It's a big commitment. [LAUGH]

Staff: What does it mean to you to be the 2019 Larry Moon recipient?

Sullivan: It's a great honor, especially when you look at the names of the folks that have been awarded it. I think it is some of the greatest leaders that we've ever had. They are folks that volunteer a great amount of their personal time and energies to make the association better. It was humbling, because after you've been past president for a couple of years and you're no longer involved, you kind of think that people have forgotten about you. It's nice to know that you're fondly remembered by a great number of people and that they appreciate the work that you did. I feel like I've left a lasting legacy with the One Water conference, and you always want to leave the association a better place than when it was put under your leadership. You hope that you've left it better, and I feel like this

prestigious award acknowledges the time, effort and sacrifices the recipient makes in an effort to do something special for the association.

Staff: OWEA and OAWWA have decided to have joint One Water conferences. From 2021 to 2026 we'll be having them every year and hopefully continuing after that. What do you think that'll bring to Ohio water professionals?

"I think that we're all going to be facing similar challenges, and it just makes sense that we have a collaborative effort to help each other out. We're really here for our communities, for our environment, for the public health and safety, and the betterment of the environment. I think it's only natural that these two associations would come together, and it'll be very successful, I'm convinced of it."

Sullivan: I've seen what it has done in the states of Kentucky and Tennessee, because they've had a joint water conference every year for probably the last 15 to 20 years. I've been pretty active in Kentucky/Tennessee when the show has been in Northern Kentucky, and I've seen just how successful that show is and how greatly attended it is, and I think that we'll see the same. I think we're going to see tremendous growth. I think you'll see a lot more involvement, and I think the proof has been in the pudding. The two that we

have done have been very successful conferences. If they hadn't been, we wouldn't be having this conversation. You guys wouldn't be having that conversation with OAWWA anymore, right?

It's very successful. I think it's the future. I think that both associations face common challenges such as regulatory compliance, infrastructure aging, and aging of the workforce. I think that we're all going to be facing similar challenges, and it just makes sense that we have a collaborative effort to help each other out. We're really here for our communities, for our environment, for the public health and safety, and the betterment of the environment. I think it's only natural that these two associations would come together, and it'll be very successful, I'm convinced of it.

Staff: How did One Water Ohio originally come to be? What is the history of it?

Sullivan: It's not my original idea, for sure, but I've been very active because my company is very busy with water and wastewater infrastructure projects. We are actively busy in both markets and I just felt that it would make sense, kind of almost selfishly, to make it one big conference rather than spreading myself thin over two conferences. A lot of our support comes from our advertisers, reps, engineering firms, manufacturers, etc., and I think they were all pushing for a better value. I brought it to the membership because I thought it was something that I wanted to accomplish and I knew that it was going to take several years to pull it together. Dale Kocarek, Tom Angelo and Doug Clark, who were ahead of me in the line of chairs, respectively, saw the wisdom in it, and saw that I was passionate enough about it. They encouraged me to approach the OAWWA about it just to see if they would even consider it, and a MOU [Memorandum of Understanding] was born from that. Thanks in large part to a lot of assistance from Judi Heinrich, who did a lot behind the scenes, we were able to pull that off, and it was a very successful conference.

As you know, these things take several years to plan. I think the City of Columbus, when I brought it to them, were equally as supportive. Dax Blake was the director at the time, and he put forth Robert Herr and John Newsome as the co-chairs. The local arrangements committee that they put together did a great job. John and Robert traveled with me to Nashville to a Kentucky Tennessee Conference, so that they could see it firsthand and walk around. Kentucky/Tennessee was very cooperative. Valerie Lucas and Kay Sanborn, the respective directors of WEA

and AWWA for Kentucky/Tennessee, have been friends of mine for the majority of my career, and were really helpful. There's a lot of people that came together that believed in it and helped me to make it a reality. As I went into my presidency, we had it all booked up, and we were able to do it the year of my presidency, which was very gratifying. It was nice to see that all come together before I was gone.

Staff: What would you like to have One Water look like ten years from now?

Sullivan: I can't imagine what it'll look like, but we could be talking about reuse by then and toilet to tap will probably be a reality, even in Ohio. I think that we're going to see some of those challenges and some of that subject matter being addressed ten years from now. I think we'll start seeing stormwater, even, as an arm of this One Water, potentially. Watershed, all these things are all interconnected. They all deal with the same chemical formula, H₂O, right?

Staff: Is there anything else you would like to see change in this industry?

Sullivan: One of the big challenges that our industry faces, is the aging infrastructure of the people. I would like to see more educational opportunities present themselves to encourage people to go into the trade, rather than

"I would like to see more educational opportunities present themselves to encourage people to go into the trade, rather than necessarily pursuing a college degree. But perhaps going this route and making this industry an occupational option that people would seriously consider, because we're running out of people to do this work."

necessarily pursuing a college degree. But perhaps going this route and making this industry an occupational option that people would seriously consider, because we're running out of people to do this work. And sadly, it's taken for granted by the general public that we serve. There's a lot going into treating water that we've used and making water clean for our consumption, there's

a lot behind it, a lot going on there, and people just don't understand that. It is a viable occupation, and we need to find ways to make that known to people and encourage people to do it. I think that's our big challenge. And it's not just on the wastewater side, it's also on the drinking water side, and it's on the stormwater side. It's something we all share, and I would like to see our association become more active in that. I think that Kim Riddell-Furry has the right idea in providing educational opportunities through OWEA. It's an arduous task, but I think that it's a service that we probably need to be providing people.

Staff: What advice do you have for young professionals in this industry?

Sullivan: Network. Read. Learn how to communicate outside of social networking and texting. Nobody knows how to write a letter anymore. People are too afraid to engage in conversations anymore. People lack the confidence to engage in conversations or even how to answer a phone. The skill of interpersonal communications is being lost on this generation coming up. And I really believe that we need work on those skills.

Staff: What, in your opinion, are good qualities to have as a leader?

Sullivan: Excellence in communication skills, responsiveness, the ability to listen, and to have a voracious appetite for knowledge.

Staff: What would you say to someone who wants to get involved with OWEA?

Sullivan: Oh, I'd say, 'Absolutely do it!' If this is an industry

"I encourage any business owner, manager, whatever, to allow these folks to become actively engaged, because somebody did that for me many, many years ago and I think it proved to be worthwhile."

that you're passionate about, and you want to make a career out of it, I absolutely would recommend that somebody join OWEA and become actively involved. The best way to serve the association is to step up and volunteer. I encourage any

business owner, manager, whatever, to allow these folks to become actively engaged, because somebody did that for me many, many years ago and I think it proved to be worthwhile.

Staff: What is your favorite thing about this organization?

Sullivan: I would say probably the association managers and staff.

Staff: [Laugh] You want me to make you look good in print, I see what this is.

Sullivan: [Laugh] I would say my favorite thing is my friendships.

Staff: Anything else you would like to share with the membership?

Sullivan: Lead by example and don't be afraid to allow your people the opportunity to volunteer and become involved. They're the future and it takes many hands. It's the old 80/20 rule, I'd like to see it become more 60/40, 50/50. You know what I mean? 20% of the people doing 80% of the work. It's probably not even that great, probably 5/95, but you know what I mean.



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Fall: Tied for My All-Time Favorite Season

by Travis Cooper, City of Dayton, SW Section Safety Chair

Hey there Water, Wastewater and avid Buckeye Bulletin magazine reader! I know it's been awhile since I've written an article for the Safety Column but you know what they say,...."when in Rome!" Am I right? Anyway, enough of the pseudo-funny business. This is a serious article for serious people with seriously great tastes in article editorial reading! (Note, the use of the word "editorial" is brought to you by a thesaurus.)

The scent of pumpkin spice is permeating throughout the local coffee shop. A slightly disgruntled barista just finished crafting a delicious beverage for yours truly. "I've got a medium, double iced vanilla caramel latte with two dashes of cinnamon, a half packet of natural sugar and third a packet of raw sugar for Traeves." Somehow they spelled my first name with two e's even though it contains absolutely zero e's. I head outside to enjoy the crisp autumn air and take that first delicious sip of my concoction and BOOM!!! You realize they put only one dash of cinnamon in it! The nerve....

Hold on a second. Am I going to honestly write about "coffee" and a forgetful barista? Yup. I just did. You read it. Enjoy the moment that just passed.

Although, I do feel that editorial journalistic readers would prefer some facts with their nonsense. (Note, the use of the word "journalistic" is brought to you by the same thesaurus as previously mentioned.)

Now for some actual Safety Tips!

- Remember that autumn leaves could be just as slippery as ice or snow. It's important that the fallen leaves are either raked or mulched to prevent slipping and to promote a healthy lawn. Plus, if you intend to rake your leaves, I believe it is state law to pile them into a mound and jump on them prior to disposal. Don't quote me on that though, I'm no Fall Lawyer.
- A couple questions for you that I hope aren't too

personal.... How's your furnace doing? Have you spent any time with it? Maybe changed a filter or two since the start of summer? Are you seeing soot or dark discoloration on the filter? This can either mean there is a serious furnace issue or you're burning some pumpkin pecan waffle candles. Seriously, they smell amazing. Either way, it's always a good idea to have a trained professional out at least once a year to inspect your furnace to make sure everything is functioning as intended.

- Fireplaces can be a very dangerous thing for a multitude of reasons. I mean its fire, so there's that. Also, if your chimney hasn't been cleaned recently, you could also have to deal with carbon monoxide gases or highly flammable creosote.

There are tons more Autumn safety tips, but I think I just heard the barista call for Traeves. Time for my coffee fix! (Note, the name Traeves, is not my actual name. No thesaurus needed, but did you know that another name for thesaurus is wordlist? It doesn't sound nearly as impressive though.)

Questions? Comments? Hilarity? Contact me! Travis.
cooper@daytonohio.gov

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City of Napoleon Wins WEF Operator Ingenuity Award

by Dave Pike, City of Napoleon

Mike Wenner of the City of Napoleon Wastewater Treatment Plant (WWTP) was recently awarded the Operator Ingenuity Award from WEF for his Muckraker.

In mid-July 2018 the Napoleon Wastewater Treatment Plant (WWTP) began receiving all the backwash and sediment basin solids from the new filtration system at the Water Treatment Plant. Because of this load, the WWTP has almost doubled the amount of solids it has to handle and with 2019 being such a rain filled year, the treatment plant has struggled with getting the solids dry enough to load onto trucks for disposal. Currently, the Napoleon WWTP has two 1.5 meter single belt sludge presses which only produce a cake of around 14% -17% dry. As we all know this is not the ideal dryness to just load up on a truck and go for disposal. The existing sludge drying beds are used to further dry the solids to around 30% -40% using natural sunlight and air. As this year has not been friendly due to all the rainfall, they needed a way to help shorten the dry

time from a week or two down to just a few days between rain events. This is where Mike Wenner came into the picture with his idea of a rake made up of a piece of steel angle welded to several portions of cut pipe attached to a front-end loader. The rake is used to increase the surface area and turn the sludge. His ingenuity and mechanical skills came into what is now called the Muckraker. So far this has reduced the drying time from weeks to days. With this, we can rake through the sludge turning the solids as they start to dry without a big capital expense.



Regional Planning & Implementation

Multi-County Coordination Pays Off

by Bret E. Norton, P.E., W.E. Quicksall and Associates, Inc.

Michael B. Jones, P.E., Tuscarawas County Sanitary Engineer

Background

The Tuscarawas County Board of Commissioners owns and operates public water and sewer systems throughout the unincorporated areas of Tuscarawas County, as well as a number of incorporated Villages. In 1973, the Commissioners established the Tuscarawas County Metropolitan Sewer District to operate and maintain its facilities and created the office of the Sanitary Engineer.

Tuscarawas County's second largest facility is the Sandyville-East Sparta Wastewater Treatment Plant (SV WWTP) and sewage collection system. The SV WWTP is an extended aeration activated sludge facility with a capacity of 0.50 MGD, which was originally constructed in 1979. In 2010, the County upgraded the facility to include ultraviolet disinfection and a new standby generator.

(County Road 82), just west of State Route 800 in Sandy Township, Tuscarawas County, Ohio. The SV WWTP serves approximately 1,100 households in Tuscarawas and Stark Counties, including the Village of East Sparta sewage collection system, which is owned and operated by Stark County.

In 2012, the County retained W.E. Quicksall and Associates, Inc. (WEQA) to prepare a Preliminary Engineering Report (PER) for the upgrade of the SV WWTP, which provided recommended actions for improvements to the SV WWTP. The PER focused on the evaluation of best available technologies for plant improvements in order to address current and anticipated NPDES permit requirements while providing for efficient facility operations with a focus on employee safety.

The SV WWTP is located along Dover-Zoar Road

The County also retained Dixon Engineering, Inc. to

Aerial view of plant upgrade





Mechanical aerator platform prior to rehabilitation

perform a structural/condition assessment of all concrete tankage at the facility. The findings of the WEQA and Dixon Engineering studies are summarized as follows:

Sewerage Collection System

As part of the PER, flow metering was conducted at various locations in the sewerage collection system. The PER concluded that a significant portion of system Inflow and Infiltration (I/I) was originating from the East Sparta system. The PER recommended the installation of permanent flow measurement equipment at East Sparta's connection to the County. This will be installed as part of a future phase collection system improvement.

Headworks Addition

When the SV WWTP was constructed in 1979, comminutors were installed in each of the collection system pump stations in lieu of providing screening at the plant. These comminutors had been removed, and



Aerial view of new headworks building and retaining wall

it was determined that replacement of these devices at the lift stations did not adequately address rag removal and due to the installation conditions, would impose safety risks to the District's maintenance staff. Screening of wastewater is essential for removal of undesirable paper products, flushable wipes, plastic bottles, grit and other objectionable large solids from the raw wastewater stream as flow enters the facility. Failure to remove these materials prior to treatment resulted in additional labor demands and premature wear of downstream equipment. The PER recommended installation of a fine screen at the SV WWTP.

Secondary Process Improvements

Process deficiencies identified in the report included unequal flow distribution to the two aeration tanks. The PER recommended construction of a flow splitter box to ensure equal distribution of influent flow to both tanks. In addition to this process improvement, each of the two mechanical surface aerators were replaced. As part of Dixon's structural condition assessment, it was determined that the aeration tanks were in good condition with some minor cracking. It was recommended that minor concrete rehabilitation be included in the project.

Secondary Clarification Upgrades

Mechanical Condition Assessment / Process Improvements

The existing rectangular clarifiers were in poor condition. The internal sludge collection equipment, weirs and baffles were all in failing condition. Due to inadequate depth, solids overflowed effluent weirs during moderately high flows. As part of a process evaluation, it was determined that a primary failure mechanism relating to clarifier solids loss was related to greater than ideal MLSS concentration in the aeration tanks. This was caused by inadequate on-site sludge handling facilities, which limited the operators' ability to waste sludge. Primarily due to site constraints, as well as capital cost considerations, it was recommended that the existing clarifiers be rehabilitated. It was determined that clarifier performance during moderately high flows could be improved by constructing on-site sludge handling facilities.

Structural Condition Assessment/Improvements

The majority of the clarifier walls were found to be in good condition; however, the clarifier influent channel exhibited signs of severe deterioration from alkali-silica reaction (ASR). A petrographic analysis was performed as part of the assessment, which confirmed the presence of ASR gel. It was recommended that the clarifier influent channel be demolished and reconstructed.

Sludge Handling and Storage Improvements

Mechanical Condition Assessment / Process Improvements

The existing WWTP had aerated sludge storage tanks; however, the WWTP lacked on-site facilities for dewatering or drying sludge. As part of its routine operations, the County hauled waste sludge to the Wilkshire Hills WWTP, which is another County-owned facility, where it was dewatered and stored for landfill disposal. Relying on hauled sludge treatment was expensive, time intensive, and overburdened the capacity of the Wilkshire Hills WWTP's processing facility. In order to address these issues, the PER recommended the installation of a sludge dewatering facility at the SV WWTP. The project also addressed operational issues with the existing sludge storage tanks by the improved decanting process.

Structural Condition Assessment

As part of Dixon's structural condition assessment, it was determined that the aeration tanks were in good condition with some minor cracking. It was recommended that minor concrete rehabilitation be included in the project.



New sludge press building

Miscellaneous Site Improvements

A number of miscellaneous improvements were included in the project including concrete rehabilitation; replacement of failing handrails; replacing smooth surface grating with non-slip grating to improve employee safety; replacement of RAS/WAS pumps; and implementation of a WWTP SCADA system.

Evaluation of Alternatives

The WEQA study evaluated alternatives to determine the most cost-effective upgrade for the County. The list of alternatives considered for the various improvements are shown in Table 1. Treatment options were prepared and are listed in Table 2.

Table 1 – List of Alternatives Considered

Process	Alternative
Headworks	<ul style="list-style-type: none"> Fine Screen Grinder (Head Works) Complete Head Works Unit
Secondary Treatment Process	<ul style="list-style-type: none"> Baffled Aeration Basins with Fine Bubble Diffused Aeration Replace Existing Mechanical Aerators with Surface Aerators Convert Existing Aeration Basins to SBR Process
Secondary Clarification/ Solids Removal	<ul style="list-style-type: none"> New Circular Clarifiers New Rectangular Clarifiers Rehabilitate Existing Clarifiers
Flow Equalization for SBR Units	<ul style="list-style-type: none"> Convert Existing Clarifiers to Flow EQ Basins
Sludge Storage and Handling	<ul style="list-style-type: none"> Convert Existing Clarifiers to Sludge Storage New Aerated Sludge Storage Modify Existing Sludge Storage Tanks

After review of the alternatives, treatment requirements, regulations, costs, and availability of technologies, three treatment plant upgrade options were developed with input from the County. The three options are identified in Table 2.

Table 2 – Summary of Options

Recommended Option	Main Features	Estimated Total Project Cost
SBR Process Plant	<ul style="list-style-type: none"> • New headworks • SBR retro-fit • Convert existing clarifiers to flow equalization basins • Rehabilitate existing sludge storage tanks • Construct new sludge storage tanks on site 	\$4,032,800
Baffled Aeration Basin w/Diffused Air	<ul style="list-style-type: none"> • New head works • Install baffle walls and diffuser system in existing aeration basins • Install two new circular clarifiers • Convert existing clarifiers to sludge storage tanks • Rehabilitate existing sludge storage tanks 	\$3,796,700
Replace Existing Aerators with New Surface Aerators	<ul style="list-style-type: none"> • New head works • Replace existing mechanical aerators with surface aspirating aerators • Install two new circular clarifiers • Convert existing clarifiers to sludge storage tanks 	\$2,825,400

A total present worth analysis was conducted for each of the options. The total present worth analysis considered capital costs, operation and maintenance costs, as well as non-monetary factors, such as environmental impact, existing site constraints, and complexity of operation. A significant site constraint existed as a portion of the WWTP site is located in a flowage easement regulated by the U.S. Army Corps of Engineers. The flowage easement is reserved for flood storage behind the Bolivar Dam, therefore, certain portions of the site were not suitable for construction.

Final Improvements Selected

Based on treatment costs, land availability, and immediate/future needs, the following improvements were included in the construction project:

- Headworks building with a fine screen
- Aeration tank splitter box
- Mechanical aerators
- Clarifier equipment and controls
- RAS/WAS pumps and controls
- Flow measurement improvements
- Modifications to the existing sludge storage tanks
- Sludge dewatering building with a rotary fan sludge press
- Sludge filtrate pump station
- Miscellaneous site improvements such as concrete rehabilitation and handrail replacement, and new waterline extension to serve the plant.

Project Funding

The upgrade of the SV WWTP came at a cost of approximately \$2.7 million, which includes planning, design, legal/administrative and construction costs. Multiple sources of funding were required to complete this project. Primary funding was through the Ohio EPA's Water Pollution Control Loan Fund (WPCLF). Grants were obtained from the Ohio Public Works Commission (OPWC) and the Appalachian Regional Commission (ARC). In addition, Stark County participated in the project by providing 50% of the project cost (less the OPWC grant) in accordance with their sewer service agreement with Tuscarawas County.

Construction Schedule and Highlights

Construction was completed on schedule and within the project budget. This was accomplished through effective communication between the County, WEQA, and the contractor (Stanley Miller Construction Co.). Unique elements to the project construction included:

- Hillside excavation and retaining wall construction needed to facilitate the construction of the new Headworks Building.

Technical Article

- Project coordination with U.S. Army Corps of Engineers with respect to the Bolivar Dam flowage easement.
- Maintenance of flow while constructing the clarifier influent channel.

Operational Improvements since Substantial Completion

Operational items which have improved include:

- Headworks Building
 - Reduced labor hours
 - Protection of downstream equipment
- Sludge Press Building
 - Greater wasting process control
 - Reduced demand on Wilshire Hills sludge processing facility

- Greater flexibility in controlling plant MLSS and MCRT

- Miscellaneous Site Improvements
 - Extended life of existing tanks
 - Improvements to worker safety
 - Reliable water supply

Conclusion

Construction of this project was possible as a result of the communication and coordination of efforts between the Tuscarawas County and Stark County Sanitary Engineering offices. In addition to the support provided by Stark County, the success of the project was predicated on the efforts of a number of stakeholders, including the Tuscarawas County Board of Commissioners; the Stark County Board of Commissioners; Stanley Miller Construction; the Ohio Public Works Commission; OMEGA/ARC; Ohio RCAP; and Ohio EPA's Division of Environmental and Financial Assistance.



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Thickening and Dewatering 101

by Patrick Dube

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



The benefits to dewatering are similar to those of thickening: Reducing the total volume of material reduces transportation costs and the size of equipment (incinerators, digesters, drying beds) needed downstream. Dewatering typically is done using belt filter presses, screw presses, centrifuges, and other dewatering specific equipment.

Thickening and Dewatering

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

Thickening typically occurs after solids have been discharged from clarifiers but before digestion or storage. Depending on the facility and characteristics of the solids, various types of equipment can be used to thicken the solids, including (but not limited to) gravity thickeners, centrifuge thickeners, and rotary drum/screw thickeners. After thickening, the solids can range from 2% to 8% solids concentration and still can be pumped throughout the facility.

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

Polymer/Flocculants

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

Polymer comes in three forms: dry, solution, and emulsion. Dry polymer consists of 90% active polymer and requires a more extensive process to dissolve and activate it before use. Solution polymer, also called Mannich, is a viscous polymer with only 4% to 8% active ingredient. Its low activity and difficulty in pumping has caused it to be less used in today's water resource recovery facilities. Both polymers must be activated and diluted on-site to between 0.1% and 1% active solution before using. The dilution process must be followed meticulously to prevent damaging the polymer and reducing its efficiency, and, thus, leading to a greater polymer demand, which increases costs.

Emulsion polymer is a pumpable polymer of gel emulsified in hydrocarbon oil with 2% to 55% activity. Due to its pumpability, it often is delivered to the system in-line, although its ease of use and higher activity come with a higher cost when compared to dry polymer.

Solids Capture

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

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

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

To improve solids capture, a step-by-step approach is advised. First, identify all settings and parameters used in the dewatering process (feed solids, flow rate, cake solids,

polymer flow, etc). Then, change one setting at a time; let it reach steady-state, and evaluate the effect on solids capture.

More Information Available

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



Dr. Patrick Dube is a technical program manager in the Water Science & Engineering Center at the Water Environment Federation (Alexandria, Va.). He manages the Residuals and Biosolids Committee and the Air Quality & Odor Control Committee. He can be contacted at PDube@wef.org.



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City	State/Province	Zip/Postal Code	Country
Home Phone	Cell Phone	Business Phone	
E-mail Address		Date of Birth (mm/yyyy)	
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<input type="checkbox"/> Young Professional (YP)	\$49	WEF members or former WEF Student members with 5 or less years of experience in the industry and less than 35 years of age. This package is available for 3 years.	
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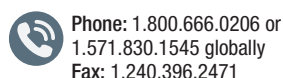
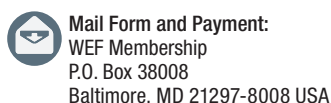
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It is often said that a picture is worth a thousand words. If this is true, it can also be said that a video is worth a thousand pictures.

Video is definitely the “buzz” when it comes to marketing and knowledge sharing. It is emotional and touches multiple senses. It tells a story in a way that a still photo or words on a page simply can’t. It relays a large amount of information in a very short time.

Hopefully if you are following OWEA on Twitter or LinkedIn or even just taking a look at our website, you have seen our new videos that cover everything from our Student Design Competition to Ops Challenge. These videos were a conscious effort and commitment to move OWEA forward.

Our first venture into video happened at the 2018 One Water Conference. We wanted to use this joint gathering of water and wastewater professionals to tell our water story. And we told a great one! This video reminded us why we do what we do and how important it is. It celebrated both One Water and our profession. When it was shown to the OWEA Executive Committee prior to becoming public, there were multiple smiles and even a few tears around the table.

After we got our first taste of the power of video, we knew we couldn’t stop. We wanted it to focus on a few specific areas and chose Operations Challenge, Student Design Competition and membership. These areas were all chosen to help promote the program and tell a story.

We wanted some additional Operations Challenge teams and the easiest way to encourage a municipality to fund a team is to show that Operations Challenge isn’t just a group of operators trying to cut a pipe really fast. It is emotional and strong and inspiring. It shows the best of what our operators do on a daily basis. Not to brag (but I will anyway), the Operations Challenge videos we produced were so good that we made the “big screen” and were recognized nationally when the Water Environment Federation (WEF) used our video to open the Operations Challenge Reception at this year’s WEFTEC in Chicago.

We have been working hard to grow the schools that participate in our Student Design Competition with the hope that eventually each section will be having their own competition and then a final competition at the state level, with the state winner advancing to WEFTEC. Our student design champions have had some challenges gaining interest at universities or getting in in front of professors. We decided that having the students tell their story carried much more weight than a letter or a phone call. Professors listen to students and these videos are getting us exposure we could only dream about. These videos are about students and star students.

Members are why we exist, and we are always looking for ways to grow and retain members. We wanted a way to tell the OWEA story and video provided an outlet. We wanted to hear

Video Statistics (from WordStream)

- 82% of Twitter users watch video content on Twitter
- YouTube has over a billion users
- More video content is uploaded in 30 days than the major U.S. television networks have created in 30 years.
- 87% of online markets use video content

from a variety of members about why they are members and what OWEA means to them. We are releasing these on a weekly basis and have received great feedback.

How did we make all this work? We utilized a local videographer and our conference as an opportunity to have many of our members in one spot. We took some chances and shot LOTS of video. We also trusted our videographer when he had some different ideas than we did. Finally, we had an amazing amount of cooperation and participation from our members.

The end result was multiple videos that will be released via social media throughout the year. The longest video is just over a minute and the shortest is 26 seconds. Most average around 35 seconds. They are brief, to the point and powerful.

So, if you have made it all the way through this article and are asking “Why haven’t I seen these videos? They sound awesome.” Well, they are! And you haven’t seen them because you aren’t following us on Twitter or on LinkedIn. We utilize both of the platforms to communicate to you, our members, so please take a moment and follow us. Or if you aren’t into social media, and still want to see the videos, shoot me an email at dawn@ohiowea.org and let me know specifically which ones you want to see and I will send them over.



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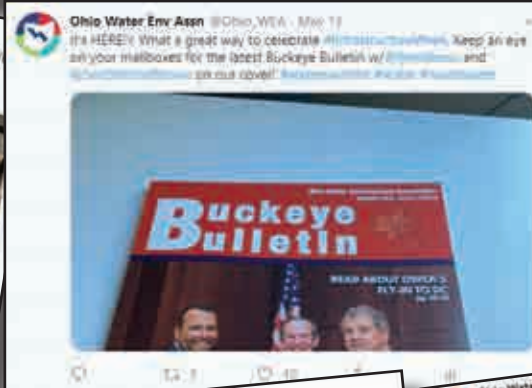
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OWEA Year in Review - 2019





Want to see what happens the rest of 2019 and beyond? Then follow @Ohio_WEA on Twitter!

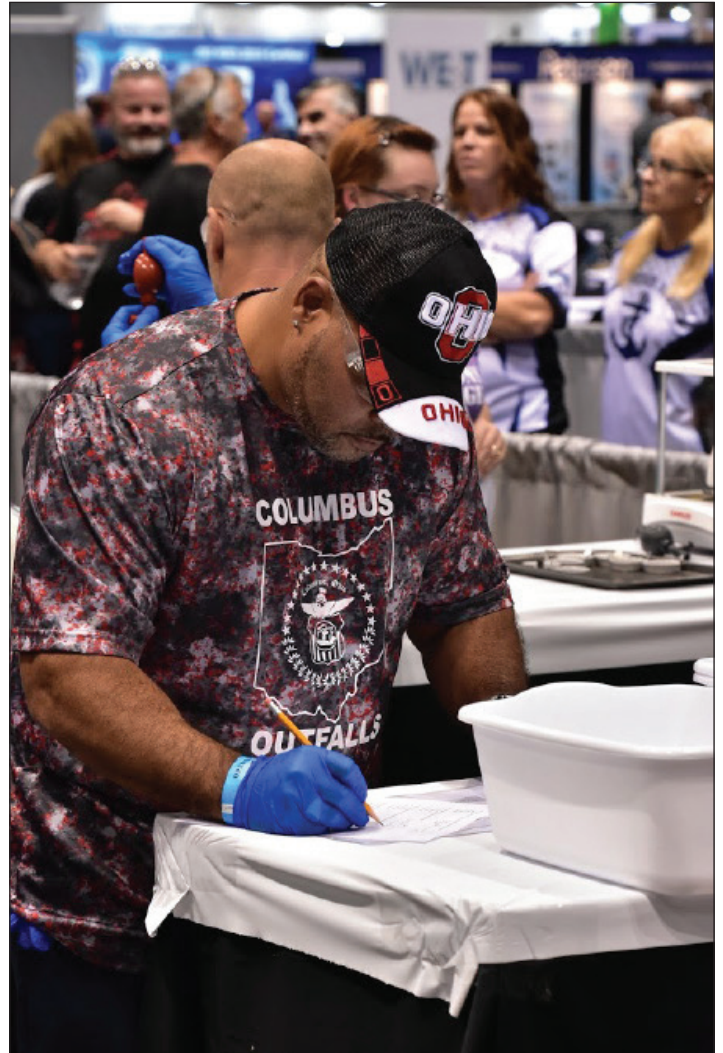
Ohio Ops Challenge Teams Compete at WEFTEC

Photos by Jeff Frederick, Chad Burrell, & Dawn Kennedy

What's part competition, part entertainment and all heart? The WEF Operations Challenge at WEFTEC! This five part competition that draws teams from around the world to WEFTEC is a crowd favorite.

What makes up WEFTEC's Operations Challenge? Operations Challenge, or as it's often called Ops Challenge, is a chance for teams from across the country and around the globe to compete in five events (collection systems, laboratory, process control, maintenance and safety). Each team is sponsored by a WEF Member Association or recognized Operator Association. Winners are determined by a weighted point system for each of the events. The events are designed to test the diverse skills required for the operation and maintenance of wastewater treatment facilities, their collection systems and laboratories.

This year OWEA sent two teams, Columbus Outfalls from the city of Columbus and Dirty Deeds from the Northwestern Water and Sewer District. Both teams proudly represented the Buckeye State by competing among 47 teams made up of some of the best wastewater collection and treatment personnel in the world.





How WEF Helped Shape Me

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

Preamble

I credit former OWEA President Tom Angelo for creating my corner in 2007. This was in response to a crisis of having to publish a Buckeye Bulletin after the departure of staff. The Publications Committee was in need for filler material, and my Southeast Section Delegates report was renamed the Kocarek Korner. The first issue was Issue 4, 2002. Now OWEA is publishing Issue 4, 2019, which is my 49th article.

Besides discovering a knack for storytelling interwoven from historical facts, my overarching message has always been promoting the Ohio Water Environment Association (OWEA) and the Water Environment Federation (WEF). While I have seen ups and downs in my 14 years as a board member, my affection and admiration for our organization and our members has been steadfast.

Personal Growth and Refinement

Until the middle of the last century, an important part of a young person's education included etiquette training in order to teach one to interact with others in a society or the business world. We hear little of this today, which is unfortunate. But, as anyone who works in business knows, learning how to work with others is critical for success.

Discussions on etiquette training in the context of public discourse has been documented in history. One of the best documented instances involved the young George Washington (1732-1799).

A reprint of his book is titled Rules of Civility: The 110 Maxims that Helped Shape and Guide America's First President. This book can be purchased for less than \$20. Many of the rules in the book pertain to talking and meeting with people in groups in public settings. The common theme of the 110 maxims involved treating people with decency and respect: essentially the Golden Rule. Several of my favorite maxims are as follows:

- #4: In the presence of others, sing not to yourself with a humming voice, or drum with your fingers or feet.
- #19: Let your countenance be pleasant, but in serious matters, somewhat grave.
- #24: Do not laugh too loud or too much at any public spectacle.

In the 20th Century many people in business enrolled in Toast Masters or Dale Carnegie courses, based on the writer and lecturer Dale Carnegie (1888-1955).

Our sections do a great job at helping our leaders gain experience in public speaking and working in groups with others to be more confident in the public arena. While our sections and committees provide many benefits, a vastly underappreciated part of OWEA and WEF includes opportunities for our leaders to improve their interpersonal skills and public speaking skills in the presence of friends. These skills in conjunction with management related courses we are beginning to offer, help improve the skills of our members and in particular our young professionals.

Becoming a Public Figure

One of the most daunting aspects of becoming the President of OWEA is becoming something of a public person. Despite being an OWEA governance chair for many years, no one really explained this to me until I was President. While the role of President does not hold the level of responsibility akin to an elected official, there are similarities.

One lesson that I learned was the ability to be more patient, less brash and make a more concerted effort to choose words carefully. We have all become accustomed to the phrase associated with our current US President Donald J. Trump to "walk something back." The few times I was faced with doing that, I was embarrassed. I quickly realized that I needed more refinement in my approach. Happily, in the end, I improved much during my continued service as President and then as a WEF Delegate.

To me, the most influential teachers were interacting with many WEF Presidents through my years as a board member and getting to know some of them on a personal level. In addition to serving as OWEA President in 2010-2011, I also learned a lot in working with my fellow delegates on the WEF House of Delegates. Much like one improves in sports when matched with someone more skilled, the same is true when working with others that may be more refined or skillful at something.

In Closing

As of September 21, 2019, at WEFTEC, my second and last term on the WEF House of Delegates (HOD) came to an end. Your newest delegate is Fred Smith, OWEA's most recent Past President. Fred will do a great job and represent your interests to WEF and back again to OWEA. I have come to know and appreciate what Fred will bring to the HOD. His intellect, passion, wit, business savvy, and easy humor will be a benefit.



In closing, I greatly enjoyed my six years on the WEF HOD and actively sought to maximize my experience to the fullest. On committees and work groups I volunteered often and sought to assertively move the needle for the betterment of WEF and OWEA. I made many friends. I was deeply touched on the receipt of the WEF Service Pin in 2018 for my work on the HOD.

I wish that I could do it all over again! But if I have learned one thing in life: one can never go backwards, only forward. I am now taking on the role of OWEA Secretary Treasurer. I hold the same position as the esteemed Jane Winkler and the late Larry Moon. A new frontier awaits!

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Erik Torgersen, President

Thanksgiving

In the previous issue of the Buckeye Bulletin I expressed thanks to the other executive committee members and all the other committees in the SW Section. These are all run by volunteers. It is important to note though, that our section still has plenty of expenses so it does require money to operate. And this is why we charge a fee for our events. Our fees remain reasonable because we do have the support of many sponsors. These people and businesses help tremendously when they choose to advertise in our publications, provide a food item at our events, register as an exhibitor or sponsor, and provide door prizes. In addition, many organizations cover some of the volunteer expenses and maybe most important of all, allow them the time to participate on their committee. So on behalf of the SWOWEA committee, "Thank you for all your support!"

Awards

Every year SWOWEA and each of the other sections gather nominations that can be submitted to OWEA for the state awards. There is a total of 15 awards given out each year at the state conference. As a section we often re-nominate candidates that scored well in the previous year but did not win. This year we are only looking for candidates for the following seven awards.

- **FD Stewart Award** – Outstanding plant operations, maintenance, reporting, and records management.
- **PWO** – Public Works Operator member performing front-line work in a non-administrative, non-supervisory, non-management position.
- **Public Service** – Elected official or officials demonstrating significant commitment to the water environment; candidates are not required to be OWEA members.
- **Collections** – Management of a collection system demonstrating excellence and professionalism.
- **Engineering Excellence** – The focus of this award is on a project. The selected project must have been in

operation for a period of one (1) year and not more than five (5) years.

- **WD Sheets** – Dedication and excellence as an educator in the areas of operation and design of wastewater facilities.
- **WEF William D Hatfield** – Operators of wastewater treatment plants for outstanding performance and professionalism.

Some background information on the candidate will be needed. The awards committee can help the nominator in assembling the information on the nominee. Please consider nominating someone you know.

Recent Events

On September 19th we had a section meeting hosted by the Logan County Water Pollution Control District. The event included a plant tour of the Indian Lake WWTP, a business meeting and technical sessions at The Lighthouse Building in Russells Point, and a social at the Fion Wine Room in Hunstville. Logan County is at the very edge of our Southwest Section, so we asked the NW and the SE sections to send an invitation to their members as well. We had a smaller turnout for this event than usual with about 70 attendees. A dozen or so members from both the NW and SE sections were in attendance though. SWOWEA thanks the Logan County Water Pollution Control District staff that helped organize the event and provide plant tours.

Upcoming Events

January 23, 2020 – The popular Industrial Waste Seminar will take place at the Manor House in Mason, OH. This event usually has about 5 contact hours available. Please check the OWEA website for additional information.



Kim Riddell-Furry and Dave Wilson address the attendees during the Section Meeting.



Chris Tarr, President

Hello to all OWEA members. This is absolutely my favorite time of year when the leaves begin to change color and the morning air is crisp and cool when I head off to work. In the fall there is of course plenty of college football to watch on Saturdays and at the time of writing this, THE Ohio State University Buckeyes are 6 and 0! Go Bucks!

SEOWEA Friends and Family Night

Since my last section report, SEOWEA held our annual Friends and Family event at a Columbus Crew match versus the Chicago Fire on Saturday, August 31st. We had approximately 70 people attend the event and as part of the ticket package, attendees were treated to a catered meal and a lively atmosphere. The final score of the match was a 1 to 1 tie, which is always better than a loss! A big thanks goes out to Josh Holton (SEOWEA Treasurer) for all of his effort in organizing this event.

SEOWEA Young Professionals

On July 26th the SEOWEA Young Professionals held an event which was a free guided tour of the Anheuser Busch, Columbus Brewing Facility. After the tour, attendees gathered for a mixer at the Endeavor Brewing Company where they were treated to a tour of the brewery as well as a chance to sample a few adult beverages. Approximately 30 people attended this event.

There was another SEOWEA Young Professionals event on October 29th, which was a tour of the Olentangy Environmental Control Center located in Delaware County. Following the tour, there was a happy hour mixer at the Nocterra Brewery. A special thanks goes out to the YP Co-Chairs, Cody Allison and Tucker Randles, for their time and effort in organizing the YP events.

SEOWEA Events

The SEOWEA held an Ethics and Supervisor/Management Workshop hosted by the City of Columbus Sewerage and Drainage on October 23rd. This workshop provided two hours of ethics trainings and three hours of supervisor/manager training. The Southeast Collection Systems Hands-On Workshop was held November 7 and was also hosted by City of Columbus Sewerage and Drainage. Be sure to go to the OWEA website to learn more about any upcoming SEOWEA events.



Fred Smith and family (top) and Melodi Clark and family (bottom) at SEOWEA Friends and Family Night



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Mark Lehnert, President

Greetings to everyone from the Northwest Section.

As summer has drawn to a close and fall is upon us it is time to gear up for those cold winter months. Our last section meeting of the year was held on October 16th at the Bowling Green Wastewater Treatment Plant. Many thanks to Doug Clark, Superintendent and his staff for the tours and hosting the event. Our guest speakers included representatives from the manufacturers who supplied the equipment for the Bowling Green Wastewater Treatment Plant upgrades. It is always informative to hear about the different types of equipment used at other treatment plants.

Our October section meeting offered three and a half contact hours, which included a tour of the Bowling Green WWTP, presentations on their recent system upgrades, and gas monitoring detection equipment.

Annually we hold our "Water for People" pancake breakfast fundraiser at our October event. Many thanks for the volunteers who make the commitment to cook this fine delicacy. The money raised goes to a good cause, supplying much needed money to those who are not as fortunate as us to have available clean water.

The NW Section also held an Operator Education Day on November 1st. The review sessions were organized by Nelson Bear and designed for wastewater and collection system operators or trainees planning to take the certification exams. Three separate sessions: one for the Class I exam, one for the Class II and III exams, and one for the Collection System Class I and II exams. Good luck to all who are taking the tests.

The NW Lab Analysis Committee held a meeting on October 22nd at the Ohio Energy and Advanced Manufacturing Center in Lima. The meeting consisted of Corrective Action for DMR-QA; Determination of Readily Biodegradable COD; and the History of Samplers. A big thank-you to Tony Hintze and Terri Brenner who co-chair the Lab Analyst Committee. Guest speakers were Marcy Bolek, Radek Bolek, and Todd Abbott.

The NW Young Professional group in conjunction with OAWWA YP Group held a meeting on October 24th at the Toledo Zoo. The meeting consisted of a tour of the Toledo Zoo and a Happy Hour Event.

As always, if there is something you would like training on or you have suggestions for future section meetings please let me know.

Mark Lehnert

mlehnert@cityofdefiance.com



"Water for People" pancake breakfast. Photo courtesy of Doug Borkosky.



NESOWEA

Doug Harris, President

Greetings fellow water professionals!

As usual, our Northeast Section has had a busy 3rd quarter including the fall section meeting at the Kenneth W. Hotz Water Reclamation Facility in Medina County and our annual BioMass-ter's golf outing at the Grantwood Golf Club in Solon. Our YP group also held two separate events including a successful beach cleanup at Sims Park Beach in Euclid as well as a tour of the Solon Water Reclamation Facility. The 4th quarter is even busier with numerous training opportunities and our annual Clambake!

Looking into the future, planning for the day-long Operators Seminar is well underway. This event will continue at our usual location at the Days Inn & Suites in Richfield. In February, the Industrial Waste Seminar will be held at a new location at the Hilton Akron/Fairlawn Hotel and Suites. Look for information to come out soon regarding each of these events.

NESOWEA is looking for a stormwater project for the 2020 Student Design Competition. Per WEF requirements, the undergraduate/graduate students interested in competing in the student design competition must use a real-world project as their case study. If you have any recently completed project or any stormwater related topic that students can utilize for their project, please contact Krishna Chelupati at Muralikrishna.Chelupati@stantec.com.

If you would be interested in hosting a section meeting, please let me or any of the Northeast Executive Committee members know. We are always looking for new and exciting sites to visit. Further, if you have interest in becoming more involved in a section committee or being a future member of the NE Executive Committee, let us know. There is substantial personal and professional growth one can gain from being involved in this great organization.

With Thanksgiving being less than a month away, I would like to express my sincere appreciation to all of the volunteers that continue to give to this organization and to those in need. Thank you to the NESOWEA Executive Committee, committee chairs, hosting facility personnel, event and website sponsors, and all other volunteers. And finally, I would like to personally thank the OWEA Executive Committee and staff for their continued guidance and support.

I look forward to seeing you all at a NESOWEA event soon!

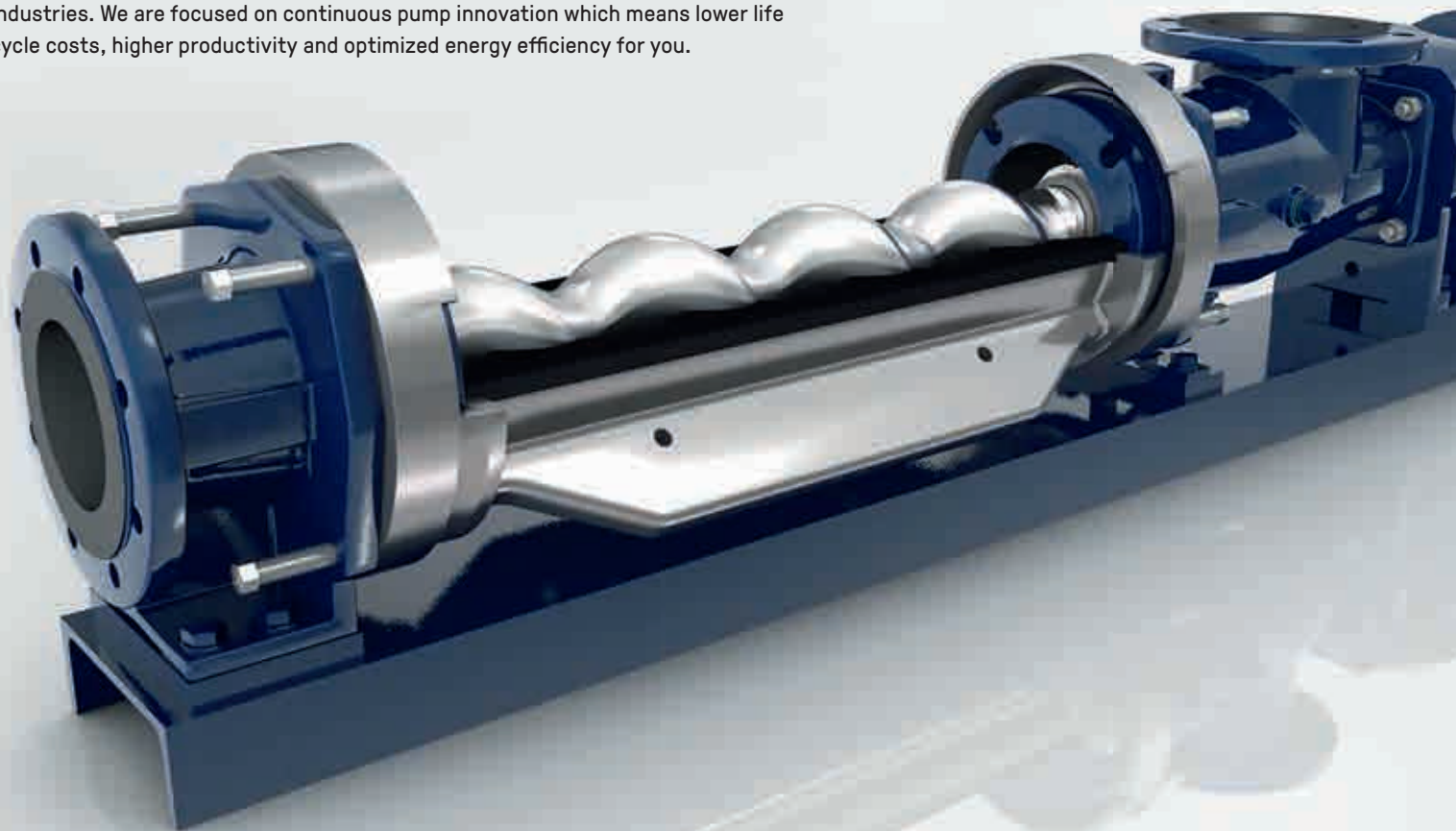


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WEF Delegate Report



Ted Baker



Kathy Richards



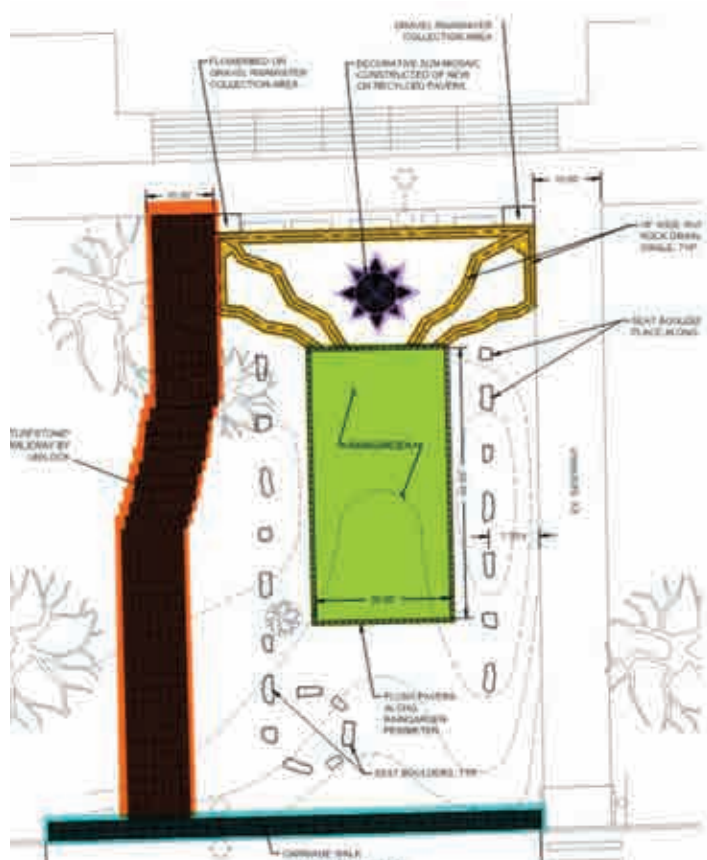
Fred Smith

Much like our Executive Committee here in Ohio transitions from year to year in June, the same can be said at WEF. Here you get the transition of three new BOT (Board of Trustee) members as well as about a third of the HOD (House of Delegates) making a transition from old to new. Because of our membership status in Ohio we have three rotating delegate positions (three year term) so we have one member exiting and one member entering each year.

This year we say goodbye to a six year veteran of the HOD, Dale Kocarek. Over the last six years Dale has represented our state at WEF owith a high level of diligence and dignity and we all thank him for his service to this organization. The remaining members, Ted Baker and Kathy Richards are joined by the newest member, Fred Smith. Fred is Ohio's most recent Past President and is a Senior Project Manager with CDM in Columbus, Ohio.

Each year after our HOD meetings are completed we have the opportunity to interact with the YP service project. This year the El Jardin de Aqua transformed the entryway to the Maria Saucedo Scholastic Academy to a beautiful and welcoming green space. This time is extremely rewarding as it allows WEF leaders to interact with what we all hope will be the future WEF leaders. This project allows WEF members to give back to the community in the host city. This project will not only leave a positive impact on the environment, but will also provide community education on water, the environment and green infrastructure.

As we move forward through this year we will provide updates on the three workgroups that the HOD has. These groups are Public Education, Stormwater/NGICP and Water Utility Workforce of the Future. As a teaser we would ask that each of you search “Brave Blue World trailer” and watch Matt Damon introduce you to a new way of thinking about water and the water issues our world faces. When this movie comes out later this year we will be right in the mix of finding ways to screen and discuss its meaning to all of us.



YP Service Project

Lab Analysis Committee Update

by Melodi Clark and Tony Hintze, Committee Co-Chairs

Greetings from your state lab co-chairs. 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 the day be a hands on training in the lab. The focus in the fall will be for the 1 and 2 licenses and the spring workshop will be for the 3 and 4 licenses. We are always looking for speakers for different events throughout the year so if you are interested please reach out to us so we can use your skills.

SE LAC

Hello from the SE LAC. We have not had any new meetings this year since our YSI meeting. I am hoping to hold at least one more meeting before the end of the year at the City of Columbus Surveillance Lab. I will be looking for topics and speakers so please reach out if you are interested.

NW LAC

Hello from the Northwest Section. This is such a busy time for us. As I write this we are preparing for the Plant Ops/Lab Workshop that is less than a week away!! We are also getting fired up for the NWLAC meeting that is less than a month away!! Terri and I are really looking forward to these great opportunities and hope that you had the chance to attend.

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!

We look forward to seeing you at the next meeting. And of course always remember, working in the lab is just like cooking in your kitchen, just don't lick the spoon!

Join Your Section's Lab Analysis Committee

Certified wastewater analysts are a valuable resource to the industry. Network with and learn from other certified wastewater analysts in your area. Learn how to become certified by contacting the LAC Chair in your section.

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Committee mission statement:

The OWEA Laboratory Analysis Committee (LAC) strives to provide relevant and timely information on laboratory regulation and policy for the collection and analysis of wastewater and surface water samples. We strive to provide training in a relaxed, stress-free manner, to ensure the ability for participants to gain knowledge and skills to benefit them in their professional environment.

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Young Professionals Committee Update

by Lindsey Hassenauer, OWEA YP Committee Chair

It has been a great year for all of the Section YP Committees, hosting ten YP events combined! If you would like to learn more about YP events or get involved in your Section YP Committee, please reach out to your section chair. I am also looking for YPs who are interested in getting involved at the state level to help plan YP events for the state conference and potentially other YP events. Please contact me if you are interested!

Northeast Update

On August 22nd, the northeast YP group had our largest event to date. We had two tour groups tour the City of Solon's WRF. All attendees received one contact hour and were able to see the City's WRF which included the recent headworks upgrade and new 1.7 MG equalization tank, completed in 2018. Afterwards, the group gathered at a local restaurant for networking and appetizers sponsored by NESOWEA.

On September 22nd, our YP group joined Alliance for the Great Lakes Adopt a Beach to support another beach cleanup. Members' families and friends filled buckets and garbage bags with trash at Sims Park in Euclid.

The Northeast Ohio Regional Sewer District hosted our Young Professionals group to tour their Easterly WWTP

on November 7th. 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 facilities ability to treat wet weather flow from a combined sewer service area.

Southwest Update

The SWOWEA YP Committee along with the Watershed Committee hosted a tour of MSDGC's Lick Run Greenway followed by a networking gathering on October 24th. All SWOWEA members are welcome to attend-even if you're not a YP! Contact Pooja Chari at pschari@ftch.com to receive YP updates and events.

Northwest Update

The NWOWEA YP Organization hosted a joint YP event along with OAWWA's YP group on October 24th, 2019 at the Toledo Zoo. The event offered a half hour tour of the water filtration systems and also covered the storm water systems at the zoo. The tour provided 0.5 contact hours for licensed operators. After the tour, everyone was invited to the Relic Room in the Natural History Museum for a happy hour and networking event. There was no cost to attend.



Photos from NE YP Solon Tour





NE YP Solon Tour



NE YP Beach Cleanup

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Collection Systems Hands-On Workshops

by Matt Witter, NW Collections Committee Chair

The Collection Systems Committee held their annual Operator Hands-On Workshop series in each of the four Sections this fall. Information for each Section is as follows:

- Northwest Section was coordinated by Matt Witter on October 17th at the Northwestern Water & Sewer District in Bowling Green
- Northeast Section was coordinated by Don Gallimore on October 31st at the ULAB Lake County Training Facility in Painesville
- Southeast Section was coordinated by Afaf Musa and Grace McInerney on November 7th at the City of Columbus Sewer Maintenance & Operations Center
- Southwest Section was coordinated by Dan Martin on November 21st at the MSDGC Wastewater Collections Facility located in Cincinnati

The Collections System Committee puts these workshops on annually in an attempt to bring operators in the collection system industry together to learn about common issues experienced in the field and to provide up to 4.5 Contact Hours. Attendance has continued to grow through the years as more and more operators realize the benefit of the hands-on workshop format. This year's topics included the following:

Level Measurement – Steve McCuskey from Vega Americas discussed the various technologies available for measuring flow depths in wet wells, chemical tanks and other various holding tanks. Steve also discussed radar level sensing technology for wastewater applications that has been available for over 20 years but has recently become very cost competitive.

GIS for Managing Assets & Monitoring Operations – Laura Schuch from Great Lakes RCAP discussed the importance of communities utilizing GIS systems to track their assets and work orders and provided a hands-on training session for utilizing GIS software to accomplish this goal.

Wipe Out the Wipes Crisis – Tim Miller from JWC Environmental discussed the challenges associated with the Wipes Crisis in the collection system. The discussion focused on taking an active role in the public awareness process that needs to occur to educate the public in the harm caused by flushing non-dispersible wipes down the drain. Tim also discussed various options for handling wipes in the collection system including grinders, screens and grinder/chopper pumps.



Photos from NW Collection Systems Hands-On Workshop

Sewer Nozzle Selection & Sewer Cleaning – Ed Fitzgerald with Doheny Co. discussed the various tools available for cleaning sewers within the collection system. Training was provided to allow operators to understand how each of the tools works and how to select the correct tool for each cleaning situation.

Flow Meter Siting & Data Usage – Rich Skradski with Teledyne ISCO provided information on the various open-channel flow monitoring options that are available in the industry today. The discussion detailed the pros and cons of each type of technology and provided several real world examples of how to select the right technology for various situations that are encountered in the field.

H₂S in Sewers – Dan Porter from Brown & Caldwell discussed how hydrogen sulfide in wastewater can cause a large range of corrosion issues within your collection system. The discussion detailed how hydrogen sulfide attacks your collection system, the “ingredients” required for corrosion to occur, the common places where corrosion occurs within collection systems and various ways in which you can minimize the impact of hydrogen sulfide corrosion within your system.

The OWEA Collection Systems Committee sincerely thanks all of the wonderful presenters and attendees for making this another successful year for the Hands-On workshops and we will see you again next year!



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ROLL CALL

OEPA COMPLIANCE ASSISTANCE UNIT

Ohio EPA's Compliance Assistance Unit which consists of Jon VanDommelen was recently expanded with the addition of Andy Gall housed in the Northwest District Office and Nick Hammer housed in the Southeast District Office. The agency hopes that by adding staff that are based in the district offices, they will be able to more efficiently reach more facilities. If you need assistance with an issue at your plant, don't hesitate to call a member of the Compliance Assistance Unit.

5S INDUCTION

At the last OWEA Annual Conference, four new members were inducted into the Select Society of Sanitary Sludge Shovelers (5S). Kathy Richards from NE Section, Jon Eckel from NW Section, Dave Wilson from SW Section and Joe Tillison as the At-Large member were all inducted at the official ceremony prior to the annual banquet. Mark Poling from WEF was an honorary inductee. Congratulations to all!



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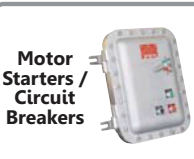
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