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2021-2022

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Disclaimer

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.

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

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

Publication Dates:

Spring, Summer, Fall, and Winter

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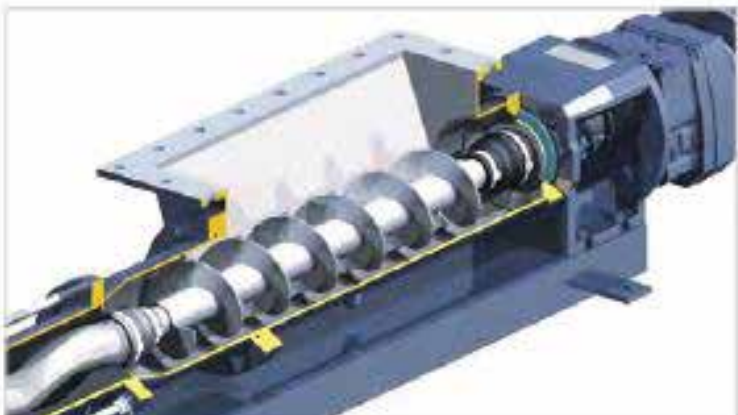
GPM range	Single Stage 0-50 PSI	Dual Stage 90-180 PSI
88	1B12G1L	2B12G1L
158	1B12G1L	2B12G1L
222	1F036G1L	2F036G1L
295	1F050G1L	2F050G1L
370	1Q050G1L	2Q050G1L
435	1Q090G1L	2Q090G1L
565	1H115G1L	2H115G1L
742	1J175G1L	2J175G1L

Dimensions

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
1B12G1L	42	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
1F036G1L	42	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
1F050G1L	42	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
1Q050G1L	42	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
1Q090G1L	42	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
1H115G1L	42	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
1J175G1L	42	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12

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As I type my second (already?!) President's Message, I am staring out my window looking at the beautiful fall landscape in Ohio. By far my favorite season, fall brings to mind the concept of 'change' year after year. Summer wanes, and the biological clocks of nature turn. Various plants, animals, and organisms do what they need to do to survive another shift. It's very much symbolic of what we experience in our lives, constant change. Change is a concept that scares many and excites some (me). I've learned to embrace change as it flies into the windshield of life and smacks us in the face.



Jason Tincu
OWEA President

Throughout the last 18 months, we as a society have been forced to change due to a monumental event. These societal and market shifts are just getting started (in my opinion). Labor, supply chains, economics, raw materials, politics, regulations, and so on...are all very uncertain right now. The water-quality market is not immune to these same market challenges. Finding people to fill jobs, finding contractors to do work, finding money and support to fund projects, delivering

projects on schedule and on budget, finding a way to keep people in jobs, securing proper inventory, chemicals, and parts to run our facilities—all will land on the collective desk of this group soon; if they haven't already! We **MUST** be prepared for this change.

The more accepting we, as an industry, are for the coming changes, the stronger our capability to endure the changes that are staring us in the face. Many of us have done contingency and continuity of operations planning throughout our entire careers. Not to mention, we just learned to operate during a global pandemic. But now is the time to take everything that we have learned and experienced to date and put practices in place to overcome what's at our forefront.

OWEA finds itself in a unique spot in today's predicament, like most organizations. An organization that has primarily met its mission through in-person events, face-to-face conversation, and networking now has to figure out what the market is going to do by testing and delivering a new set of offerings to meet

Upcoming Executive Committee Meetings

January 11, 2022

March 8, 2022

May 10, 2022

July 24, 2022

Jason Tincu is the Director of Sanitary Engineering for Greene County. He holds a Class IV Wastewater License and a Class II Water License. He has held a variety of positions within the water sector on both the municipal and consulting sides. He is a proud member of the Southwest Section of OWEA and is a long serving member of the Government Affairs Committee.

President's Message

the organizational mission. We have approached this complex situation with patience, wisdom, and open eyes/ears. We are happy to say that we bridged the first couple rounds of the fight (2019 and 2020), but we are poised and preparing for the ones yet to come. Look for more information from the Executive Committee and the OWEA office as our model evolves. We are planning a member survey sometime down the road to evaluate what services, products, and delivery methods our membership desires in the evolving 'new world.'

I was able to spend the day at OWEA's offices yesterday and I'm excited to tell you that we are in a great place, staff are doing very well, and all are excited for a busy 2022! We are preparing the 2022 budget now and have a full slate of offerings planned, both in-

person and virtual (and some new stuff in the works). We are also looking for ways to 'tighten the belt' as part of our emergency preparedness without sacrificing member service and industry impact.

Change is the only constant in life. Whether it's personal, professional, or organizational (like OWEA), we must learn the change, embrace the change, accept the change, and act upon the change!

Lastly, I would like to acknowledge and thank all the individual section leadership for riding the COVID wave alongside us! Sections are the lifeblood of our organization; only through their support and collaboration are we able to be successful!

Best regards, Jason Tincu

Welcome New Members

July 2021 - September 2021

Austin Aldrich

Hirak Basu

Robert Beer

Tara Cioffi

Caylee Combs

Matthew Crabtree

Grant Crawford

Matt Culbertson

Travis Esbenshade

Carsyn Hagans

Craig Henry

Bruce Johnson

Erik Johnson

Justin King

Chandler Mancuso

James McCarty

Kim Noll

Michael Siebert

Paul Skerl

Alexandra Slawinski

Corey Smith

Timothy Thoma

Ryan Thomas

Tylor Thompson

Steven Walker

Neal Wedding

Michael Wytrzyaszczewski

Katherine Xu

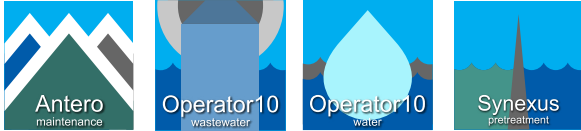
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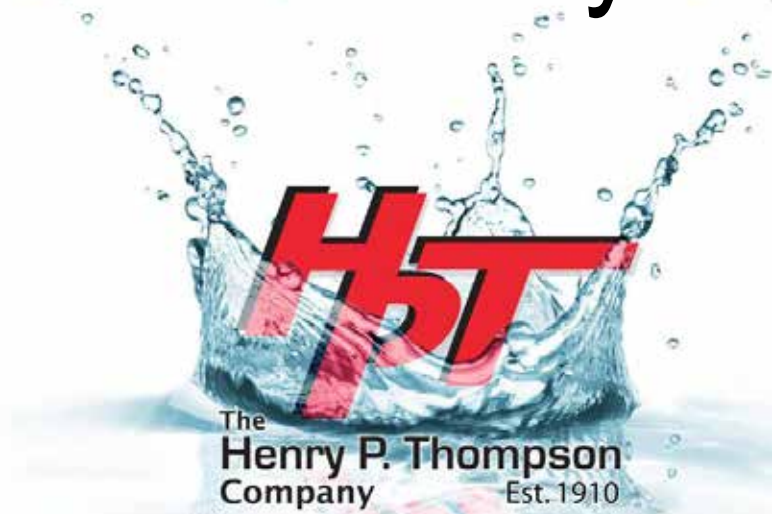


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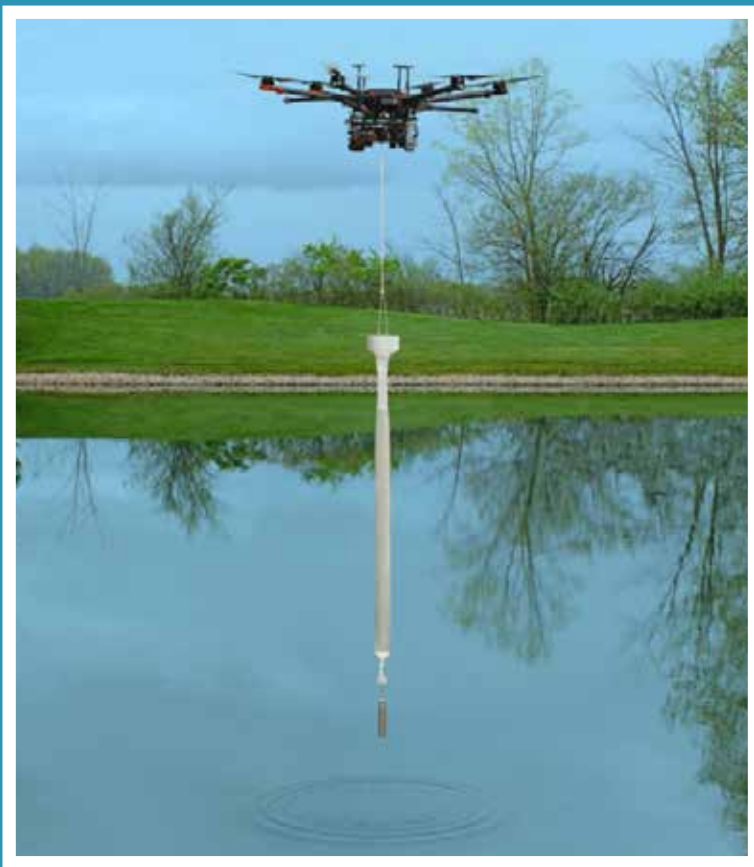


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1/12/2022 10 AM

2/9/2022 3 PM

3/9/2022 10 AM

4/13/2022 3 PM

5/11/2022 10 AM

6/8/2022 3 PM

2021 OWEA Annual Business Meeting Minutes

7/28/2021

Duke Energy Convention Center

President Welke called the meeting to order at 3:33 PM. A quorum was established.

President Welke welcomed the group.

Items for approval were the 2020 annual business meeting minutes. Dawn Larsen, Executive Administrator, shared the minutes that were published in the Fall 2020 issue of the Buckeye Bulletin. The minutes and Treasurer's report were shared with those on the call. Fred Smith made a motion to approve the minutes, with a second by Stuart Bruny. Ted Baker made a motion to approve the Treasurer's report, with a second by Doug Clark. Both motions passed.

Section reports were given. Krishna Chelupati gave the Northeast section report, Jeff Lamson reported for the Northwest Section, Josh Holton represented the Southeast section, and Dave Wilson presented the Southwest section report.

The WEF Delegate report was given by Kathy Richards, Fred Smith, and Elizabeth Wick. This was Kathy's last year as Delegate. Joe Tillison has been appointed by the Executive Committee as the new WEF Delegate.

Raj Bhattarai reported from WEF.

Standing/Ad hoc committee reports--Committee chairs were permitted to give brief updates on their committee's activities.

Items for Voting:

Nominations and elections- Jamie Gellner presented the 2021-2022 slate of nominations as: President - Jason Tincu, President Elect - Brandon Fox, Vice President- Jeff Lamson, and Secretary-Treasurer Dale Kocarek. The motion was made by Dave Wilson to accept the slate as presented. Second by Ted Baker. Motion passed. Mike Welke will serve as Past President. Gary Bauer will serve as the new Northwest Delegate.

President Tincu addressed those in attendance. A motion to adjourn was made by Ted Baker, a second by Fred Smith. Motion carried.

President Tincu adjourned the meeting at 4:29 PM.

Ohio Student Design Team Competes at WEFTEC

OWEA was proud to be represented at the recent WEFTEC 2021 Student Design Competition by three amazing Case Western Reserve (CWR) students. The Ohio all-female team was made up of Abby Slates, Sofie Iwamasa, and Andrea Chakraborty. These students presented “Methane Recovery for Philip Q. Maiorana WWTP” to a challenging group of judges. While the students didn’t win, much was gained in both experience and knowledge.

To earn their trip to Chicago, these CWR students competed against several other NE Ohio Universities and virtually presented their solution to a challenge

faced by an actual WWTP in Ohio. As the winners of the state competition, they then presented in person during a session at One Water. They completed their journey by presenting at WEFTEC 2021 in Chicago.

The Ohio Water Environment Association first launched a Student Design Competition in 2017 modeled after the Water Environment Federation’s (WEF) Student Design Competition held annually at WEFTEC. The purpose of this competition is to promote “real world” design experience for students interested in pursuing an education and/or career in water and environmental science and engineering.



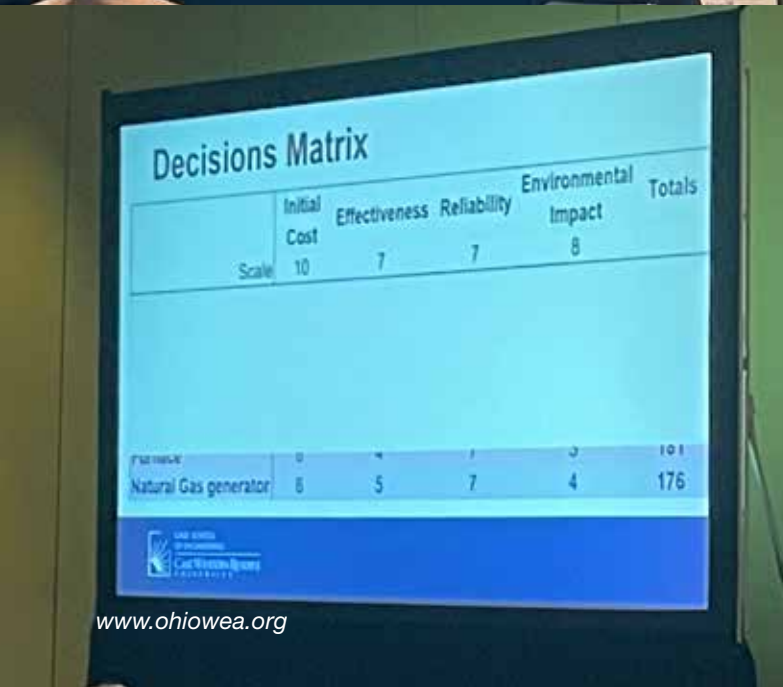
Prior participating schools have included Cleveland State, Youngstown State, Kent State, Baldwin Wallace and the University of Akron.

None of this would be possible without the generous support of Buckeye Pumps, our Student Design Sponsor.

Interested in learning more about the Student Design competition? Contact Krishna Chelupati at muralikrishna.chelupati@stantec.com.



Made possible from the generous support of our Student Design Sponsor



WEFTEC 2021 Was a Success

We're so glad you're here! That was the message that greeted attendees as they entered WEFTEC 2021. Like almost everything in 2021, WEFTEC was different than previous years. It was still a great experience for those able to make it to Chicago.

Attendees at this year's WEFTEC enjoyed amazing sunny weather, which allowed them to explore Chicago.

While masks were required, you could still tell how happy everyone was to see old friends and reconnect with colleagues. Networking was happening everywhere from the show floor to the hallway.

The Ohio Water Environment Association had a special role in the awards ceremony, as Ohio's own Senator Sherrod Brown was the recipient of the Public Official of the Year. While Senator Brown couldn't make it, our WEF Delegate and past OWEA President Elizabeth Wick accepted on his behalf.

WEFTEC 2021 also welcomed WEF's new President, Jamie Eichenberger and he discussed how WEF leadership is working on a new strategic plan to keep WEF and its Member Associations moving forward.

The expo floor was smaller than previous years, but those there were ready to do business and you could feel the energy and see how excited both vendors and attendees were to discuss the latest in products, technology and services.

The many notable elements that WEFTEC is known for all still happened, just modified. There were still plenty of technical sessions, education for Member Associations, a large exhibit floor, Operations Challenge, Student Design Competition, awards ceremonies and even a water leak sniffing dog. Regardless of the challenges of masks or vaccination requirements, we were all just glad to be in Chicago – TOGETHER!





City of Akron Water Reclamation Facility

by Tom Zocolo

Facility Name and Location:

City of Akron Water Reclamation Facility, 2460 Akron Peninsula Road - on the east bank of the Cuyahoga River and just south of Cuyahoga Valley National Park (CVNP).

Plant Description:

110 MGD design, 220 MGD + Peak treatment capacity. Secondary treatment is delivered via conventional and step feed activated sludge. Disinfection is conducted via hypochlorite amendment and bisulfite reaction of chlorine residual.

How many analysts/technicians work in the laboratory?

Three analysts perform all testing duties, and another analyst serves as our laboratory manager. Sampling is conducted primarily by our field crew, which includes three compliance inspectors.

Do you accept samples from outside sources?

On occasion we perform testing for outside entities, but by and large we do not function as a contract laboratory.



What analysis do you perform?

Regular analyses include: Ammonia, BOD, Chlorine, Cyanide, COD, Microscopic examination of sludge, pH, Phosphorus, and Solids. Others such as Hardness, Alkalinity, MBAS surfactants are performed on occasion or as required.

Other duties your laboratory is responsible for?

Our pretreatment program exists as a discrete entity, so our analytical staff works full time on testing and sampling duties. CSO samples are collected and analyzed for several parameters when precipitation events trigger overflows. We train operators in chlorine testing protocol every spring, and we give demonstrations of activated sludge microscopy to interested operators or the occasional tour group. We perform testing of a few residential sewer sites to inform proper billing of the associated communities.

Do you use a contract laboratory?

Yes, primarily Alloway for metals and organics analyses, EnviroScience for WET testing, and Adams water lab for e. coli.

Do you have any permitted industries?

We have approximately 50 permitted industries in our service area. Our compliance inspectors carry out both inspection and sampling duties. Industrial

sampling is our most abundant source of cyanide samples, and we perform all analyses for free & total cyanide in house.

Have you assisted with any pilot studies or uncommon testing?

We have performed extensive testing for pilot studies related to ongoing plant modifications, such as our soon-to-be-online BioCept high flow treatment process. We are also participating in several ongoing coronavirus studies by furnishing samples.

Is there anything else we should know about your Laboratory?

At one time we had 8 full-time analytical staff as well as a full-time field crew. We will soon be moving e. coli testing in house utilizing IDEXX Colilert.



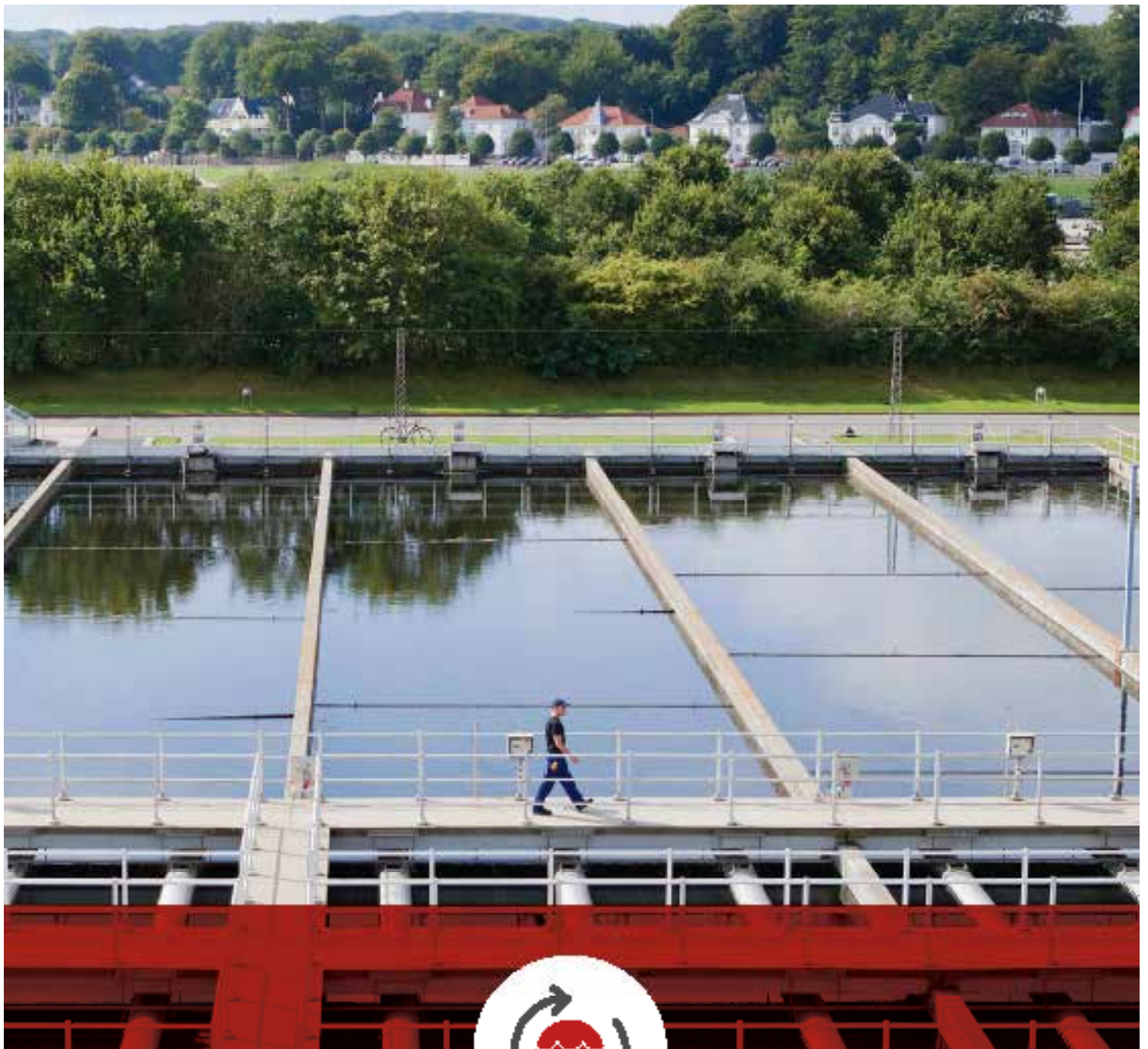
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- Water workers are in relatively short supply. Thousands of professionals are expected to retire in the coming years with not enough young, qualified talent to replace them. In some cases, this "silver tide" of retirements is resulting in staffing vacancies of up to 50%.
- The water sector offers competitive and equitable wages, high employment rates, and lower formal educational barriers. It also provides opportunities to advance and develop marketable, transferable skills that cut across multiple industries, occupations, and disciplines.
- In the U.S. alone, the water sector is projected to have about 220,000 job openings each year until 2026.

Sources: <https://bit.ly/2LFKr14>

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- Only flush the 3Ps. Everything that goes down a pipe or storm drain ends up at your local water resource recovery facility or waterbody. Limit what you flush to (toilet) paper, pee, and poo – and responsibly dispose of, or recycle, the rest.
- Take a tour of your local water resource recovery facility to learn about water careers and the innovative ways water is managed in your community.
- Review your water/wastewater bill, ask about your community's stormwater plan, and stay informed about local, national, and global water issues.
- Invest in your local water infrastructure, become a water advocate, and volunteer for community clean-up and awareness activities.



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Sustainability of Underground Infrastructure

by Paul Fletcher. Project Engineer, Jones & Henry Engineers

Infrastructure refers to assets and facilities required for operation of an organization. For water and wastewater, infrastructure can be divided into above-ground and below-ground assets. This article will focus on below-ground assets; above-ground assets will be covered in a separate article.

Introduction

The industry's underground infrastructure, being below ground and out of sight, has not always had sustainability at its forefront. Water and wastewater systems began as a very primitive practice with no real infrastructure at all. It eventually developed into drainage systems that carried waste out of people's homes, even some that were able to carry it out of their towns, and clay pipe systems that delivered water to them. These both had their faults, whether it was improper disposal of waste or cross-contamination to the drinking water. Both systems have advanced over time to the point where they have delivery and treatment systems, with regulations that allow them to be sustainable today. They have developed so that they continue to operate with little need for repair and impact on their surrounding environment.

Water and wastewater infrastructure has advanced

greatly from originally posing potential health threats to its users to where it no longer is threatening its sustainability through its use alone. This doesn't mean that it doesn't still have challenges though. Areas still encounter potential health threats, the need for expansion, overflows, disruptions to the environment, loss of water, and contamination. Those addressing these issues have found ways to combat these issues with as little disturbance to the systems and those that are using them as possible, and it all begins with a system's design.

Sustainability in Infrastructure

Design

Design is a key factor in ensuring the sustainability of a system. This can be seen in standards set to protect a systems' integrity, like the 10 State Standards. These standards ensure water infrastructure is a safe distance away from sanitary sewers to protect water supplies from contamination; pipe material and backfill materials are an adequate type to prevent potential corrosion and breaks; hydrants are placed within a certain distance of each other so that neighborhoods have access to water in case of emergency and so that Utilities can flush their system should it be necessary for water quality be restored; and

This is part of a series of articles on sustainability in different areas of our industry. It serves as an introduction to the subject and to a Sustainability Committee formed by OWEA.

For more information about the Sustainability Committee, or if you would like to become a member, contact Paul Fletcher at pletcher@jheng.com.



much more. Designs also often take into consideration ways to allow for the system to expand or be maintained without the need for an entirely new system. This includes incorporating valves at changes in direction so that should repairs be necessary, an entire system is not disrupted or have to be replaced. These aspects of design allow for systems to remain operable over time without disruption, whether it is due to damage, system updates or the growth of the area surrounding it.

The sustainability of a system that infrastructure design offers is put into place through projects that make it a reality. These projects can be broken down into three broad categories that allow for water and wastewater infrastructure to be sustainable: installations, improvements, and rehabilitations. Each type of project plays a vital role in ensuring and maintaining the sustainability of a system from the point that it is put in place to its expansions and upgrades to its renewal.

Installation

Installation is the first step in creating a sustainable infrastructure. Installation projects allow for areas and systems to develop without the fear of improper wastewater management and potential health threats. The installation of new wastewater systems reduces the amount of waste that would be improperly disposed of which could discharge into waterways and the amount of septic systems that are being utilized which pose a high risk for groundwater contamination. Installations of water supply systems offer areas a source to clean water supplies without threats of contamination. These installation projects take into consideration standards, including water supply designs, valve locations, pipe sizes and slopes, and pumping capacities. The method in which these projects are installed also consider and ensure the sustainability of our society with the environment through the materials and methods that are used to put them into place. The installation of new systems with design and standards in

Figure 1 - Directional drilling under a road, showing equipment in foreground and pipe on opposite side of the road, which has been directionally drilled, in background.



mind allow for systems to operate safely, effectively and with minimal disruption during installation.

This can be seen in methods of pipe installation like boring and directional drilling (see Figure 1). Methods like these allow for the communities and ecosystems that would normally be disrupted by construction to continue on as normal, including waterways and neighborhoods.

Expansions of systems, pump stations installations or upgrades, EQ basins installations or upgrades, and separations of sanitary and storm sewers are all improvement projects. They allow for a system that is already in place to grow, sustain the flow that it is being sent, and eliminate or reduce the amount of contamination overflowing into our waterways or potentially backing up into homes. This helps eliminate any potential health threats, and significantly reduces the disruptions that would occur with installing a completely new system in an area where one already exists.

Figure 2 - Fatberg causing blockage of sewer.

A place where this continued sustainability can be seen is in improvements projects that take place within the sewer network to reduce the number of CSO and SSO spills. These projects benefit the wider community by reduction in number and volume of overflows, thus not exposing them to untreated wastewater that often contains high levels of suspended solids, pathogens, pollutants, oil, and grease. The City of Toledo implemented the Toledo Waterways Initiative that has spanned almost 2 decades to reduce SSO overflows, and investing in wet weather detention basins at a cost of over \$500 million.

Rehabilitation and Maintenance

The sustainability of these installed and improved systems if compromised can be restored through rehabilitation. Rehabilitation projects bring new life to aging systems that would otherwise need to be replaced. These aging existing systems tend to have cracks, offset joints or compromised structures. These defects would often be remedied through the replacement of the system, but with rehabilitation projects they are able to



be addressed and save the system from abandonment or removal. Non-invasive methods such as sectional liners, cured in place pipe (CIPP) liners, grouting, point repairs, and precast structures enable a system to stay in use, but reduce the presence of the defects. These methods also tend to cause the least amount of disturbance to a surrounding area and allow systems to remain sustainable for future use, by eliminating any sewage from seeping into the surrounding ground to contaminate the soils, groundwater and nearby waterways.

While all of these projects work to establish the sustainability of the systems and how flows travel from point A to point B, routine maintenance of the infrastructures ensures that they continue to do so in an effective manner. This can be achieved through practices that help counteract the loss of water, the compromising of its quality, and the impediment of flow.

Devices like flow meters in water systems assist in the maintenance of the infrastructure by identifying key areas that need addressing when it comes to water loss. They can identify areas that may be experiencing leaks so that necessary repairs can be made to eliminate water loss. Innovative ideas are being used for water loss; a repair system that allows minor leaks in pipelines to be plugged with a polymer-based material is being used in the UK. The system, Aquapea, is NSF/ANSI certified.

While meters allow for areas of concern to be pinpointed and repaired, there are remaining portions of outdated water systems that threaten the infrastructure systems, and also need to be addressed in the maintenance of a system. These outdated systems can contain pipes that are made out of materials like lead and cast iron that compromise the quality of the water and the system; the water industry is focusing on eliminating these portions through projects that replace lead services and pipes where they still exist and using CCTV surveys to uncover deteriorated sections of pipe. These replacement projects not only ensure the

safety of its users in the future, but ensures the sustainability of the current system by removing materials that over time could render it useless.

While maintenance is crucial for the sustainability of both water and wastewater systems, wastewater systems tend to require additional maintenance and cleaning. One example is blockage by fatbergs. Fatbergs are caused by fat, oil and grease being washed down sinks and combining with wipes flushed down the toilet. One of the biggest fatbergs ever seen was cleared from a pipe beneath government buildings in London, England (Figure 2). Among the waste blocking the 72-inch sewer were food waste, sanitary products, condoms, nail varnish pots, wet wipes and pieces of wood. A large fatberg was also discovered in Clinton Township in 2018 in an 11-foot diameter sewer. It was about 100 feet long and as much as 6 feet tall. Various municipalities are requesting wipes be disposed of with the trash. A new fiber sensing technology placed along the sewer can translate data collected and warn of such as 'blockage formation,' resulting in corrective action.

Conclusion

Water and wastewater infrastructure today both have sustainability at their core whether it is in their standards, projects or maintenance. Many of these projects are now even utilizing environmentally friendly products and practices such as resins that are self-enclosed, resins that are not harmful to ground water, concrete that does not release carbon dioxide during curing, nontoxic pipe materials, and corrosion resistant materials. This industry's infrastructure has come a long way from its primal techniques, and continues to advance to be even more sustainable with the help of environmentally friendly and long-lasting products and practices.

We would like to acknowledge the contribution of Ted Bennett, PE. Jones & Henry Engineers, 3103 Executive Parkway Suite 300, Toledo, Ohio 43606.



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ELIZABETH WICK, P.E.

EnviroScience, Inc. welcomes Elizabeth Wick, P.E., to our team as a Senior Engineer and NPDES Permitting Specialist. EnviroScience has provided ecological and engineering services since 1989, supporting the environmental design

and regulatory requirements of the government, transportation, industrial, and private sectors. Recently, EnviroScience has expanded our Compliance Services Department, and we are excited to have Elizabeth join us! She brings extensive experience with environmental permitting, regulations, and management to EnviroScience, where she will assist a wide range of clients in meeting their permit requirements. Elizabeth truly cares about her clients' needs and strives to simplify the often complicated engineering processes to provide them with an understandable product.

During her 33-year tenure at the Ohio EPA Northwest

District Office (NWDO), Division of Surface Water, Elizabeth helped facilities attain and maintain permit compliance, serving as manager at the district for the past nine years. Elizabeth was responsible for numerous programs, including implementing the Pretreatment Program in the NWDO, where she performed inspections and reviewed engineering drawings and permit applications for industrial and municipal wastewater treatment systems. In addition to a B.S. in Chemical Engineering from the University of Toledo, Elizabeth holds a Class III Wastewater Operator license in Ohio. She has been an active member of the Ohio Water Environment Association since 1988. She currently serves as a Water Environment Federation (WEF) delegate for OWEA and served as the Northwest Section president from 2000–2001 and state president from 2015–2016.

Elizabeth resides in Bowling Green with her husband, Dave. She enjoys spending time outdoors with her adult children and grandchildren and creating quilts in her spare time.

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In Memory of Richard D. Roberts

by James Greener, P.E.

On August 24, 2021, I attended the Funeral of Dick Roberts. He had been one of the NESOWEA Leaders who took me under their wings when I returned from 10 years in Columbus in the 1980s. He reminded me that although I was well known at OWEA, I would have to start at the bottom in the NE Section. Great advice.

Mr. Roberts was hired in 1962, from HS, into the Solon Pollution Control Dept. as a laborer. In 3 and 5 years respectively he obtained Ohio Class 3 and 4 WW License certifications and was promoted to Superintendent of the Pollution Control Department. During his 30 years with the City of Solon, the Dept. grew from 2 to 24 full time employees.

Dick was active in NES OWEA (completed officer cycle) and National WEF (Personnel Advancement Comm.) He also served on the Ohio Chapter Board of Directors of A.P.W.A. He was an Operator in Training Instructor for OTCO. He also set a volunteer commitment example for a

number of later OWEA members that worked for the City of Solon (Paul Solanics, Jim Stanek, etc.)

He retired from the Reclamation Dept. in 1993, and became a City Auxiliary Policeman. He served in other law enforcement capacities in the area until 2010.

In his casket he was dressed casually. But his 5S shovel shined brightly. Don't ever underestimate the value of the shovel.

During the eulogy, I learned that his family was his top priority. His wife Noreen and four children were pleased to greet NE Section friends. It was also noted that he had the biggest shoulders for problems in the City.

Dick's life outside family was Public Service. He had a pleasant all inclusive personality that made you feel you were an integral part of an important team. He served well and will be missed as well as remembered.

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Consolidation of Ohio EPA's NPDES Permit Fees Began July 2021



by Walter Ariss, Ohio EPA

Consolidation of Ohio EPA's NPDES Permit Fees Began July 2021

Historically Ohio EPA has required an application fee be paid at the time of National Pollutant Discharge Elimination System (NPDES) application submission, and a separate issuance fee paid at the time the NPDES permit is issued. Paying both fees has been confusing to some applicants, and has been an extra administration burden for both the applicant and Ohio EPA.

Because this can be confusing and burdensome, Ohio Revised Code 3745.11(L) & (S) has been changed to consolidate the NPDES application fee and NPDES issuance fee into one fee that would be paid at the time of permit application. Beginning in July 2021 all new or renewal NPDES permit applications started using this simplified fee structure.

The statute change has only consolidated these two fees into one, and there has been no increase in the total fee for an NPDES permit.

The application fee for the issuance of an initial, renewal or modification of an individual NPDES permit authorizing a discharge is \$200. In addition to the \$200 application fee, a person issued an individual NPDES permit or a renewal of an individual NPDES permit pursuant to Chapter 6111 of the Ohio Revised Code shall pay a fee based on each point source according to the following schedule:

Design Flow per Discharge

Gallons Per Day	Fee
Less than 1,000	\$0
1,001 to 5,000	\$100
5,001 to 50,000	\$200
50,001 to 100,000	\$300
100,001 to 300,000	\$525
More than 300,000	\$750

The fee for an individual NPDES permit for a coal mining generator regulated under Chapter 1513 of the Ohio Revised Code shall be \$450 per mine. The issuance fee for an individual municipal storm water NPDES permit shall not exceed a total of \$950.

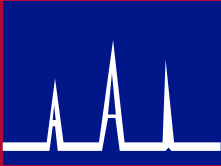
For instance, a municipal WWTP that has one effluent outfall pipe with a design flow of 200,000 GPD would be required to pay at the time of NPDES renewal application; a \$200 NPDES application fee and an additional \$525 permit issuance fee, for a total fee due of \$725 dollars.

Individual NPDES permit modifications also require an issuance fee that is half of the fee for a permit renewal.



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A Local Treasure Transformed

The comeback of the Little Miami River and the role that Greene County Sanitary Engineering Department (GCSED) played in its recovery

by Jason Tincu, Director, Greene County Sanitary Engineering

The Little Miami River (LMR) has transferred trillions and trillions of gallons of water from the Southwest Ohio region to the Ohio River and ultimately the Gulf of Mexico via the Mississippi since the beginning of recorded time. It has seen this region move from exclusive Native American natural uses to the pioneer days, then the industrial booms and now into a mixed-use form that we see today. Over this time, its regulation and oversight have also evolved from a pristine state

before development to a highly-threatened state during the industrial age before the Clean Water Act and institution of the Environmental Protection Agency to today's highly-coveted and protected natural treasure that it is!

"A river is more than an amenity, it is a treasure. It offers a necessity of life that must be rationed among those who have power over it." - Oliver Wendell Holmes



The LMR Drains approximately 1,757 square miles across Clark, Montgomery, Madison, Greene, Warren, Butler, Clinton, Clermont, Brown, and Highland counties. Each day, the LMR discharges around 800 million gallons per day from this area to the Ohio River. After severe wet weather events, this rate can swell to over tens of billion gallons per day. The LMR's headwaters are located in South Charleston, Clark County, and the discharge is at the Ohio River located in California, a Cincinnati suburb. There is a 705-foot decrease in elevation from these headwaters to the mouth, which moves the flow along.

In the late 1960s, the LMR was targeted as a local treasure and garnered the attention of many area environmental stakeholders, including Glenn Thompson, Arthur Morgan, Corwin Fred, and many others. Later this culminated in the formation of Little Miami Incorporated (now the Little Miami Conservancy), an organization dedicated to the preservation of the LMR. In 1968, The LMR was named as Ohio's first National Wild and Scenic River, and the following year became the state's first Scenic River.

The LMR is host to at least 87 species of fish and many variations of snakes, turtles, birds, frogs, mammals, and invertebrates. It also boasts some of Ohio's most scenic trails and parks adjacent to its banks, including the Little Miami Scenic Trail that runs 78 miles across 5 counties. The LMR is also home to some of the best canoeing and fishing opportunities within this region.

In 1998, the Upper LMR was placed on Ohio's 303(d) list of impaired waterbodies due to nutrient enrichment, low instream dissolved oxygen, excessive sedimentation, and habitat degradation. If allowed to exist across time, these conditions can greatly affect the health of the stream and the inhabitants that call this environment home. As a result of this designation, the Ohio EPA developed a TMDL or Total Maximum Daily Load report. TMDLs carefully study a waterbody, including all its contributions and sources, to determine what needs to be done to get it back into shape.

In 2002, the Upper LMR TMDL was published, causing

various agencies and stakeholders to take action. A series of corrective measures were implemented as a result of the TMDL, including better stormwater and septic system management, improvements in agriculture and riparian corridors, increased public education, and most notably point source (wastewater treatment plant) improvements.

Nutrient discharges (mainly Phosphorus in this region) from point sources tend to fuel algae growth (and eventual decomposition), strip dissolved oxygen from the water, and starves out oxygen from the fish and bugs especially during lower, summer flows. Conventional wastewater treatment processes do not include nutrient removal unless a receiving stream, like the LMR, warrants. As a result of the TMDL, the major wastewater treatment plants (WWTPs) in the Upper LMR basin, including GCSED's Beavercreek, Cedarville, and Sugarcreek facilities, were required to install nutrient controls ahead of effluent discharge. These improvements required significant investments at the WWTPs for engineering, construction, implementation, and annual operations / maintenance demands. In addition to the point source controls, GCSED participated in a number of habitat and restoration projects aimed at reducing the amount of runoff from local waterways. These improvements were and continue to be funded by GCSED's sewer rates.

Since the 2002 TMDL report, agencies and stakeholders have continued to support the ongoing efforts towards improving and stabilizing the condition of the LMR. The Ohio EPA published a report in 2014 about the LMR stating, "These reductions, owing in large part to phosphorus removal at six of the major WWTPs in the watershed, have aided in the full attainment of biological criteria at 53.23 miles of the upper Little Miami River mainstem. Only 19.89 miles were in full attainment in 1998." The Ohio EPA sampled the Upper LMR again in 2020, but those results have yet to be published.

"The Little Miami River contains some of Ohio's most scenic and diverse habitat and is a popular recreational resource. Since the 1990s, Ohio EPA

Watershed

staff has conducted surveys of the river and its tributaries,” said Bonnie Buthker, Chief of Ohio EPA Southwest District Office. “We are fortunate that a diverse group of local stakeholders, representing urban and agricultural interests, are working together to protect this resource and address issues needing improvements. Ohio EPA collected new data from the Little Miami in 2020, which we are evaluating and anticipate will reflect water quality improvements that have resulted from the communities’ efforts.”

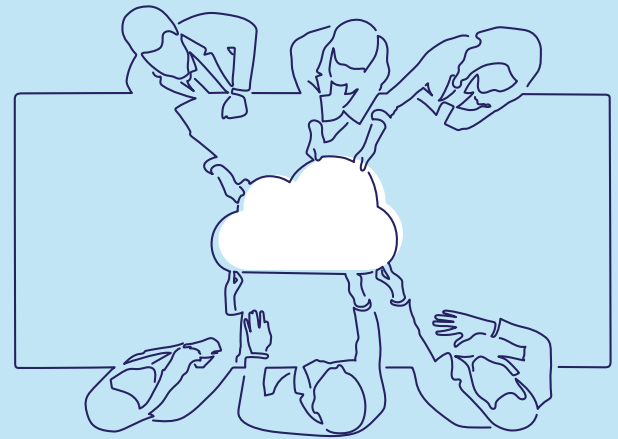
Needless to say, it is an honor and a privilege to play a role in the continued transformation of the LMR. We are excited to see the results of the 2020 data, and we will continue to work with local stakeholders and the Ohio EPA to improve the LMR and maintain this local treasure for generations to come!



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LET'S BUILD SOMETHING DIFFERENT



Village of Galena, OH completes Award-winning Design-Build WWTP

by Thomas Marshall, Ph.D., P.E.

The Village of Galena, Ohio has recently commissioned a new state-of-the-art WWTP which discharges into Big Walnut Creek at the head of Hoover Reservoir on the Northeast side of Columbus, Ohio. The upscale community was in need of a new treatment plant as the existing 75,000 gallon per day facility was past its useful life and additional capacity was needed to accommodate growth in the region.

The Village chose a Design-Build alternative delivery approach to the design and construction of the facility with Thomas Marshall Ph.D., P.E. serving as the Criteria Engineer and Construction Manager for

the project and Workman Industrial Services serving as the Design-Builder. The \$5M project included constructing a new 250,000 gallon per day fully automated facility ready to expand to 0.5 MGD with fine screening at the head of the plant followed by Zeeweed membrane treatment and UV disinfection. The effluent typically measures zero BOD and zero suspended solids.

According to Village Administrator, Jeff White, special attention was given during the conceptual phase of the project, to make the plant fit the community's historic character. Rather than looking



Plant Profile



like a utilitarian industrial facility, as most public works plants do, Galena's resembles an historic waterpowered grist mill, such as what might have existed along Big Walnut Creek when Galena was settled in the 1800s."

The new facility features an authentic rustic water wheel that turns as treated effluent is flowing out of the plant. While historic mills often had an overshot water wheel to harness the power of water flowing through streams, this water wheel provides oxygenation to the treated effluent before its discharge into Big Walnut Creek.

The Galena WWTP recently received the "Facility Image Award" from the SEOWEA. While the image of the WWTP is indeed noteworthy, the state-of-the-art treatment process and equipment inside the plant produce the highest quality effluent of any plant in the state. In addition, the membrane bioreactor technology used here, enables this plant to fit on a small footprint rather than the large land area required by traditional wastewater plants. Galena's plant was constructed in record time and under-budget using the design-build project delivery method, and was designed to accommodate anticipated population growth in the area. The plant is located at 188 Harrison Street, adjacent to Ruffner Park.

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Translating Wastewater Surveillance Data

How to ensure your wastewater-based epidemiology program provides insights that can influence public health decisions

by Rasha Maal-Bared, Mark Sobsey, Naoko Munakata, Kari Brisolaro, Lee Gary Jr., Jay Swift, Samendra Sherchan, Scott Schaefer, Albert Rubin, Charles Gerba, Kyle Bibby, Robert Bastian, Lola Olabode, Akin Babatola, Robert S. Reimers, Leonard Casson

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Wastewater contains a tremendous number of resources, such as water, energy, and nutrients. The coronavirus pandemic has helped highlight one more, often-overlooked resource flowing through our sewers: information.

Faced with the need for non-invasive and scalable tools to supplement individual clinical testing and contact tracing efforts, public health officials and wastewater experts have begun turning to wastewater-based epidemiology (WBE), which is also known as wastewater surveillance. This practice can monitor substances of concern in communities by detecting and quantifying their concentrations in community wastewater.

Making the most of this potentially powerful tool requires three core tasks. First, it is essential to understand what WBE is, how it works, and its limitations. Second, the WBE team must include the right people to collect, analyze, and use the data. This includes adding a new role to the process to translate knowledge from wastewater analysis to public health decisions. And, finally, all sample collection and analysis activities need to be standardized to ensure the resulting decisions are based on comparable data.

These elements can help create a successful WBE campaign that uses information extracted from wastewater to aid and improve public health actions.

What is Wastewater-Based Epidemiology?

Monitoring wastewater through the regular collection and analysis of wastewater samples for pathogens and chemicals has been used for decades to support public health decisions around the globe. In the 1940s, environmental virologists at Yale University used WBE by culturing cell assays to monitor for the presence of poliovirus in communities. This approach enabled public health professionals to detect when a polio outbreak was about to occur, as well as estimate the level of infection in the community. Later, when polio vaccine became available in the 1950s and 1960s, WBE also aided evidence-based decisions about initiation and targeting of polio vaccination campaigns in communities where the virus was detected in wastewater. In 2013, WBE was able to prevent a polio outbreak in Israel, which had been polio free since 1988.

More recently, the approach has been expanded to include norovirus, hepatitis A virus, antibiotic-resistant bacteria, and the rubeola virus (which causes the measles) in countries such as Australia and the Netherlands. In 2009, WBE was implemented to trace the use of antiviral drug, oseltamivir, during the 2009 influenza pandemic in Japan. WBE also was successfully used globally for the surveillance of opioid and illicit drug use by the European Monitoring Centre for Drugs & Drug Addiction (EMCDDA) and Statistics Canada. The approach relies on the assumption that any substance that is excreted

by humans and is stable in wastewater can be used to back-calculate the original concentration excreted by the serviced population, provided that excretion (or shedding), substance fate and transport and wastewater flow patterns are well understood.

How WBE Works with COVID

For the virus that causes COVID-19, RNA is shed from symptomatic and asymptomatic COVID-19 cases in saliva, sputum, urine and feces. These multiple shedding routes and evidence from other coronaviruses suggested early on that the likelihood of COVID-19 virus RNA detection in wastewater and collection systems is high.

This high reliability indicates that WBE can help overcome challenges faced by traditional public health tools. Scaling the conventional testing systems for mass surveillance of populations proved challenging in 2020 due to high cost of repeatedly testing large portions of the population, limitations in human, clinical and testing resources, insufficient sensitivity and inadequate throughput. In addition, research has shown that 20% to 45% of infected individuals exhibit delayed onset of symptoms or do not show symptoms at all. Even if the infection is symptomatic, the U.S. Centers for Disease Control and Prevention (CDC) reported that only 1 in 7 COVID-19 symptomatic illnesses in the U.S. were reported between February and September of 2020. Finally, contact tracing has proven to be challenging due to training requirements for staffing call centers and the lack of consistency across states and regions.

The first successful report of COVID-19 monitoring by WBE came from the KWR Institute in the Netherlands. This was a proof-of-concept study to determine if current molecular biology tools are sensitive enough to detect the RNA of COVID-19 virus in untreated wastewater at the water resource recovery facility (WRRF). Since then, COVID-19 virus RNA has been found in untreated wastewater and untreated sludge worldwide. These findings have shown some correlation with number of infections in the community. In some cases, such as

Italy and Brazil, retrospective analyses of wastewater confirmed the presence of the virus in wastewater before community transmission had been identified.

Many studies successfully reported the use of qualitative approaches that report the presence or absence of virus RNA in wastewater. Other work takes on a more semi-quantitative approach based on concentrations of the virus or its nucleic acid to reveal trends of infection in the population, but mainly within individual communities.

Using the Information

While, to date, many wastewater samples have been collected and analyzed for COVID-19 RNA, the results have seldom been used to inform public health actions. Three main factors are hindering using this data:

- Public health authorities primarily deal with testing results, hospital infection and treatment data, and health outcomes; newly produced WBE data does not readily fit into their current data collection structures, risk evaluation systems, and decision-making frameworks.
- Many knowledge gaps remain when it comes to SARS-CoV-2 shedding in feces and decay in the sewer shed making interpretation of results challenging.
- Not all molecular laboratories (*i.e.*, data producers) have the expertise, public health knowledge and authority to efficiently and correctly convert viral RNA concentrations to actionable results and trends to support public health response efforts.

Assembling the Right People

Many organizations have suggested that successful WBE-based public health decision making requires cooperation between three main multi-disciplinary groups of collaborators with different expertise, perspectives and priorities: the sample provider, the data producer, and the knowledge users (see Figure 1,

WEF Headquarters

p. 50). The Water Research Foundation (WRF; Denver) acknowledged this interdependence in its Spring 2020 report, *Wastewater Surveillance of the COVID-19 Genetic Signal in Sewersheds*, that emerged from the Virtual International Water Research Summit on COVID-19.

WBE samples are collected from WRRFs or the collection systems by public or private utilities that fill the role of sample provider. Collecting a representative sample in a standardized manner and properly storing and transporting it prior to analysis is the first step of WBE.

These samples need to be analyzed by data producers, who process, concentrate, extract, and run the polymerase

Figure 1. Building a Successful Wastewater Surveillance Campaign

chain reaction (PCR) to provide analytical results for COVID-19 nucleic acid (specifically virus RNA) presence and concentrations in the samples. The data producers often act as the project leaders by monitoring progress, addressing challenges, and managing communication activities among team members given that health authorities and utilities have other priorities and responsibilities. Data producers include laboratory personnel or research teams with expertise in molecular biology and microbiology of wastewater and can be located at the utility, an academic institution or a private sector entity.

To be used to support public health decisions, these data now must be converted from PCR-based measurements (such as, copies per unit volume) to sample concentration estimates and adjusted for testing reliability and efficacy and wastewater-related factors by consideration of known hydrodynamic conditions and population size, which may change from sample to sample within a wastewater system. Theoretically, this provides sample COVID-19 virus RNA concentration estimates from repeated analysis over time.

However, this knowledge translator role often remains unfilled. This gap — arguably the most important role for making WBE data useful in public health decisions — is where raw wastewater RNA results are translated to information actionable by public health authorities.

Closing this gap is key to enabling the use of WBE data to support public health actions since many public health agencies engaged in COVID-19 response are overwhelmed in identifying, tracking, and reporting COVID-19 cases and, more recently, in rolling out COVID-19 vaccination campaigns.

Armed with information created by the knowledge translators, public health authorities and decision makers — who become the knowledge users — can make public health and infection control decisions about containment efforts and mitigation responses.

BUILDING A SUCCESSFUL WASTEWATER SURVEILLANCE CAMPAIGN

TEAM MEMBERS



THE ELEMENTS



Table 1 Collaborator Contributions to Support WBE Efforts

All these collaborators must work together closely and transparently with defined responsibilities and obligations to the team. These roles need to be articulated at the beginning of the WBE campaign. Table 1 outlines the contributions of each collaborator group.

Elements of a Successful WBE Campaign

Figure 2 (p. 52) outlines the four critical elements of a successful WBE program: Sampling design, method validation, knowledge translation, and communication plan. Each element also contains several factors that should be considered when creating or participating in a WBE program.

Sampling Design

The importance of collecting a representative sample with a comprehensive and informative set of associated data cannot be overemphasized. Many WRRFs support on-site laboratories for regulatory testing (e.g., fecal indicator bacteria), but molecular biology and associated testing techniques are not common in these laboratories.

Having a detailed but understandable sampling plan and standard operating procedure (SOP) describing when, where, what, and how to sample wastewater for the virus that causes COVID-19 is needed. This SOP should standardize sampling collection and handling practices that allow utilities to participate by planning around other responsibilities. These plans and their implementation are essential, especially given reductions in staffing during COVID-19, to allow utilities to provide uninterrupted core services to their communities.

SOPs facilitate sampling by ensuring the sample collector knows what is required of them, what the procedures entail, and which site-specific safety precautions to use. The SOP should be accompanied by a sample submission form to encourage consistent documentation of relevant information and critical parameters, such as wastewater flow rate. Ensuring this consistency enables the knowledge translators to convert from detected RNA concentrations to trends in

Needed Element for WBE Support	Contributor			
	Sample provider	Data Producer	Knowledge translator or interpreter	Knowledge user
Develop a detailed sampling plan to assess temporal and spatial variations	X	X		
Develop a standard operating procedure (SOP) and sample submission form	X	X		
Develop a site-specific job safety assessment	X			
Develop a sample storage, handling and shipping plan	X	X		
Document hydrological changes in the sewershed	X	X	X	
Document retention and conditions in the collection system	X	X	X	
Document changes in process and influent quality	X	X	X	
Document hauled wastes added to the system	X	X	X	
Document collection system geometry	X	X	X	
Document population size and water use data	X	X	X	
Perform a thorough method validation		X		
Conduct ongoing QA/QC		X		
Determine method sensitivity and incorporating recoveries in RNA concentration calculations		X		
Normalize virus RNA concentration per mL		X	X	
Estimate viral decay rates and sorption to solids	X	X	X	
Convert data into actionable results for public health authorities			X	
Collect clinical data from positive cases			X	X
Collect clinical data related to shedding of RNA per person			X	X
Determine under what conditions WBE data follow infection trends			X	
Develop a communication plan for data and results (content, frequency, platform, duration)	X	X	X	X
Communicate that RNA concentrations do not correlate with infectivity	X	X	X	X
Communicate what WBE results can and cannot tell us	X	X	X	X
Determine and implement public health interventions				X

community COVID-19 infection burdens.

SOPs should include the following topics:

Sampling points. The sampling plan should outline sampling locations, frequency, sample volume, and duration (schedule over time). Utilities already collect samples from various points in their processes using different sampling locations. These locations often already are indexed in a utility's Laboratory Information Management System (LIMS).

If usual sampling points are not suitable for WBE sample collection, data producers need to work with the

utility to identify the best sampling locations that are also safe for sample collectors.

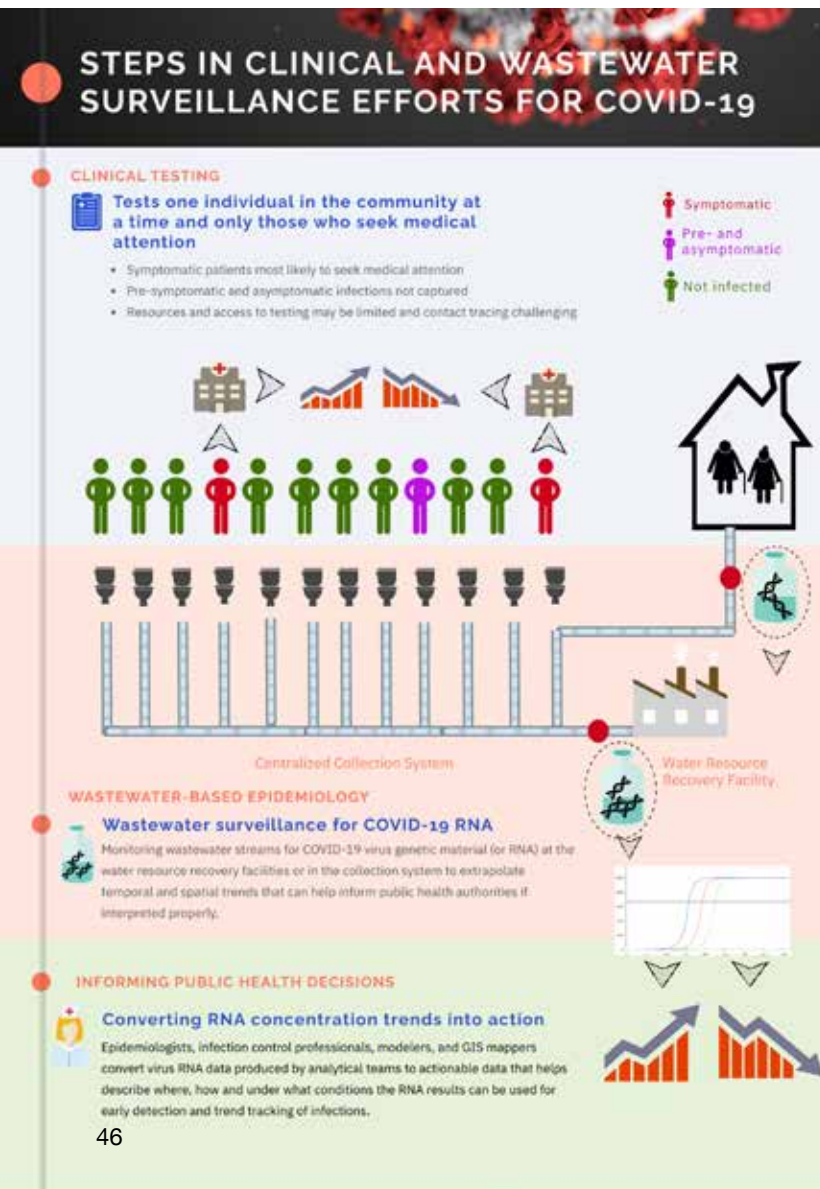
CDC states that samples should be collected at representative locations that preferably precede addition of chemicals or mixing of different waste streams at the WRRF that may obscure or prevent the location of the contributing population. The WRF Report mentioned earlier suggests collecting samples after the headworks, but utilities should be cautioned against sampling treated primary effluent as this would lead to an underestimation of virus RNA concentrations, because the virus sorbs to solids that are removed in primary treatment.

Depending on the WRRF, representative and well-informed sampling may not always be possible. In addition, if a WBE campaign is trying to identify hotspots in the collection system (*i.e.*, monitoring sentinel sites), sampling must occur in the collection system instead and similar considerations must be made. While privacy issues are not a concern with COVID-19 WBE given the anonymity of members of the population served, future WBE efforts may focus on illicit drug use and other controversial contaminants. Studying more contentious contaminants in collection systems or smaller WRRFs may have privacy risks that should be considered.

Sample types and containers. While data producers have reported the detection of COVID-19 virus RNA in both wastewater and solids samples for WBE assessments, major WBE initiatives are focused on method development and analysis for untreated wastewater. This is due to many reasons including the lack of simple, reliable, reproducible, and widely used methods for virus analysis in untreated sludge or biosolids, the presence of inhibiting chemicals that interfere with detection in sludge, difficulty in normalizing the data for interpretation, and the high variability in results.

If solids samples are preferred, data producers can describe desirable sample qualities to the utility partner

Figure 2. Steps in Clinical and Wastewater Surveillance Efforts for COVID-19



to obtain some guidance on the best sampling locations, methods, and data needed for results interpretation.

The data producer also should discuss whether a composite sample is preferred over a grab sample. While composite samples from the WRRF may be ideal to get a representative sample, composite sampler bottles usually are reused and not disinfected. In these cases, the data producers and knowledge translators need to determine if the use of grab samples is sufficient to meet research needs. Consultation with the sample collectors is especially important if novel sampling devices, such as dialysis filters and passive samplers, are being tested.

Required sample volumes are based on the analytical procedure and whether additional concentration steps are needed prior to RNA extraction. Utilities also should consider several other factors:

- Is the collected sample volume sufficient for meeting facility regulatory purposes and archiving in addition to COVID testing?
- Are there enough sampling bottles on hand for the additional samples?
- Are these sample bottles and their composition suitable for collecting, transporting, storing and analyzing WBE samples?

Sample storage, shipping, and transport. CDC recommends refrigeration of samples during collection and sample storage at temperatures between 0°C and 4°C. CDC cautions that freezing–thawing cycles result in signal loss. CDC also recommends that samples be processed within 24 hours of collection, as effective actionable wastewater surveillance relies on rapid data collection. Many WRRFs will not be able to meet these requirements, given how expensive refrigerated composite samplers are. This is particularly challenging for smaller facilities, where coolers may not be readily available or incorporated into the operating budget and where winter temperatures will result in freezing even if

precautions are taken.

If samples are expected to be shipped on a weekly basis, the data producers may need to discuss returning and circulation of coolers to sample providers. Also, if the WRRF is collecting weekly samples and shipping overnight, hold times and logistics will need to be discussed as well as shipping costs. If a smaller WRRF is being recruited, but shipping and handling logistics are prohibitive, data producers must consider if involving the WRRF is worth the additional workload to the operations team in place, especially if hold times compromise data quality.

Samples also must include sufficient supporting meta-data for the team to understand, process, analyze, and make use of the samples; this includes chain-of-custody documentation and tracking.

Facility flow patterns, rainfall data, and additional flow contributions affecting sample quality. Most WRRFs are subject to diurnal variations and have periods of high and low influent flow. They also may have extensive collection systems with high retention times, lift stations, surface water intrusions, and ground water infiltration contributions. These factors, along with volume and type of industrial dischargers, affect the volume and quality of influent, which, in turn, affects COVID-19 RNA detection in samples and the interpretation of COVID-19 trends over time in the community.

Best practices would encourage collecting rainfall, hauled septage loading, landfill leachate flow, and diurnal variations in flow. In addition, in some cases collection system boundaries may not be clearly delineated. For example, interconnected, regional collection systems can exchange flows. These exchanges change the served population size, demographics, and COVID-19 case numbers that need to be used for the data analysis and modeling approach for samples.

Similarly, if only grab samples are collected, the data producers must consult with WRRF staff (sampler providers) to collect representative samples that capture peak times of human fecal loading and to understand the solids residence time for solids.

Water quality variables. Many smaller WRRFs will not be able to provide much detail about wastewater quality parameters other than those listed in their discharge and/or reuse permits. They also will have limited staffing and personnel to support extra sampling. It would be helpful to clarify with data producers and knowledge translators which variables are essential and which ones are “nice to have.” Making these distinctions can help ensure the research demands do not deter smaller WRRFs from participating.

Method Validation

To use WBE as an effective early warning system, virus nucleic acid recovery and concentration methods must be sufficiently effective and sensitive enough to detect very low levels in a wastewater sample. This can be challenging since most methods were historically optimized for the more resilient non-enveloped viruses, but COVID-19 virus is an enveloped virus and potentially sensitive to various techniques and conditions that may change during sample handling, processing, and concentration. Variables such as temperature, pH, and organic solvents (chloroform or cesium chloride solutions) and partitioning methods such as filtration, solids separation, sedimentation, and centrifugation all could reduce the amount of virus in the sample during analytical procedures resulting in underestimates or non-detects.

In addition, many labs have more experience with non-enveloped viruses, or may have no experience with wastewater sampling and testing. Thus, performing a full method validation and optimization and developing an SOP is imperative. This should include the following considerations:

Quality assurance and quality controls (QA/QC). QA/QC plays an important role during data production in laboratories because many variables can affect the amount of COVID-19 virus RNA recovered and measured in a wastewater sample. QA/QC components ensure the production of reliable, repeatable, and useful data that can be utilized by public health officials. QA/QC characterizes the quality of the data produced, determine the limit of detection of the method (LoD) and what ongoing QA/QC parameters are needed to monitor method performance.

QA/QC parameters should include method and extraction blanks, field replicates, positive and negative nucleic acid amplification controls, reagent and matrix spikes, standard curves, and dilutions. Replicates ensure the reproducibility of the data. Blanks confirm the absence of contamination. Spikes and dilutions control for inhibition of nucleic acid amplification and control for matrix interferences. Analyst proficiency also is critical and must be accounted for with initial and on-going proficiency evaluation of analytical method performance.

Method sensitivity. Method sensitivity is calculated using the sample concentration factor and the matrix spike recovery. Virus detection in wastewater often requires a sample concentration step to improve detection limits, such as combinations of filtrations; ultra-centrifugation and polyethylene glycol (PEG) precipitation with a range of pH values, chemicals, filter types, centrifuge speeds; and purification steps. A matrix recovery control is used to calculate virus loss and involves adding a known amount of non-COVID-19 virus with comparable properties to a wastewater sample prior to processing. Some consideration must be given to what organism (*e.g.*, human coronavirus or other phage) will be used for matrix spikes to determine the recovery efficiency of the method. Method sensitivity can change with every sampling campaign due to changes in wastewater chemical and physical properties. These considerations are important for comparing COVID-19

concentrations in wastewater over time as well as for conversion of results into a useful parameter.

Normalization of data. Normalization (or data conversion) remains a very challenging area for WBE studies with no accepted standards. Some data producers do not normalize RNA concentrations and provide data users with raw RNA trends, keeping all sample collection and analysis variables constant. However, COVID-19 virus concentrations are measured by PCR in units of gene copies per reaction volume, a measure that is not necessarily actionable or familiar to decision makers.

To convert this into a concentration that potentially reflects COVID-19 infections in the population, this measurement can be adjusted to account for both flow conditions into the facility at the time of sample collection — that is, daily flow if using a composite sample, the percentage of infections (or cases) in the population, and the population size served. Ultimately, the data would be converted to viral gene copies per person contributing to the sewer shed per day.

If flows and population sizes are unknown, research teams may choose to use other fecal normalization variables to estimate them. These variables are microbes or chemicals that are excreted or otherwise present in wastewater in a more uniform and predictable manner. Examples include chemical biomarkers such as BOD, COD, creatinine, cholesterol, coprostanol, nicotine, and cortisol, or such viral indicators as crAssphage, pepper mild mosaic virus, or specific coliphage groups and adenoviruses in the same samples analyzed for COVID-19 virus RNA.

Knowledge Translation

Whether the chosen WBE approach aims to provide qualitative or semi-quantitative results, wastewater surveillance needs to reliably make connections between the measured COVID-19 virus RNA concentrations at the WRRF, hydrological and environmental conditions,

COVID-19 RNA concentrations shed per capita, the burden of infection in the population served, and the size of the contributing population.

The easiest way to integrate WBE data into the public health decision framework would be to translate the measured virus gene copies into a number of infected individuals. These data could be more readily used by decision makers in determining where, when, and what types of public health interventions are needed. However, this approach is extremely challenging in practice.

Even when researchers can follow a step-by-step data normalization protocol based on recommendations made by national agencies and organizations, findings may be difficult to compare spatially or longitudinally since so many unmonitored factors can impact the result. It is essential to better understand when a spike in predicted case numbers or RNA concentrations is considered a problem that needs to be remediated with public health interventions. The current approach provides no triggers or thresholds for action and thus cannot inform decision making directly.

Most local public health agencies do not know what to do with WBE data. They do not know how to interpret WBE data or make it actionable for their purposes. These agencies have a system that to manage public health crises — one based on testing and tracking infections, reporting infections, illnesses, and death and rolling out immunization programs — and often do not have the time in the midst of a pandemic to integrate a new source of information.

This gap highlights the need to publicize success stories to the public health community and generate specific recommendations of how best to integrate WBE data into current reporting systems.

It also is the gap that could be filled by knowledge translators. Knowledge translators, such as

epidemiologists, infection control professionals, modelers, and GIS mappers, should create tools from the data produced by the WBE analytical teams.

These tools would help describe where, how, and under what conditions the RNA results can be used for early detection and trend tracking of infections. The tools need to identify when and under what conditions RNA presence and concentrations are consistent with infections and what thresholds should trigger immediate public health responses. They may also want to characterize changes in RNA levels from sentinel sites as the vaccine is rolled out, especially in targeted settings like nursing homes, prisons and other high-risk facilities.

Once these tools are developed, training and workshops will be needed to educate a new generation of public health professionals in their application to make the most of wastewater surveillance.

Communication Plan

Content, platform, and frequency. Timely, transparent, and open communication among all collaborators will be critical to WBE effort success. The data producers should determine preferred result reporting platforms and communication practices of all team members. This should include a discussion about types of results communicated (RNA concentrations versus trends), communication platform (e-mail versus meetings), and update frequency (immediate, weekly, monthly). These meetings should be structured with a multidisciplinary audience in mind.

Some discussion should focus on whether the WRRF would like to see its WBE results and how those data will be used internally or externally. The team also needs to identify conditions under which immediate corrective actions may be required. For example, unexpected non-detects or unusually high results could signal a problem with sample collection or analysis. Interpreting these outliers may require some interaction with the sample

provider to better understand process fluctuations, flow disturbances, and influent characteristics on that sampling date.

How the data can be used. Distinguishing what WBE results can and cannot do early on can help collaborators better understand how their contribution will help the fight against the COVID-19 pandemic.

- To date, WBE data has been used in three effective ways.
- Individual wastewater samples have been used to represent a snapshot of community infections. These snapshots provide qualitative (presence or absence) results and help monitor the occurrence of infection in the community.
- A more structured, longitudinal sampling approach, on the other hand, has provided information related to COVID-19 trends of infection (increasing or decreasing).
- Screening at targeted sites (senior living homes, correctional facilities, or college dormitories) has been the trigger for additional individual-based testing and mitigation measures. [callout 1]

What the data cannot tell us. At the moment, the actual number of infections in the community cannot be calculated with any certainty. To measure the number of cases using WBE requires additional data, including the patterns and variability of fecal shedding of COVID-19 virus RNA from infected individuals, RNA decay rates in wastewater, and often, more complete characterization of sewersheds.

Risk. As interest in measuring COVID-19 RNA concentrations in treated effluent and biosolids grows, it is important to emphasize to collaborators and utility staff that the detection of RNA does not imply that infective virus is present, nor is it related to the effectiveness of wastewater treatment process. A growing number of

peer-reviewed publications are using RNA data to assess risk to wastewater workers, public health and wildlife. These papers often overestimate risk and should be read with caution.

WBE Forecasts

WBE is not a new public health decision support tool, but the current mobilization scale and standardization of COVID-19 wastewater surveillance efforts have surpassed all previous attempts to monitor infectious agents in wastewater. How these efforts could be translated to meet the constantly evolving infection transmission dynamics of a large city, like Los Angeles or Toronto, remains a daunting and very challenging task.

What is certain is that successful WBE campaigns require the implementation of a formalized and organized strategy. This strategy needs to include a detailed sampling design, analytical method validation, a knowledge translation strategy, and a communication plan.

Today, three main multi-disciplinary groups of collaborators make up WBE programs: Sample providers, data producers, and knowledge users. This trio would benefit from the support and expertise of a fourth group: knowledge translators or interpreters. Their contribution will be to develop the tools necessary to operationalize WBE results and determine when, where, and how findings correlate with actual infection levels in the community. Only then can local health agencies truly use WBE data to combat COVID-19 in communities.

This feature was prepared by the WEF Disinfection and Public Health Committee's (DPHC) Waterborne Infectious Disease Outbreak Control (WIDOC) Working Group.

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COMMERCE CONTROLS

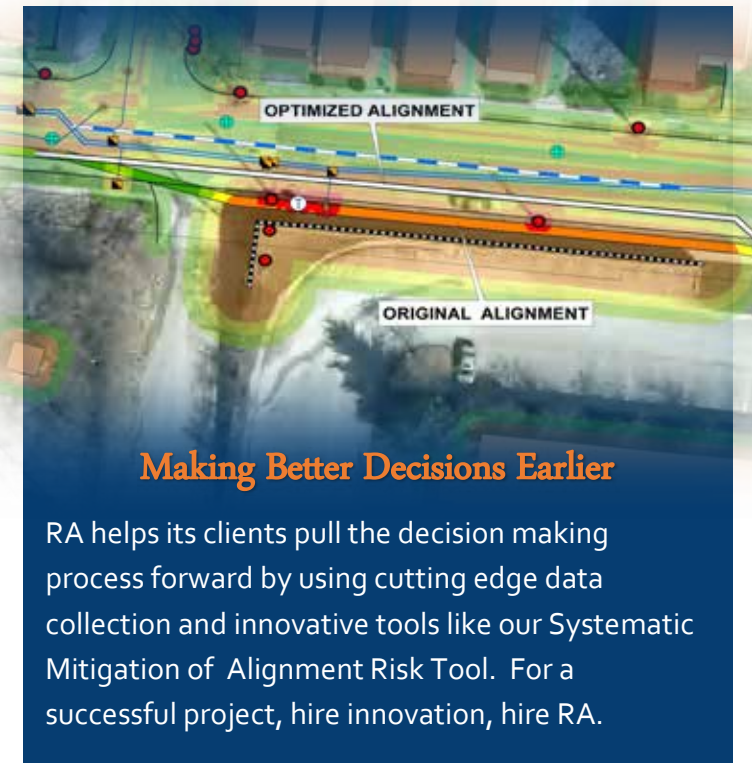
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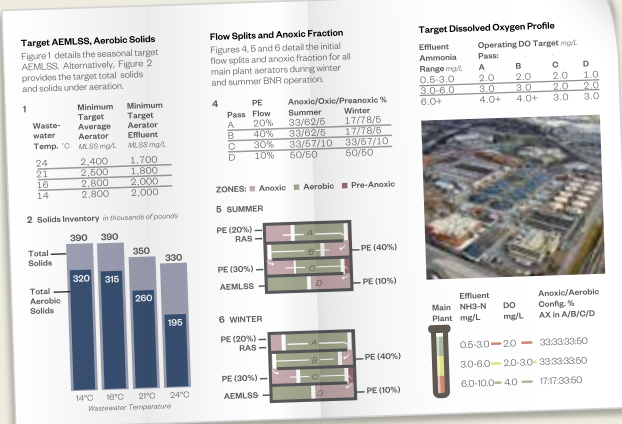
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WEF Utility Partnership Program

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

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

OWEA currently has 33 municipalities signed up for the Utility Partnership Program.

To learn about the benefits for your utility visit

<http://www.wef.org/UtilityPartnership/>



Ohio UPP Members

Allen County Sanitary Department
Avon Lake Regional Water
Butler County Water and Sewer
City of Bellevue
City of Canton
City of Celina
City of Columbus
City of Dayton
City of Fairborn
City of Fairfield
City of Harrison
City of London
City of Marietta
City of Mason
City of Newark
City of Oberlin
City of Painesville
City of Solon
City of Steubenville
City of Toledo
City of Troy Ohio
City of Twinsburg
City of Urbana
City of Warren
Clermont County Sewer District
Delaware County Regional Sewer District
Fairfield County
Fremont Water Reclamation Center
Greene County Sanitary Engineering Dept
Lake County Dept. of Utilities
Metropolitan Sewer District of Greater Cincinnati
Montgomery County Environmental Services
Northeast Ohio Regional Sewer District

Office Offerings

It's the time of year when we start reflecting on all that has occurred and hopefully, thinking about gratefulness. I'll be honest, I was hopeful that when I would be writing the last article for the Office Offerings in 2021, I would be discussing how we are on the other side of the pandemic and expressing our gratitude to our members and sponsors for seeing us through. I was WRONG... sort of.

We are not on the other side of the pandemic yet and we all aren't sure when it will truly be in the rearview mirror at this point. Things are obviously in a better place with the availability of vaccines and treatments for COVID-19. As a society we know more about this deadly virus and how to prevent and treat it.

For many of us, though, we thought the development and release of a vaccine meant we would be done with the virus, and that simply isn't the case. In addition to those who can't or refuse to get the vaccine, there are also breakthrough cases and it's simply not the "end all" we had hoped for.

I never thought more than eighteen months after the pandemic became what almost every conversation revolved around, I would still be looking up CDC guidance and local health ordinances. But here we are, and we might be here a bit longer. That's okay.

While we aren't where many of us, me included,



thought we would be, we are still in such a better place than one year ago. I am choosing to be grateful for that and much more.

When we started 2021, while I was hopeful we would be able to have great in person events, I truly wasn't sure. Well, with your support we had great state workshops, section events and an AMAZING One Water. One thousand water professionals gathered to be part of our joint conference with OAWWA. This extremely successful event was only possible because of the support of our amazing sponsors and exhibitors. These companies trusted we could pull off a large, in person event in the middle of COVID-19. They chose to support us financially and this let us do what many thought we couldn't. For their support and trust I will forever be grateful.

I also want to commend our OWEA sponsors. These companies pledged support not even knowing what 2021 would look like. They believed in us and in our members. They believed in our

industry. They truly made 2021 happen.

Our Executive Committee was faced with hard discussions and decisions. They embraced the challenge of governing in uncharted territory. They supported me and our staff in ways I could have never expected. All current EC members and those who just recently moved off the board should be commended for keeping OWEA moving forward during a time when many organizations came to a standstill.

Speaking of our OWEA staff, the challenges of the virtual learning and redesigning in-person events to be as safe as possible, stretched OWEA staff in completely different ways. Megan Borrer and Chelsea Cameron stepped up and made it all happen. Their support and trust made all we did this year possible.

As a result of the ongoing pandemic, OWEA continued to offer virtual programming. Many of our members embraced this and I can't express how appreciative I am of them sticking with us through a few growing pains and being patient with the technology "blips" that sometimes occurred. Our virtual programs have been so well-received they will become a standard part of our continuing education programming moving forward.

In addition to all the above, I want to express how thankful I am for our sections and their executive committees. They worked together in new ways to

serve you, our members. They embraced change and leaned in. They all need a round of applause for working so hard for their sections and OWEA during a year like no one expected.

I know we aren't where most of us want to be yet. We are still Zooming more than shaking hands and still having to constantly be ready to change due to a virus we don't yet have control over. It's challenging and frustrating. I am choosing to embrace what I was right about in 2021 instead of what I got wrong. I was accurate in saying that 'we made it' — and that our members, leadership and sponsors made it possible for OWEA to continue to benefit all involved. I was correct in believing people step-up when called upon. I was right to plan on being grateful.

So, as I write what is my last office offerings of 2021, I want to ask you if you will look at what was good in 2021 instead of what wasn't? Will you be grateful to those who helped you get through this challenging year or be frustrated we are still facing the challenges? I know that I feel better when I choose gratefulness and the upside, and I think you might, too.

DAWN LARSEN, CAE,
EXECUTIVE ADMINISTRATOR



Where do we go from here?

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

Wide World of Sports

Years ago, I watched a television show called Wide World of Sports, which ran from about 1961 to 1986. I watched it most often in the early 1970s when I was in junior high and high school and recall it aired on Sunday afternoon. For me it filled a void during the doldrums of winter in northeast Ohio.

The opening lines of Wide World of Sports grabbed one's attention with The Thrill of Victory and the Agony of Defeat. The narrative was accompanied by a video of a ski long jump where one contestant achieved a new record. However, another contestant fell on the structure, skid down the ramp, and then fell head over heels off the side of the structure. The narrative was accompanied by dramatic music to add emphasis to the disaster component. Many were amazed that the skier that fell was not badly injured or killed. While I first saw that clip more about 50 years ago, it had a lasting impression on me to this day. The lesson was anyone who strives for victory may also encounter defeat.

For anyone working in our industry, many of us have experienced the thrill of victory, and at times the agony of defeat. Covid 19 and its aftermath helped increase the potential for the agony of defeat. I learned it is important to celebrate moments and enjoy victories, no matter how small,

and learn important lessons from defeats. One very talented engineer, nearly 20 years my senior, and now retired from the City of Columbus, was also noted for many wise sayings and insights. One of his sayings was that the study of engineering is a study of failure. At first blush, this is a depressing thought — but perhaps not. The message is that we must be students of history, lifelong learners, willing to learn from the past, and never be too proud to say that we do not know something and ask a lot of questions. There is no shame or loss of status in not knowing something. OWEA helps perform the function of sharing information and helping us all learn from each other and the past. This is another value-added benefit of the Water Environment Federation (WEF) and OWEA often not mentioned.

One Water Conference

As an OWEA Board member I was happy that we could hold the One Water Conference in Cincinnati on July 26-29, 2021. Overall, I felt the One Water Conference was well done. While there are always areas of improvement, the One Water Conference helped OWEA, and Ohio AWWA achieve the following:

- It generated revenue for our organizations to continue to operate and thrive for one more year. While we got through Covid, in

part due to remote/on demand learning opportunities, cost-cutting and payroll protection. The One Water Conference revenue will give us more financial breathing room. That reason alone is cause to celebrate.

- It allowed in person events and training. While remote/on demand learning is a great option, there is no substitute for being there in-person. I also know from working in the private sector that in person conferences provide business development opportunities for consulting engineers, manufacturers' representatives, and vendors.
- I got a chance to see old friends, which is important to me. I am always happy to see Stuart Bruny and Jim Greener. Both gentlemen and I share a common history and I enjoy telling and listening to

each other's stories. Seeing old friends is priceless.

Where do we go from here?

Where do we go from here? The short answer is I do not know. The future appears again uncertain. I think that the photo below of a roundabout illustrates this uncertainty well. Day to day we just do not know exactly where we are heading. There are many possibilities.

If anyone needs contact hours before the end of the year, I encourage you to look into the various section meetings and biosolids workshop this fall. I believe those are still mostly in person meetings. At some point, a new variant of Covid 19 may force us again to go temporarily into remote learning mode. We are hoping for the best and planning for the worst.

But there is a silver lining to this cloud. We are more resilient and tougher than we were 18 months ago. We have proven that we can adapt and survive to meet new challenges. I was pleased to get the vaccine this year to allow me to reengage in public outings and will gladly take a booster when I am allowed at age 65. I urge others to do the same. I do understand a person's hesitancy and concerns, but this would be a good time to get vaccinated if you have not already and are willing. The vaccine is plentiful, and lines are short.

I am proud of the way our sections, committees, staff, and board came together in a common spirit



Photo of roundabout in western Pennsylvania with many options

to formulate a plan to get through 2020 and start the process of reinventing our organization. To be certain, a face lift was necessary with or without Covid, but the challenges of this last year were a catalyst to our ongoing strategic planning process.

One of the great joys of my professional life was being an active member of OWEA and WEF. I tell people in a joking way that I have been on the board longer than Roosevelt was President. That is true! But my truly favorite days were being on the Southeast Section Board between 1996-2004. I credit my old boss and company CEO Matt Tin for encouraging me on this journey in April 1996. If I have one parting wish it is for other members to investigate becoming active in a section or committee. You will make new friends and form memories that will last a lifetime.


Past President's Committee

I was speaking with Jim Greener at the NESOWEA meeting on September 30, 2021, in Massillon. We started talking about writing eulogies for the Buckeye Bulletin and how challenging this can be at times. There are few people in our organization who can reach far back into the past as Jim and I can. While this may seem morbid, those in our organization deserve a nice send off with an article written about them in the Buckeye Bulletin. We are family and I view this as being part of a family. I think preparing eulogies may be a good task for the Past Presidents Committee.

I have long felt it my duty to participate in this









effort when I know the person, as I did the late Bob Cottrell with Jim Greener and Stuart Bruny. I jokingly say that I follow in the footsteps of my great grandfather Frank Calta (1848-1934) who emigrated from the Czech Republic in 1901. He spoke Czech, German and English. In those days it was a paying job to write eulogies. This is the very least that we can do for our family!





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Section Reports



Tiffany Maag, President

Greetings again from the Southeast Section! Recently, we held an in person Section Meeting in October that focused on catching up on contact hours. With the end of the year fast approaching and the pandemic's impacts to all of our lives over the past year we felt that a higher contact hour event would be very beneficial to the section. The meeting was held at the Quest Conference Center at Polaris and offered 6 contact hours. The focus of the meeting was on pump station design, operation, controls, and electrical safety. We utilized a large conference room at Quest to maintain distancing between attendees and overall, felt the event was a great success!

Award Winners

Over the summer we held our annual Section Awards Meeting where we recognize our members who go above and beyond in their daily work, as well as for the section. The 2021 award winners included the following:

SE Section Awards:

- Dean Stewart – Jason Conrad
- J.W. Ellms – Doug Dixon
- W.D. Sheets – Paul Matrka
- L.T. Hagerty – Brian Hall
- Engineering Excellence – City of Ashville
- Laboratory Analyst – Maria Black
- Professional Wastewater Operations – Carl “Ace” Bennett
- Lifetime Engineering – Dale Kocarek
- Public Service – Jeff Hall (City of Newark)
- Collection System – Gregory Barden
- Facility Image – Village of Galena
- Young Professional – William “Tucker” Randles
- SE Member of the Year – Brandon Fox

I would also like to congratulate the 2021 State OWEA award winners from SEOWEA! We are ecstatic to see so many SE Section award recipients for the state level awards. The awardees included:

State OWEA Awards:

- W.D. Sheets – Jon van Dommelen
- L.T. Haggerty – Betsy Sheerin
- Lifetime Engineering – Kenneth W. Ricker
- Public Service – Delaware County Commissioners Jeff Benton, Barb Lewis and Gary Merrell
- Facility Image – Eastern Ohio Regional Wastewater Authority
- Larry Moon – Michael Frommer

Congratulations to everyone who won an award in 2021!



Michael Frommer accepting the Public Service Award on behalf of Delaware County Commissioners. Frommer was also awarded the 2021 Larry Moon Award.

We plan to continue holding in person events in 2022, including a February Industrial Meeting, March/April Plant Tour Meeting, and May Awards Meeting. Those dates have not yet been finalized but we will communicate that information as soon as it is available. As always, anyone who is interested in hosting one of these events or speaking on a topic please feel free to reach out and we would be happy to coordinate to include your ideas.

Tiffany Maag
tmaag@co.delaware.oh.us



Dave Reinker, President

The leaves are falling, the summer sun is fading to the southern hemisphere, and a winter chill will soon settle over the Ohio Valley. The seasons change, but the operations remain, and we adjust ourselves just as we will adjust our plants. The days are shorter and the nights longer, so the struggle of getting everything done gets harder to accomplish while it is daylight. But with every year and every season change we continue and so does the operation and maintenance of wastewater facilities. Keep on keeping on, as it is our jobs to protect the environment.

Happenings

The SWOWEA held its first in person event September 16, 2021, at Miamisburg's Water Reclamation Facility. There were approximately 60 attendees that toured the facility, and then enjoyed lunch and three technical presentations. A total of 2.75 contact hours were available to attendees. It was very nice for the section to have a face-to-face meeting, (first one since March 2020) and everyone seemed to enjoy the camaraderie. The amazing thing about this in person event was, how a newer EC pulled it off without any hiccups. The EC had two members drop off due to career changes, and a lost year of no meetings in person due to that Covid thing, but everyone on the EC made it happen. Thank you, Kelly, Justin, Ed, Kevin, Bryan, Chris, and Joseph. As you are reading this, the SWOWEA Plant Operations committee has hosted the SWOWEA section



September 16 Section Meeting at Miamisburg WRF

meeting in Mason, Ohio (November 16, 2021) and put on a day of technical sessions. The day also included exhibits and displays by the ever-appreciated vendors. Thanks.

Upcoming

Looking towards the future, Christmas and New Years, the SWOWEA will be busy hosting our annual Past Presidents and 5S Luncheon in person this year on December 3, 2021, at the Manor House in Mason, Ohio. If you have not been contacted, please email Justin Bahar at Justin.Bahar@cincinnati-oh.gov and update your email so that you are notified every year. Looking into the new year, the next section meeting will be hosted by the Industrial Waste committee (January 27, 2022 at Manor House). They have been busy touring a few candidates' facilities for the Karl G. Voelkel award. I had the pleasure to join the committee on one of the tours and coming from a mainly domestic wastewater treatment plant background, I thoroughly enjoyed seeing a packaging plant industry that opened my eyes to a whole new world of waste treatment. Along with the award presentation, a day of technical sessions dealing with pretreatment and industrial waste will be presented for contact hours. Watch for the Wave in your email or check the SWOWEA website often for updates, <https://southwestowea.org/>.

Help Needed

We are in need of a Chair for the Young Professionals (YP) Committee. If you know someone that would be interested, or you are interested in the position (under 35 is a requirement), please contact me, dave.reinker@cityofmiamisburg.com. Finally get involved, we are always looking for members to join our different committees in our organization, Collections, Plant Operations, Lab Analysts, Education, etc. You will make new friends, learn, grow, and help the Southwest remain the best!

Also, nominations are due for OWEA awards, and WEF awards. Contact Roger Rardain at roger.rardain@fairbornoh.gov for the application process and any other questions.

Best wishes for a Happy Thanksgiving and a Merry Christmas!

David Reinker, SWOWEA President



Tony Hintze, President

Hello Friends! The last section report gave me a chance to introduce myself, so this time I'd like to say welcome and introduce a few new faces that you will be seeing around. First, I'd like to introduce three of our newly elected Executive Committee Members: Northwest Delegate - Gary Bauer, Jones & Henry Engineers, LTD; Secretary - Eric MacMichael, City of Bellevue; and Contact Hour Coordinator - Emily Kerber, City of Lima. Also, our Committee Chairs have seen a few changes as well: Safety - Mark Lehnert, City of Defiance; and Young Professionals - Lori Komorowski, Ohio EPA.

Recent Events

On September 25th the Young Professionals Committee held a Clean Your Stream Event, which was a joint effort with the AWWA. Even though the weather was not very accommodating there were a few young professionals that braved the weather and did their part.

On October 1st we held our Friends and Family day at Fifth Third Field to watch the Toledo Mud Hens claim an 8-2 victory over the St. Paul Saints. Everyone enjoyed some great food with an amazing view from the three suites. Muddy even came for a visit.



YP Clean Your Stream Event

Upcoming Events

COVID-19 has yet again caused a few issues with our biannual operator education day. By the time this is printed we'll have it all worked out and have the details sent out. The review sessions are led by veterans of wastewater treatment, who teach and assist those taking certification exams

One Request

Every day, we all do our part to keep Ohio's water clean. Each of us play a different role and although there are times we like to believe differently, every role is just as important as the other. By working together as a team, we get the job done.

Today I offer you the chance to recognize that person on your team that stands out. The one who goes above and beyond or steps up whenever the need arises. This is your chance to say thank you to the people that excel in their position. The ones that make us proud to be called a Water Professional. Please visit the OWEA website (<https://www.ohiowea.org/awards.php>) to review the award descriptions and send us your nominations.

I look forward to seeing you all throughout the year. Feel free to contact me with any questions or concerns.

Tony Hintze, thintze@fremontohio.org



Friends and Family day at Fifth Third Field



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

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Certification Committee

by Kathy Beckett, Certification Chair

I am pleased to announce that OWEA has transitioned to computer based testing for the Wastewater Lab Analyst and Industrial Waste Inspector examinations. We will no longer offer paper exams. Candidates must apply through OWEA and once approved will schedule their exam at one of nine PSI testing locations throughout Ohio. This allows candidates to schedule a test at their convenience giving them more opportunity for test dates and locations closer to home. I am very excited about this change to the program. OWEA posted a new Certification page with changes to the certification program for Wastewater Lab Analyst and Industrial Waste inspector exams at <https://www.ohiowea.org/certification.php>.

Application fees will be \$30 for OWEA members and \$45 for non-members. Examination fees are \$105 for each Wastewater Lab Analyst exam and \$121 for Industrial Waste Inspector exams. Testing fees will be paid directly to PSI upon scheduling your exam. Please check out the OWEA Certification page for more information and to apply for an exam.

Email notifications for OWEA Wastewater Analyst Certification renewals will begin October/November 2021. Please be sure OWEA has your most current email address and check your junk/spam email boxes if you do not receive a renewal notification email. Please go the OWEA certification webpage to update your email contact information so you can renew on time and not incur a late fee. Renewal fees are increasing for the 2022-2023 renewal cycle. Renewals done prior to the January 31, 2022 deadline will now be \$40 for members and \$50 for nonmembers. This increase is the first since the certification program's

inception in the 1980s and is necessary due to increasing overhead and inflation. Late fees for renewal will be \$95 for members and \$105 for non-members.

I would like to congratulate the following individuals for passing the OWEA Wastewater Analyst examination in October 2020.

Class I Wastewater Analyst Certificate:

- Matthew Barca
- Thomas Broomhall
- Elizabeth Buening
- Matthew Fechko
- Lauren Hawkins
- Tiffany Miller
- Vivian Miller
- Warren Ollis
- Gregory Peltier
- Christopher Ronski
- Bryan Trail
- Alexis Wimbish
- Matthew Zach

Class II Wastewater Analyst Certificate:

- Michael Plenzler

Please feel free to reach out to me if you have any questions kmrish@columbus.gov

Laboratory Analysis Update

by Melodi Clark and Tony Hintze

Greeting's from your state lab co-chairs Tony and Melodi. Fall is upon us and there is change in the air when it comes to Lab Analyst Exams! We are looking at running our lab trainings differently this year. As you all may know, the Lab Analyst Exams are now going to be online only. We are going to gear our trainings to help everyone with the online type of exams you will be encountering moving forward. We are also looking at some other new things we would like to do with our committee. If you are interested in getting more involved in our committee please don't hesitate to reach out to Tony or myself. We look forward to working with you and creating some new and fun things that are all about the LAB!!!

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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Laboratory Analysis Committee

Co-State Chair & SE Chair

Melodi Clark

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Co-State Chair & NW Co-Chair

Anthony Hintze

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SW Co-Chair

Jim Davis

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It's a lot to digest.

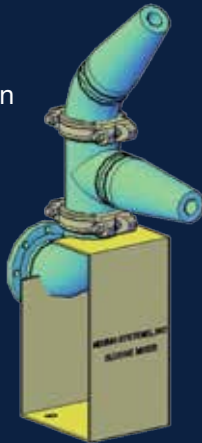


Let us help you break it down.

Mixing Systems, Inc. has been a pioneer in developing jet mixing systems since our inception in 1985. Our Hydraulic Sludge Mixing (HSM) System consists of a series of nozzles that are strategically placed throughout a tank with a solids-handling recirculation pump powering the system. These nozzles are designed to create high-velocity plumes that provide multi-zone mixing and keep solids from settling.

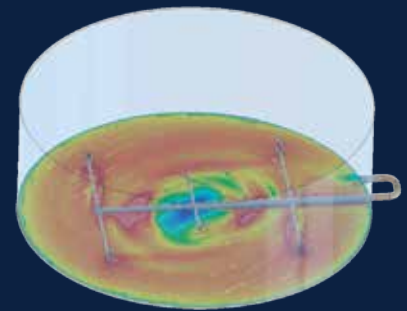
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- Anoxic Zones
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- ATAD digester tanks
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- Crude Oil Storage Tanks
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