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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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President's Message

Hello OWEA Friends. As I write my first President's message to the readers of the amazing Buckeye Bulletin, I am humbled to reflect how a narrow-minded farm kid from rural Perry County could somehow grow enough personally and professionally to become the President of OWEA.



OWEA President

But, as I reflected further, I was reminded of something my father

(Mike Fox) used to tell me regarding his time in the wastewater field. He always said "it's just another page in the book" when referring to challenges and successes he had during his career. As I look back, I truly wish I had started a "book" to document the challenges, struggles, successes, obstacles, rewards, wins, losses, employees, projects, and all the other things that have helped develop me over the years.

You are probably wondering what this has to do with OWEA?

When I first got started in OWEA as a Young Professional, my only goal was to meet people within the industry and have fun. As I quickly learned, both of those goals are easily accomplished through OWEA, but as I became more involved, I was intrigued to see how many pages I have added to my "book" through OWEA involvement. The old saying "You reap what you sow" is truly applicable

within OWEA. Below are a few items OWEA has provided me:

- Lifelong friendships
- Time management skills
- Leadership skills
- Industry relationships
- Public speaking skills
- Organizational skills
- Career advancement opportunities

Upcoming Executive Committee Meetings

September 13, 2022	November 8, 2022	January 10, 2023
March 14, 2023		May 9, 2023

Brandon Fox recently changed roles to become the Project Manager for the City of Newark Division of Water and Wastewater. Prior to Newark, he was the Plant Manager for the City of Columbus Jackson Pike WWTP for seven years and the Residuals Manager for three and a half years. He started his career as an Operator in Training at Fairfield County Utilities in 2004 after earning a Bachelors Degree in Agriculture from The Ohio State University. He holds an OEPA Class 4 Wastewater License and a Class 3 Water License. Brandon is currently the President for OWEA. Away from work, he enjoys anything outdoors, woodworking, watching his children play sports, gardening, and spending time with his family and wife of 20 years, Mandy.

www.ohiowea.org

President's Message

- Professional knowledge growth
- Respect of the Water Industry
- Respect and admiration of people that are different than me
- Delegation skills
- FUN!

As you read the above list, ask yourself if you could benefit personally or professionally with any of them. If so, I challenge you to become more involved in OWEA or your Section because it is never too late to add a "Page to your book!" For those that are a little longer in the tooth, I challenge you to encourage a less tenured professional, and help guide their journey to OWEA.

I would like to thank the truly amazing OWEA Staff (Dawn, Megan and Chelsea), Executive Committee members and Section leadership. It has been a blessing to work through the Executive Committee (EC) over the last several years and witness the evolution of the EC and the inspiring cooperation and dedication the volunteers of OWEA put forth to provide the highest level of service to the members of OWEA. I am not going to mention any names that have come before me, at the risk of missing someone, but I can only hope I am able to provide the leadership to OWEA that past Presidents have demonstrated to continue to guide the organization in a positive direction.

I will close with a few updates to initiatives OWEA is leading:

• State Only Membership is now available for individuals that do not need a full WEF

membership. Go to www.*ohiowea.org/ membership* for more information.

- A Finance Task Force, led by Jamie Gellner, is developing a strategy to help keep OWEA financially responsible.
- Evaluation of an Operator Licensure Training Program in coordination with WEF's "Treatment Fundamentals" Manuals.
- A Diversity, Equity and Inclusion Committee is being formed to ensure OWEA is acknowledging and celebrating the differences within our membership.

I look forward to the challenge of leading OWEA during the next year and adding another page to my book! Hope to see you all soon at an OWEA event near you!

Save the Date

Watershed Workshop October 27, 2022

Biosolids Workshop December 13, 2022

Welcome New Members

April 2022 - June 2022

Mark Abounader Justin Arnold Anthony Bartsch Jillian Bastock David Baxter Tyler Blackwell Zachariah Bolain Kristen Braden Blaine Brown Darren Caffie Sean Clapp Terrell Cole Kevin Cormany Matthew Davis

Molly Drews Sherry Fair Brandon Fitzpatrick Tom Gibbons Sean Gillilan Cody Grimsley Richard Hake Kayla Hanson Derek Haselman Avi Horwitz Nick Howard Roger Jacobsen Dave Kadri Ramanitharan Kandiah Akanksha Kawade Arianna Killing William Lambert Jacob Lawrie Deborah Leonard Heather Marsh John McElfresh Drew McKenzie Tim Mick Rhonda Morrison Brian Payton Marisa Reape John Rennekamp Kanani Sanders Daniel Schmitt Gary Steinbeck Mikael Stiles Jeremiah Stratton Mitchell Thomas Lauren Van Meter Brandon Vatter Lilian Velez Savannah Walters Grace Warren Chaya Wilks Mitchell Yake

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

Webinar Dates

9/14/2022 10 AM

10/12/2022 3 PM

11/9/2022 10 AM

12/14/2022 3 PM

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One Water is a Hit!

The City of Cleveland was ready for One Water and we were ready for the City of Cleveland!

More than 1,350 water and wastewater professionals called the Huntington Convention Center in downtown Cleveland home base from July 25-July 28. Attendees enjoyed great technical presentations, fun networking, an exhibit hall that featured the latest in products and services, along with the return of Ops Challenge and most of all being together. We spent time honoring the best of our industry at the OWEA Awards Luncheon and celebrated the future of wastewater with our Student Design Team.

Did you miss out on One Water 2022? Don't worry! You can hear some of the great technical presentations plus some new information during our One Water On Demand slated for September 15-30. Registration is available on *www.onewaterohio.org*!







Buckeye Bulletin - Issue 3 | 2022







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2022 Award Winners



Jeffery S. Thompson City of St. Marys



John G. Newsome, PE City of Columbus



F.D. DEAN STEWART AWARD

because of seasonal hires at the city.

has served on several conference committees.

F.H. WARING AWARD

office when ever possible.

J.W. ELLMS AWARD

Jason has worked in Pretreatment for over 25 years starting in the City of Lancaster running their Pretreatment program very successfully. He is now at the City of Columbus where he has taken over the role as acting Pretreatment Coordinator/Manager and has been handling the city's over 125 industries plus the FOG program along with the dental amalgam program. He has also taken on the annual and quarterly report with no warning and no training. He truly cares about his job and the people he works with and it shows daily with how much time and effort he puts into all that he works on. He has presented at multiple section level meetings on different pretreatment processes. The City of Columbus is lucky to have Jason working in our Pretreatment group.

Jeff Thompson is Superintendent of St. Marys Water and Sewer Departments and Manager for all six divisions in the department: Sewage Plant, Water Plant, Collection, Distribution, Meters, and Community Pool. Jeff has 31 years of service and is responsible for compliance at both plants. In the summer Jeff's staff more than triples

With an approved pretreatment program and a plant that goes from a dry weather flow of 2.0 MGD to a wet weather flow of 9.0 MGD there is a lot to keep track of on the wastewater side. Jeff occasionally serves as Interim Service Director when the City Service Director is away for extended periods. Jeff served on the NW Section EC, serving as president in 2016. He is also a member of AWWA, a Class III Wasterwater and a Class II Water operator, and

John is the Administrator for DOSD for the City of Columbus. John has always fully supported his staff attending and participating in OWEA events. John provided a lot of staff from his Division to head up committees for the first two One Water conferences. He allows the Ops Challenge Team to compete and travel to multiple events for practice and has budgeted money over the years to ensure the team has all of the equipment to practice with. John is in full support of his staff being on section and state boards. He makes sure operators have the chance to go conferences and workshops. He allows OWEA events to occur at the Columbus Sewerage and Drainage

Jason Westfall City of Columbus



Rachel Oscherwitz Metropolitan Sewer District of Greater Cincinnati

W.D. SHEETS AWARD

Rachel is the Plant Supervisor of the Mill Creek Wastewater Treatment Plant with The Metropolitan Sewer District of Greater Cincinnati and has 13 years operations experience and three years analytical chemistry experience. Received associate degree in Environmental Science from Cincinnati State Technical and Community College. 10+ years educating operators through operator education day with SWOWEA and on the job. Created and implemented an operators education class at MSDGC held once a week for 12 weeks. The class includes wastewater math, wastewater theory, maintenance and lab overview, quizzes, homework, study guides and real life examples conducted in the plant. Has helped over 50 operators to successfully obtain their OEPA Wastewater Class I license. Active in the community to bring awareness and knowledge about wastewater treatment and environmental issues.



Alauddin A. Alauddin, PE Ohio EPA

L.T. "TOM" HAGGERTY AWARD

Alauddin Alauddlin has been with Ohio EPA for over 20 years. Beginning as a RCRA Engineer in 2002, he moved to the Division of Environmental and Financial Assistance (DEFA) two years later where he became a project engineer. Four years later he became the Engineering Section Supervisor, ultimately becoming the Division Chief in January of 2013. With a divisional reorganization, he became the Assistant Chief of Outreach & Customer Service where he was responsible for connecting Ohio communities, businesses and citizens to the voluntary, low/no cost technical, financial assistance programs offered by Ohio EPA, other state agencies and non-profit organizations. He also facilitated and/or oversaw special projects bringing together regulatory, technical, and financial resources to address regional or statewide environmental priorities and challenges. In May of 2018 he became the Assistant Chief of Ohio EPA's, Office of Environmental Education. Alauddin is a licensed Professional Engineer in the State of Ohio.



OSIS Augmentation and Relief Sewer DLZ/City of Columbus

ENGINEERING EXCELLENCE AWARD

A crucial requirement of the consent order between the City of Columbus and the State of Ohio is to reduce the environmental impacts caused by Combined Sewer Overflows (CSOs). The OSIS (Olentangy Scioto Interceptor Sewer) Augmentation Relief Sewer, known as OARS, is the key component in meeting this goal. This sewer tunnel intercepts wet weather overflows that currently empty into the Scioto River and carry the flows instead to the city's Jackson Pike and Southerly wastewater treatment plants. The construction of Phase 1 began in September 2010 and involved digging a 20-foot diameter tunnel with a total length of about 23,300 feet. The tunnel provides relief to the existing OSIS trunk sewer from just north of the Arena District to the Jackson Pike facility. The \$327 million dollar OARS project was the largest capital improvements project in the history of Columbus. The OARS project was completed in mid 2017.



Tucker Randles City of Zanesville

PROFESSIONAL WASTEWATER OPERATIONS AWARD

Tucker holds a Class III Wastewater and a Class II Water License. Tucker is an excellent operator. He started out at Jackson Pike as an operator with his Class I and worked his way up to a supervisor and getting his Class II then Class III. He helps out at the plant whenever any one needs it. He is a great mentor to the other operators at the plant. He is the captain of the Ops Challenge team the Columbus Outfalls and has represented Ohio at the Nationals for the past six years and has done an excellent job leading his team and helping out where he can. He leads by example and does not ask any operator to do anything he would not do along side with them. Tucker is the First Year Director for the Southeast Section. He is now the Assistant Plant Manager for Zanesville.



Kelsey Heck City of Defiance

LABORATORY ANALYST AWARD

Kelsey Heck works for City of Defiance Water Pollution Control Facility. She started in 2017 as a plant operator, then moved to Laboratory Chemist, and is now the Chief Operator. Kelsey holds a Class II Wastewater Operator license. She supervises laboratory operations which includes daily process control samples and NPDES permit tests. She is responsible for training plant personnel on laboratory tests. She maintains all laboratory equipment and orders all chemicals and supplies. Kelsey organizes the industrial sampling program. She recently submitted pictures of laboratory equipment that will be published in WEF's publication, Basic Laboratory Procedures for the Operators-Analyst, Sixth Edition.

Kelsey is also responsible for scheduling and training employees responsible for collecting samples for the Upper Maumee Watershed Tributary sampling program where weekly samples are collected at different locations in the watershed within 30 miles of Defiance. This training consists of proper sampling techniques, equipment use, and sample preservation.



LIFETIME ENGINEERING AWARD

Tom is recognized throughout northeast Ohio as one of the brightest and most dedicated engineers involved with wastewater treatment. He has been instrumental as plant engineer (since 1995) for making improvements to the award-winning, state of the art, Akron Water Reclamation Facility. Tom does not just accept a set of specifications, rather he pours through the information adding his specific requirements as they relate to the operation and maintenance of the plant. Tom shares that knowledge with co-workers, furthering their understanding of the equipment they operate and maintain. Tom Smith, aka "Captain Kilowatt" has been instrumental in saving the city millions of dollars by implementing numerous energy-saving projects.

Thomas F. Smith III, PE City of Akron

Tom holds a BS in Civil Engineering from the University of Akron and Class III Ohio Wastewater Operator's certification. He was an integral part of Akron's 2018 Engineering Excellence Award for AWRF Phase 1 Step Feed Improvements.



Todd Jenkins, PE Peterman and Associates

LIFETIME ENGINEERING AWARD

Todd works for Peterman and Associates where he is the Chief Operating Officer. Todd works on many projects from small water and sewer lines and commercial projects, to large CSO programs. He always offers diligent, competent service to local clients. Todd earned his graduate and undergraduate Civil Engineering degrees at University of Toledo.

A more unique aspect of Todd's career is that he started at Toledo Bayview WWTP and earned his Class III Wastewater certification while in operations. In 2019, Todd returned to operations on a contract basis for the City of Fostoria while they searched for a Class IV operator. While serving as Operator of Record, Todd initiated several in-house improvements - enabling a skilled operations group to make process and facility improvements. In addition, he is currently serving as Fostoria's Owner's Engineer/Representative as they work through their 42 MGD headworks upgrade with the contractor and design consultant.



PUBLIC SERVICE AWARD

Through his continued efforts as the City's Mayor and former City Council President, Mayor Walters has worked tirelessly in developing innovative environmental and recreational programs that benefit residents and visitors alike to the second largest city in Summit County. This is shown in the efforts the city has put into the removal of the two small dams located on the Cuyahoga River and the Mayor's support of the removal of the third and final very large Gorge Dam. Mayor Walters is a steward of the environment. He is working with the Ohio EPA in supporting their efforts to remove the Gorge Dam, located in the Metro Parks Serving Summit County's Gorge Park.

Mayor Don Walters City of Cuyahoga Falls

The beautiful Cuyahoga River has truly become the focal point of Downtown Cuyahoga Falls. Mayor Walters encourages recreational use of the river, while promoting awareness of the environmental benefits of the river ecosystem.



Ed Heyob CDM Smith

COLLECTION SYSTEM AWARD

Ed has been a vital player in many of the largest collections systems projects in Ohio, and has led the charge in Real Time Controls for collections systems. He developed logic-driven alerts for operations staff, flow metering crews, and developers to draw attention to operational needs as there is no central control room. Ed is a Golden Manhole recipient. He has been a leader is developing SMART Sewers. He has built a "Smart Sewer" system that is helping to reduce sewer overflows into creeks and rivers, and the cost is less than any other solution, gray or green. Many wastewater utilities across the nation are faced with a multi-billion dollar Consent Decrees to keep raw sewage mixed with stormwater out of our waterways when it rains. Ed was the RTC Development Lead on Sewer System Capacity Model Update in Columbus, Ohio.



Alum Creek Water Reclamation Facility

FACILITY IMAGE AWARD

Alum Creek Water Reclamation Facility (ACWRF) was originally constructed in the late 1990's and was located in a new development in the fast growing Delaware County. The plant is laid out architecturally to be integrated with the surrounding landscape, with the inner workings of the plant shielded from the general public by constructing the tankage partially underground and behind retaining walls to maintain an aesthetically pleasing appearance. ACWRF also includes a complete laboratory and is staffed 24 hours. Delaware County also replaced the over 77,000 square feet of roofing with a standing seam roof system which includes ice and water proofing and four inches of foam board insulation above the decking to increase the efficiency of the building envelope and drastically improve the aesthetic appeal of the campus.



City of Fostoria WWTP

FACILITY IMAGE AWARD

The City of Fostoria WWTP is currently undergoing a headworks expansion project. The project costs prohibited improvements to employee facilities so the operators took the initiative and requested the maintenance budget be used to complete improvements with in house labor. The improvements included new ceiling tiles, paint, LED lights, floors, cabinets, counters, converting areas into storage closets, new electrical runs, and occupancy sensors. Prior to the improvements, the overall atmosphere in the building was dank, minimally functional and uncomfortable.

The renovated space is more comfortable and encourages gathering, staff coordination and communication. The breakroom table now provides meeting space. The operations staff are commended for the extra effort to complete the work in addition to normal duties while dealing with the demands of a large construction project.

After the operators' improvements, the City acknowledged their efforts with additional contracted improvements including new roofs, windows, entry doors and brick repairs.



WEF WILLIAM D. HATFIELD AWARD

David Reinker started his career in May 1992 as a seasonal employee in the Parks and Recreation department for the City of Miamisburg. February 17, 1993 he began his full time career with Miamisburg in the Public Utilities department in the water reclamation facility as a Utility worker. Progressing in his career, he received a Voluntary Lab Analyst certificate in 1996, and his Class III Wastewater Works Certificate on November 27, 1997. With these certifications he was promoted to Operator III on February 14, 2000, then Chief Operator on December 19, 2005, and finally to his current position as Supervisor on October 20, 2008. David graduated from Miamisburg High School (1990), attended Bowling Green State University (1990-1992), and resides in Miamisburg with his wife Cynthia and two sons, Thomas and Joel.

David Reinker City of Miamisburg



Gary Hickman Retired

WEF ARTHUR SIDNEY BEDELL AWARD

Gary has shown unequaled leadership to the Southeast Section OWEA for over 25 years. He served on the executive committee and was founder of the Southeast Section Point Source Newsletter. He published the newsletter for years. Gary has also served many roles for OWEA noted above, from the OWEA representative to the OTCO Board, to serving on many committees, including chair of the Collection System Committee for many years.

Gary continually promoted participation of Columbus staff at OWEA conferences and to become OWEA members. He was the original Columbus champion to get support for participation in OWEA. Gary was instrumental in helping conduct the last two One Water conferences in Columbus. His leadership has been shown through his service to OWEA, SEOWEA and OTCO, and in his reception of many OWEA Awards.



Thomas A. Zocolo Jr. City of Akron

WEF LABORATORY ANALYST EXCELLENCE AWARD

Tom is a Laboratory Analyst II at Akron's Water Reclamation Facility and won the OWEA Laboratory Analyst Award in 2021. He is meticulous in his work and consistently provides reliable defensible data. In addition, Tom has taken on the responsibility of educating plant operators on the value of regular microscopic evaluation of activated sludge to make more informed decisions regarding treatment options.

He consistently represents the industry in a positive light. Tom has coordinated training events for the Northeast Section Laboratory Analysts. He has worked closely with the State Lab Chair in holding 'hands on' training for lab personnel in preparation for the Lab Certification examinations. He has participated in the NES Student Design Competition as a mentor and assists as a judge for section science fairs.

Tom has a BS in Environmental and Conservation Biology – Kent State University; Class I Wastewater Operator License; and Class II Wastewater Analyst Certification.

2022 Award Winners



Sycamore Creek Wastewater Treatment Plant

WEF GEORGE W. BURKE AWARD

The Metropolitan Sewer District of Greater Cincinnati's Sycamore Creek Wastewater Treatment Plant is proud to accept the Ohio Water Environment Association's George W. Burke Award for safety.

Although safety is every employee's responsibility, MSD supports individual responsibility with a team of six full-time Safety Specialists and two college interns. The program relies on extensive training of employees, approximately 25 written programs and audits of each MSD facility during a normal year. With the added challenges that arose from the COVID 19 Pandemic during 2021, the plant staff coordinated with in-house Safety Specialists during four safety audits and several courses with topics such as safe forklift operation, awareness training for safety operations of electrical equipment, drum and container safety, permit required confined space, amongst other coursework.

The 8 MGD plant has been in operation since 1958. The plant has about 17 employees, some of whom split time with MSD's Polk Run plant in Loveland.

2021 SAFETY AWARDS

Collection System of the Year

Northeast Ohio Regional Sewer District - Collections System

Safety Awards - Collections Safety Certificates

1 -9 employees City of Pataskala

10-20 employees

Gary L. Kron (Collections)

>20 employees

Northeast Ohio Regional Sewer District - Collections System

Safety Awards - Treatment

1-9 employees

City of Canal Winchester

10-20 employees

Gary L. Kron Wastewater Treatment Facility

>20 employees

City of Columbus, Jackson Pike Wastewater Treatment Plant

Safety Awards - Support

City of Columbus, Southwesterly Compost Facility

Collections

- City of Pataskala
- MSD Wastewater CollectionCity of Columbus Division of
 - Sewerage & Drainage

Treatment

- Polk Run Wastewater
- Treatment SystemTaylor Creek Wastewater
- Treatment Plant
- Little Miami Wastewater Treatment Plant
- Muddy Creek Wastewater Treatment Plant
- Mill Creek Wastewater Treatment Plant
- City of Lima
- City of Columbus, Southerly
- Wastewater Treatment Plant
- Madison Wastewater District
- Southerly Wastewater
 Treatment Center

Support

 NE Ohio Regional Sewer District - Environmental Services Water Environment Federation the water quality people*

Life Member

The Water Environment Federation's WEF Life Membership is bestowed upon members who have been active for at least 35 years and have reached age 65.

> Harvey J McVey David Shank Rory J Prigge Garis E Pugh Robert N Januska Dale E Kocarek Andrew Catanzarite Rich Atoulikian

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> Earl Bargerstock Andrew Catanzarite



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City of Dayton WRF

by Walter (Fritz) Schroder

Facility Name and Location:

City of Dayton Water Reclamation Facility (WRF) Laboratory

Plant Description:

The WRF is a two-stage secondary wastewater treatment plant that uses trickling filters and activated sludge nitrification in process with tertiary filters and chlorination/dechlorination. Solids management includes recently installed rotary drum thickeners, anaerobic digestion, gravity belt thickening and centrifugation. The WRF treats an average of 50 MGD influent flow and serves 250,000 residents in the city of Dayton. The WRF effluent discharges into the Great Miami River.

How many analysts/technicians work in the laboratory?

Six work in the laboratory.

Do you accept samples from outside sources?

The Dayton WRF lab analyzes samples collected by the industrial monitoring group as part of the City of Dayton Pretreatment program. In addition, the lab accepts surface water samples for the Miami Conservancy District from four locations on the Great Miami River.

What analysis do you perform?

Metals (ICP-MS), Cyanide, Nitrate-Nitrite, TKN



(Flow Injection Analysis), total, solids, BOD/ CBOD, alkalinity, conductivity, chlorine, pH, oil & grease (wet chemistry), phosphorus, hexavalent chromium, COD (spectrophotometry), Microscopic Examination, and e Coli (quanti-tray).

Other duties your laboratory is responsible for?

Preparation of eDMR, RAPCA Air Emission reporting, bulk chemical testing and financial tracking for the facility, detention time and miscellaneous on-site sampling.

Do you use a contract laboratory?

We utilize a contract laboratory for organics, LL mercury, sulfate and sulfide.

Do you have any permitted industries?

44 permits issued to 38 significant industrial users. Of those 38 permitted industrial users, 28 are categorical while the other 10 are non-categorical significant users. We also have 6 industries we monitor for the extra strength surcharge program.

Have you assisted with any pilot studies or uncommon testing?

In September 2021 the WRF lab team conducted a field sampling event for evaluating the anaerobic digester gas and its potential to be cleaned to "pipeline quality". This project included sampling for siloxanes, ammonia, fixed gases (H2, CO, CO2, etc.), light hydrocarbons, mercury, sulfur compounds, volatile organic compounds, biologicals (total bacteria and various species of bacteria, total archaea), moisture content, BTU/



Lab Profile

Wobbe number, and N-nitroso-di-n-propylamine (NDPA). Gas sampling equipment included silonite summa canisters, sorbent tubes, tedlar bags, and a sterilized pressure funnel for sampling biologicals. All of the media used had different volume and flow requirements that required careful monitoring. Some of the samples could be collected in as little as 30 minutes while others required several hours of flow paced sample collection. Gas testing of this nature and scale was new to the lab team and an exciting learning experience.

Is there anything else we should know about your Laboratory?

The lab team offers technical expertise and data

analysis beyond providing numerical results for the Water Reclamation Division. The lab team serves as the "eyes and ears" of the WRF to inform management and other bureaus in the division of potential process control issues in a timely manner. The lab team is uniquely qualified provide actionable and to timely insights for the division by utilizing knowledge and experience that comes from being an on-site laboratory. All analysts hold a professional

operator license and are actively pursuing OWEA voluntary wastewater lab analyst certification.

The lab is currently participating in the Ohio Coronavirus Wastewater Monitoring Network. This entails providing a plant influent 24-hour composite sample twice per week for courier pickup by the Ohio Department of Health (ODH). ODH analyzes the samples to trend the gene copies per million gallons of the SARS-CoV-2 virus as an indicator of the spread of COVID-19 in the community. According to ODH this data has become even more important with the rise of at home testing kits because the use of these kits makes it challenging for health officials to get accurate COVID-19 case counts in the community.



Lab Profile

Interested in showing off your lab? We want to hear from all wastewater labs around Ohio, big and small! **Co-State Chair** Melodi Clark MLClark@columbus.gov **Co-State Chair** Anthony Hintze tjhintze@gmail.com

Lab Profile

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Ed Stanish Instrumentation & Controls Phone: 419-206-2458 edstanish@bergren.com

Fireside Chat

A Chat With OWEA President Brandon Fox

STAFF: So how did you get involved in the industry?

FOX: Well, I tell people I've been involved in the industry since I was old enough to walk but I started professionally as an operator in training at Fairfield County in 2004 after my dad, who was in the wastewater/ water field recommended I get into it.

Interview by Megan Borror

did. You don't want do what your dad does, right? That was a dumb thought. I should have got into it when I was younger but everything happens for a reason. I learned many valuable life lessons during my farming days.

STAFF: You've recently changed positions. What do you do now and how has that

STAFF: Did you always plan to follow in your dad's footsteps?

FOX: No, not at all. I wanted to run a farm so I went to school for agriculture and worked on a large grain farm for 10 years. However, I didn't marry a farmer, I didn't marry a farmer's daughter and I wasn't born into a farm, so it was hard to farm. So, I kind of fell into the industry by chance and probably should have done it earlier, but never

transition been?

FOX: I recently transitioned to the City of Newark. I'm a project manager in the water and wastewater department. It's been an awesome change. It's a different scope of work than what I've been doing for the last 15 years. I'm not so much at the wastewater or water plant, I'm more in the administrative side of things and project management over capital projects that are going on throughout the city. So, little different scope of work than what I'm used to.

Fireside Chats

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

Buckeye Bulletin - Issue 3 | 2022

STAFF: Do you like that change so far?

FOX: Yeah, it's been great. I'm learning new things, meeting new people and obviously doing a few new things on the project planning side. It's been a good change.

STAFF: What advice do you have for aspiring leaders in the industry that want to get to the sort of leadership position that you're in?

FOX: Do the things you're not comfortable with. Meet as many people as you can as you're going through your career and put yourself out there. I'm kind of introverted at the core but I've learned over the years to put myself out there and try new things. Do whatever you're asked to do, do more than you're asked to do. If you're asked to take the trash out, take the trash out and then also ask to sweep the floor. Do whatever you can do to help your employer and you'll succeed.

STAFF: What qualities do you think make a good leader?

FOX: Willingness to listen, I think is number one, because we don't have all the answers and there's a lot of smart people in this industry that have answers if we're just willing to listen and learn from them.

Secondly, be open to change. The old cliché 'Change is the only thing that's constant in this world' is true, especially in our industry because things change rapidly all the time. Sometimes people get stuck in ruts so if you're not willing to change, it makes it difficult to make progress. Number three is to over communicate. Be a proponent of proactive dialog and that term dialog is a two-way street. I want to hear what you have to say and you should be hearing what I have to say. I think the more we communicate, the more information we have shared and the better it is for everybody.

STAFF: How did you first get involved with OWEA?

FOX: When I was probably 8 or 10 years old I went to a state conference with my dad and mom in Cincinnati. It's kind of ironic and humbling to see some of the people that I met back then that are still in the industry that I'm now dealing with and communicating with. It's kind of been a weird experience to grow from a child to adult in this industry.

From a professional standpoint I got involved in 2004 right off the bat. Matt Boone was one of the first people that kind of grabbed my arm to get me involved in the young professionals committee for Southeast OWEA. We were trying to grow that committee and grow our membership. We had golf outings and happy hours with the hope that members would gravitate into the other committees and executive committee. After that I transitioned into helping out with some of the other committees and then on to the Executive Committee for Southeast OWEA to where I'm at now.

STAFF: Would you say that OWEA has helped you in your professional career?

FOX: Yeah, tremendously. Back to what I said earlier, the networking opportunities. In my

Fireside Chat

president's message I spoke about the things that OWEA does for you. It creates public speaking opportunities, it creates the ability for you to be organized and have time management skills, and just getting to know the people throughout the state and even the regulators. The people that I've met in EPA and all the connections that you make are invaluable when you're going through the daily struggles of what we do every day.

STAFF: What are your goals as the new OWEA President?

FOX: I think continuing with what's been set in motion over the last several years is number one because I've learned on the board, a lot of things previous presidents put in place, are just now coming to fruition. I know some of the goals I have and things that I put in place probably won't happen during my tenure, they'll happen during Jeff Lamson's presidency and others that come after him.

One of the things that we're going to be rolling out is a Diversity Equity and Inclusion Committee. We're going to be rolling that out and hoping to grow it within our organization and within the industry. WEF created a DE&I committee a few years ago and we plan to utilize them as a springboard to learn from during its rollout. We already have several awesome volunteers to lead this initiative.

We also have operator training opportunities that we've got out there. That's a huge undertaking for OWEA, and it's going to be a multi-year opportunity that I think is going to be well-received once we can get it in place. And state only membership. That's another one that we're rolling out at OneWater. This has been a six to nine month process which is now being rolled out. Our goal is to grow membership for folks that may not need or be able to afford a full WEF membership. There's going to be a membership drive that we have over the next year as well.

Also, just keeping things going with the hope we can keep the Executive Committee's open and honest dialogue and keep everything moving in a positive direction for OWEA.

STAFF: What would you like the membership to know about you as their president?

FOX: To be the president of OWEA is humbling. I even said in my President's Message, I'm just a farm kid from a small town in Perry County and to grow up and to have this opportunity is extremely humbling for me. Anybody can do it. Just put your nose to the grind, and do what you need to do, and things will happen whether you know that they are going to happen or not.

STAFF: Anything else you'd like to share with the membership?

FOX: Feel free as membership to reach out to us. The Executive Committee is open to new ideas and we're here to support the membership, so if there are things that we can be doing better or things that we shouldn't be doing, by all means, communicate that to either your section leadership, to us, or to office staff so that we can try to make OWEA better and keep moving forward.

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Plant Profile

Metropolitan Sewer District - Mill Creek

by: Amy Hoerst

Inception 1912-1958

Until 1912, the City of Cincinnati was without a comprehensive sewerage program. City Council at that time passed an ordinance authorizing the Director of Public Service and the Chief Engineer to devise a plan for the sewerage of the City. To intelligently devise such a plan, thorough data concerning the existing conditions was compiled. The data gathered, and the conclusion reached in a report titled "Progress Report on a Plan of Sewerage for the City of Cincinnati", encompassed all phases of the sewerage problem, including the possibility of treatment. In 1938, the necessity of treating Cincinnati sewage became a reality. As a result of enabling legislation passed by City Council, the City Administration was directed to conduct the required surveys to formulate a plan for sewage disposal. The resulting survey, "A Report Upon a Plan for Disposal of Sewage", was published in 1941. The comprehensive report outlined a sevenyear construction program. The plan called for the construction of four sewage treatment plants, eight pumping stations, and four interceptor sewers. All four plants were to provide primary treatment only. The largest of the four Plants, the Mill Creek Works, was to

Plant Overview

treat 108MGD of high strength sewage from the highly industrialized Mill Creek Valley area.

The Metropolitan Sewer District of Greater Cincinnati (MSDGC) was formed in 1968 as a county sewer district under state law governed by an agreement between the City of Cincinnati and Hamilton County. MSD has more than 600 employees who work for the City of Cincinnati. MSD provides wastewater collection and treatment for 43 of the 49 communities in Hamilton County, Ohio, and small parts of Butler, Clermont, and Warren counties. The public sewer system was originally built in the 1800s and needs modern upgrades and continued improvements to address the challenges of today.

Construction and Improvements 1953-2000's

The Mill Creek Treatment Plant was constructed in 1953. Treatment processes included coarse screening, influent pumping, grit removal, primary settling, chlorination, secondary thickening, dewatering, and incineration. To comply with the Clean Water Act in 1972, additional treatment processes were addedgravity thickeners, thermal conditioning of solids, aeration, secondary settling, and ash lagoons. In the mid



Incineration building

1980's upgrades and modifications included a coarse screening facility, raw pumping facility, grit chambers, primary and secondary settling, digesters, incineration facilities, dissolved air flotation, and belt filter presses to replace vacuum filters. In the 2000's, the Plant underwent major improvements. New sludge feed equipment and polymer feed system were added. The belt filter presses were replaced with centrifuges, primary and secondary thickening facilities were improved, and dissolved air flotation was replaced with thickening centrifuges.

Present Treatment

Every day, the plants of MSDGC turn about 200 million gallons of wastewater into clean water. As a



Incinerator

Plant Profile

local wastewater utility, sewer service is provided to about 230,000 households and businesses in the City of Cincinnati and Hamilton County, Ohio. MSDGC's service area encompasses 290+ square miles and serves 43 of the 49 communities in Hamilton County as well as small parts of Butler, Clermont, and Warren counties. MSDGC operates and maintains about 3,000 miles of underground sewer pipe, about 100 pump stations, several high-rate treatment facilities, and 9 wastewater treatment plants. Some of our sewers carry both rainwater and sewage in the same pipe (combined sewers), while the rest carry only sewage (sanitary sewers).

As the largest plant, Mill Creek has a design flow capacity of 130 MGD, peak design capacity of 240 MGD, and a wet weather design flow capacity of 430 MGD. The average daily flow is between 80-100 MGD. Mill Creek serves about 855,000 customers- including many industrial customers. The monthly power cost to run all treatment processes is roughly \$330,000.

Mill Creek is divided into liquid and solid processes. The liquid process includes coarse bar screening, grit removal, primary settling tanks, aeration, clarification, disinfection, then to the Ohio River. The solids process includes gravity thickeners, holding tanks, thickening and dewatering centrifuges, incineration, and ash lagoons.

Mill Creek employs four crews of six operators that run the plant. Each operator is trained in at least three out of the five areas of the plant. There is also a liquid maintenance and a solids maintenance team because the plant is so large. Plant services consists of roughly 100 workers: electricians, engineers, instrumentation technicians, plant maintenance specialists, heavy electric, SCADA technicians, machinists, painters, laborers, truck drivers, IT personnel, and storekeepers.



Diversion Chamber under construction

Liquid End Process

Influent flow enters the plant through the diversion chamber from the West Branch Interceptor, East Branch Interceptor, Mill Creek Interceptor, and Auxiliary Mill Creek Interceptor. From the Diversion Chamber, flow enters the coarse bar screens where big objects like logs or rocks are removed. Mill Creek has four screens for a total screening capacity of 680 MGD. The flow enters one of two wet wells and is pumped using large, raw sewage pumps. While generally running three 40 MGD pumps for average flow, there are 12 Raw Sewage Pumps in total. Nine have a capacity of 40 MGD; three of those with variable speed controls. Two are 65 MGD, and the twelfth is a smaller pump of 30 MGD capacity. The largest pumps are only used for wet-weather, high flow events. The wastewater is pumped vertically 50 feet and from that point the plant is gravity fed.

The raw sewage pumps send the influent flow into one of two force mains. It then travels to the grit tanks where fine organics and inorganics are removed. The grit is deposited into a dumpster where it is then hauled to the landfill.

The de-gritted wastewater then flows to the primary settling tanks. There are eight Primary Settling tanks with a capacity of 54 MGD each but only average 10-12 MGD. As the solids settle, they are raked to a crosschannel using sludge collectors and are pumped to the four gravity thickening tanks.

Flow enters one of six aeration tanks after leaving the primary settling tanks. Mill Creek uses an activated sludge process type of aeration and it is the most important part of the liquid process. There are three passes in each aeration tank. The tanks are aerated with hundreds of fine bubble diffusers that reduce the standard cubic feet per minute (SCFM) from pass one to pass three. Each aeration tank is equipped with six inlet gates- three gates for plug flow and three gates for step feed. Once influent flow reaches 160 MGD, step feed is activated. The minimum flow required through aeration is 130 MGD. Treatment capacity is 240 MGD but aeration can handle flows as high as 430 MGD for short periods as blankets are kept to a minimum to avoid unloading. The major contributing factor to how much flow that can be treated during wet weather events is the Ohio River level- the higher the river, the more it will impede the amount of effluent able to be discharged. Depending on that level and the influent entering the plant, it may be necessary to bypass aeration or bypass the plant.

At the end of the third pass, aeration flow goes over a T-shaped weir, or "T-wall". This is where the wastewater enters the clarifiers and where an operator will grab a sample to run a settling test and mixed liquor suspended solids test. Each clarifier consists of a South, Mid, and North Bay. Sludge collectors are in each bay and these collect the RAS and WAS- wasting and return sludge come off the same line.

The effluent from the clarifiers is disinfected with liquid sodium hypochlorite. It enters east and west



Green aeration tanks from industry

Plant Profile

channels from the respective clarifier tanks. The east and west channels come together after going over a Parshall Flume. The chemical channel mixers in the final effluent channel mix in the hypochlorite before the effluent is discharged into the Ohio River. Mill Creek will soon be using peracetic acid (PAA) for disinfection. The PAA is safer for the environment and dissipates quicker than hypochlorite although PAA is more expensive.

In 2019, Mill Creek began construction of a new diversion chamber as the first step to support increased hydraulic capacity by creating alternative flow routing paths at the headworks. Planned upgrades include a new pump station, screening facility, and high rate treatment that will reduce flow surcharges and lower the flow level in the incoming interceptors during wet weather events. By increasing capacity to 700 MGD, the goal is to eliminate several hundred million gallons of CSOs currently discharged annually into Mill Creek. Construction of the diversion chamber is expected to be complete in July 2022.

Solids End Process

The solids end process begins with the primary settling tanks. Primary sludge pumps pump the settled solids from the primary tanks to the gravity thickening tanks. Each thickening tank can hold about 300,000 gallons. A splitter box distributes flow between the four gravity thickening tanks. The solids settle and are pumped to holding tanks. The holding tanks are decommissioned digesters that were installed in 1954 that are now used for temporarily storing sludge before it is incinerated. There are 12 holding tanks with a capacity of 2.2 million gallons each.

The WAS from the aeration process is thickened using centrifuges. Secondary thickening employs four centrifuges each rated for 1100 gpm. An emulsified polymer is added during the process to help thicken the WAS. The thickened WAS, or TWAS, is then pumped to the holding tanks. The holding tanks are equipped with floating covers that can move up or down with the sludge level. The TWAS and primary sludge in the holding tanks are pumped to a Feedwell in the Dewatering building using pumps that are capable of pumping approximately 1600-1800 gpm. Once in the feedwell, the sludge goes through a grinder before being sent to the dewatering process.

The dewatering process consists of six centrifuges. The dewatering centrifuges spin much faster than secondary thickening centrifuges. Again, emulsified polymer is mixed with the sludge to assist in thickening it. The centrifuges are capable of processing 125 gpm of sludge. This increases the solids content to 26-28%.

The last step in the solids handling process is incineration. In 2010, multiple hearth incinerators were replaced with three high temperature fluid bed (HTFB) incinerators. Incineration burns about 90-100 tons of sludge per day on average. The incineration process uses extremely high temperatures and moving sand to break up and combust sludge. Particles begin combusting in the sand bed and then rise into the upper area of the incinerator called the freeboard, to be completely burned. The incinerators use either fuel oil or natural gas as supplemental fuel to burn the sludge. Air is provided to move sand and to keep the fuel sources clear of sand. Hot exhaust from the incinerator is used to transfer heat to the air going into the incinerator – this minimizes supplemental fuel consumption. Exhaust air is scrubbed of solid particles and released into the atmosphere. Spent scrubber water, which contains ash from the incineration process, is pumped to an ash lagoon. Once every three years or so, the lagoon is drained, and the ash landfilled.

Plant Profile

Organization & Structure

Since 2009, MSD has been implementing one of the largest public works programs in the history of the community to enhance the collection and treatment of wastewater.

The Wet Weather Program, which is being implemented under a federal mandate, is designed to:

- Reduce combined sewer overflows or CSOs into local rivers and streams.
- Eliminate sanitary sewer overflows or SSOs into the environment.
- Assist customers who have experienced sewer backups from the public sewer.

MSD has accomplished the following to date:

- Eliminated six billion gallons of sewer overflows, from 14 billion to eight billion gallons.
- Completed 147 wet weather projects, ranging from green infrastructure and dynamic underflow controls to larger sewers and highrate treatment facilities.
- Controlled 51 CSOs and reduced/eliminated 44 SSOs.
- Protected more than 1,000 households from recurring sewer backups.
- Improved water quality in local streams including the Mill Creek, which is home to nine new fish species.





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Novel Solutions in Conveyance with an Existing Station's Rehabilitation:

The Park Avenue East Lift Station

by: Shawn W. Beres, P.E., The Craun-Liebing Company and Robert Coker, The City of Mansfield, OH

Park Avenue Lift Station Project History

The Mansfield Park Avenue East lift station, was originally designed and constructed in 1956 utilizing five (5) vertical shafted and horizontally mounted 14 inch end suction pumps [4]. Each pump produced 7.0 MGD and was driven through a driveshaft that attached to one (1) 60 hp motor located on the mezzanine level of the lift station. Included in the station design were two (2) 60 hp vertical turbine storm water pumps which were designed to produce 10,500 gallons per minute (gpm) of wet weather flow. [4]

In 1981 phase two of construction was implemented to include the following upgrades: a new motor control center (MCC), a 450kW back-up electrical generator, and an 800-amp generator transfer switch. A room was added on to house the new generator, and it included intake and exhaust louvers for the generator room. [2] During phase two, a mechanical bar screen was added to the inlet of the 87,000-gallon wet well, and the north force main was laid and connected to the lift station. The control components for this phase included two magnetic flow meters that were added to both north and south force mains.

Project Specifications [3]

In 2017 the City of Mansfield, after having multiple failures with the existing pumps, decided to replace the lift station and upgrade their pumps to commercially

produced pumps with readily available parts and components. With an established budget of \$4.1 MM, the City of Mansfield and the contracted engineer developed the project's scope of work. Included in the work was updating the mechanical bar screen, installing a skylight, providing two (2) 16 inch horizontally mounted end suction centrifugal pumps to accommodate wet weather flow, installing two (2)-12 inch horizontally mounted end suction centrifugal pumps for dry weather flows, furnishing a new gas panel, wiring in new variable speed drives, supplying new flow meters, pump controls, valves, operators, and refurbishing the existing 1981 motor control center with approximately 60% new buckets. [3] The work's completion included an aggressive 18-month schedule, and the lift station was required to convey sewage with a portable bypass system that would allow for the increased flow experienced during wet weather events. Because the station had a north and south force main, the project team decided that one side of the lift station would be reconstructed while the other side operated. Subsequent to the completed work the operated side would be taken off line, and the reconstructed side would be placed online to accomplish the work on the previously operating side.

Park Avenue System Brief System Description [5]

The Park Avenue lift station has an invert of sixty-

six inches in diameter that enters an 87,000-gallon wet well. The discharge of the invert terminates into an automated bar screen that removes large debris and extrudes debris into a dumpster outside of the station via a screw conveyor. The sewage flows through four suction pipes to four pumps in the basement of the drywell. The pumps are enumerated one through four south to north, respectively. Pumps one and four are the 16 inch diameter pumps, and pumps two and three are 12 inch diameter pumps (photo 1).









Pumps one and two accelerate the sewage down the south force main while three and four serve the north force main. At the mezzanine level, the discharge check valves and gate valves are installed. The header for the system at the mezzanine level is 24 inches in size and contains a 24 inch motor operated gate valve (GV-10) which separates the north and south sides of the force main (photo 2). GV-9 and GV-11 are motor operated gate valves which allow the opening of the south and north force mains, respectively. Both force mains join in a common trench to accumulate approximately 1,700 feet of 36 inch diameter line. The static head for the station varies from 10 to 20 feet depending on the level in the wet well. The final discharge of the force main is into a 72 inch diameter interceptor that flows to the Mansfield waste water treatment plant.

The primary level sensor, installed in duplication at the lift station, is a radar level controller. The radar level controller generates a sound signal that echoes off the water level to produce a level accuracy within 0.1 of a foot. The benefits for the radar level sensor over other technologies is that it is not subject to greasing, entanglement or the reliance on mechanical air pumps or subject to air piping leakage.





Project Bid/Award Phase

At the bid opening, a new motor control center was offered at a price add of \$0, in lieu of the 60% bucket replacement, and one specific vendor offered a fiveyear warranty on the motor control center, level control panel, PLC, pumps and associated componentry (photo 3). The alternate bid motor control center incorporated the VFDs in the motor control center and in an "L" configuration which freed up the middle of the first floor in the lift station.

The project was awarded to the mechanical contractor, Workman Industrial, who inaugurated the project with the lift station bypass design. Their design incorporated electric bypass pumps, a pig for the wet well invert, and a temporary wet well box located *Photo 4*

antecendent to the wet well in which they could operate the suction side of the bypass pumps (photo 4). The bypass pump system design mandated the demand of the wet weather flow rate of up to 26,000 gpm. [3]

Project Anomalies, Challenges, and Solutions

The submittal phase of the project included checks on the size of the pumps and the horsepower required for the application. Since the project required the design flow of 26,000 gpm at 33 feet of total dynamic head [3], the manufacturer produced (belted and sheaved) speed curves for the pumps. The original belt and sheave calculations included for the 16 inch pumps produced commercially available belts and sheaves commanding the pumps to operate at 605 RPM speed to 33 feet of total dynamic head. This condition



produced a selection for a pump which needed a 200 horsepower (hp) motor operating at 900 revolutions per minute (RPM).

During review of the submittals, the City of Mansfield questioned why a standard 1800 RPM motor for the 16 inch pump could not be used considering the motor was more commercially available than the 900 RPM motor as submitted. Since no known commercially available belt and sheave combinations could slow the speed of the 1800 RPM motor down to achieve the required design point, the mechanical engineers of the station manufacturer offered the City of Mansfield a near miss point to the design point. The near miss point would allow for a commercially available belt and sheave combination while utilizing a feature in the variable frequency drives allowing to slow down the electric motor. Furthermore, during the start-up of the pumps, the maximum motor speed would be discovered as a trial-and-error task iterating on the flow and head on the pumps. Once this exact top speed was discovered in the field, the VFD's would be limited to that top end speed by programming in both normal automatic and manual operations for the VFD.

After the submittals were released to production and the pumps were manufactured, the lift station construction was completed in a staged fashion. While installing pumps one and four, the contractor determined that there was not enough area in the floor pass through that would allow passage of the entire pump assemblies with the motors, framing, belt guards, and pump on a skid to their final position in the basement of the lift station. The contractor requested that the manufacturer of the pumps allow for the disassembly of the finished skid in order to hoist the equipment through the pass through without interferences. Although the manufacturer planned for the skids to be hoisted by providing lifting lugs, the components of the skid (belts, belt guards, frames, pumps, and motors) were disassembled and lowered into the basement of Park Avenue East lift station one by one. Once in their final places and reassembled, the manufacturer of the pumps provided service personnel, on site, to perform the alignments and proper torquing of the pump assemblies.

With the installation space issue resolved, the installation contractor moved their focus to demobilizing the bypass pumps. The City of Mansfield required that the lift station be operating at 100% capacity and in an N+1 configuration for a week, without any inexplainable anomalies or alarms, before the bypass pumping set up could be removed. With the costs of the bypass pump rental accumulating like a long taxi cab ride, the contractor worked diligently and expeditiously to have the lift station functioning at full capacity. However, one slight problem was discovered with one of the valves to be installed in the station. One of the isolation valves on pump number four came into the machining facility cracked and was rejected by the quality manager. The valves were coming from an overseas casting plant but were being machined stateside. As a result, the project team waited several additional weeks for the recast part to show up stateside. The construction team utilized pumps one, two, and three and a single bypass pump to meet the +1-configuration requirement for the lift station while the team awaited the valve's arrival. The lift station manufacturer performed a staged start-up for the City of Mansfield where pumps one, two, and three were placed into immediate service and pump four had a separate start-up which occurred after the missing isolation valve was installed.

When all four pumps and valves were completely

installed, the project team awaited a large rain event to perform their final tests. A whole day rain event was where infiltration and influent would give enough flow to operate the 16 inch pumps, pumps one and four, for a significant time period to determine that in fact the team did obtain the correct system curve in their









calculations, that the pumps were operating on their curves, and inside the recommended operating ranges (photo 5). The manufacturer for the level controls, motor control center, and pumps used a factory talk remote access gateway with a cellular service. This allowed the lift station manufacturer's factory Electrical Engineer to see the lift station screen, remotely and confirm that the lift station was operating as designed. Completed testing of the lift station during wet weather events produced a high-water alarm level flow of 51 MGD with pump one and four running simultaneously through their respective 36" force mains. The pumps were deemed to be operating on their curves through all designed operation points, and the tests proved their success (Chart 1).

Summary and Conclusions

The Park Avenue lift station in Mansfield, Ohio serves a significant population of the Mansfield area and serves as two-thirds of the sewage flow to the Mansfield Waste Water Treatment plant. The original lift station was built in 1956, rebuilt with new controls in 1981, and had served the community 61 years before the city decided it was time for its replacement in 2017 when a project was initiated for the replacement of the lift station. At the time of the lift station bid in 2020, it was determined that replacing the controls, motor control center and lift station pumps could be afforded by the City of Mansfield through some efficiencies of work with the new motor control center and electric bypass pump efficiencies over engine driven pumps. There were numerous novel technologies utilized to solve problems that occurred over the project's duration. Multiple problems and challenges were identified during the project's duration and all were solved successfully by the project team. The final tests of the lift station confirmed the pumps were operating within their recommended operating range, and that they met the requirements of the performance specifications.

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Authors' Biographies

Shawn W. Beres has 22 years' experience in the design and conveyance of sewage systems. He holds a degree in Chemical Engineering with a Minor in Chemistry from the University of Akron. Mr. Beres is a licensed professional engineer in the State of Ohio.

Bob Coker has 38 years in wastewater treatment and collections. He currently holds a Class 4 wastewater operator license and is the superintendent of the Mansfield Wastewater Treatment plant. Mr. Coker supervises 15 employees which range from operations, maintenance, lab, pretreatment, and solids handling.



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The National Center for Water Quality Research at Heidelberg University: Monitoring Our Rivers and Streams for 53 Years 1969-2022

by Jakob Boehler, NCWQR Field Manager & Sandusky River Watershed Coalition Coordinator

Nestled on the third floor of Heidelberg University's Gillmor Science Hall sits the David B. Baker Environmental Science Laboratories which together encompass the National Center for Water Quality Research (NCWQR). Founded in 1969 the NCWQR has had a storied history of playing a critical role in addressing water quality issues throughout the Lake Erie and Ohio River watersheds. With a simple, yet focused mission statement "to generate knowledge about the dynamics of water and soil resources in order to improve water quality and availability", the primary research of the NCWQR has been on addressing the impacts of nonpoint source pollution on regional water resources. But, how did



this internationally respected environmental research facility come to exist at a small liberal arts college in rural northwestern Ohio?

The History

Spawning from a water quality field-based research project in a general biology course taught by then Professor of Biology Dr. David Baker, the now NCWQR was officially started in 1969 under the name of River Laboratory. The

Figure 1. This picture shows the now retired U.S. EPA Roger R. Simons Research Vessel, as well as WQL staff members collecting sediment cores and preparing instrumentation for analyzing chemistry samples aboard the Simons.

Watershed

intent of this initial project was focused on studying some basic water quality parameters including phosphorus, biochemical oxygen demand (BOD), and coliform bacteria in the Sandusky River. By the end of this initial "Sandusky River Project" consisting of samples collected along nearly 100 miles of the river, an at the time considered large, database of over 140 samples was created. Several small grants later, the laboratory was renamed the Water Quality Laboratory in 1974. The Heidelberg Tributary Loading Program (HTLP, see below) began at this same time on the Sandusky, Maumee, and Portage rivers and focused on nutrient and sediment loadings from Ohio rivers flowing into Lake Erie. In 1978, the lab extended its studies to Lake Erie as a participant in the binational Lake Erie Intensive Study with many of the 18 staff members spending time on the U.S. EPA Roger R. Simons Research Vessel (Figure 1).

In the early 1980s, concerns were growing about the pesticides being used in place of DDT and whether they would more easily run off into waterways. In response, the NCWQR began monitoring these pesticides in 1981 and found readily detectable amounts in area streams and rivers. Our pesticide program continued for 40 years providing useful information on the appropriate application of herbicides in Ohio watersheds. In conjunction with this program, in 1986 the NCWQR received a grant from the State of Ohio to investigate groundwater quality in three counties by offering low-cost testing to well owners. The results from 16,000 wells in 76 counties were published in "Nitrate and Pesticides in Ohio - A State Atlas". As a result, more states requested well testing and this program is still in operation today having now analyzed over 60,000 well samples from more than 30 states. For more information about the Private Well Testing Program check out this website: https://ncwqr.org/watertesting/well-water-testing/

Then in 2004 through a resolution of the U.S. House of Representatives introduced by Ohio's Congressman Paul E. Gillmor, the WQL's name was changed to the National Center for Water Quality Research. The NCWQR has always been supported solely by research grants, contracts for professional services, and donations since its founding in 1969. Funding sources have included agencies of federal and state governments, nongovernmental agencies, foundations, industries and individual benefactors. Over time the lab has continued to expand and operate it's monitoring efforts throughout Ohio and southeast Michigan as part of the Heidelberg Tributary Loading Program (HTLP).



Figure 2. This map shows the locations of the current HTLP sampling stations. This map does not include the most recent site added on the Scioto River near Kenton, OH.

The Heidelberg Tributary Loading Program

The goal of the HTLP is to accurately measure the load of nutrients and sediment from watersheds using high-frequency and long-term monitoring. This program officially began in 1974 on two major tributaries to Lake Erie: the Maumee and Sandusky Rivers. Other rivers in Ohio and Michigan have since been added to the program and the recent additions include the Huron River and three small Western Lake Erie Basin subwatersheds. Currently, the HTLP is comprised of 23 sampling locations spread throughout Ohio and Southeast Michigan (Figure 2). At most stations, automated samplers collect three samples per day year-round. Each year approximately 450-500 water samples are collected and analyzed for pollutants at each site. Altogether, more than 200,000 samples have been analyzed at the end of 2021 and the program is ongoing. This means that runoff from more than 50% of Ohio's total land area is captured in sampling performed as part of the HTLP and permits the calculation of the pollutant export (loads) in these watersheds. The data produced through the HTLP is freely available online at ncwqr.org.

To further enhance the accessibility of the HTLP data, staff members are currently working to provide real-time water quality data by integrating the data into the Great Lakes Observing System (GLOS). By including this data in the GLOS platform, we will be able to link tributary inputs to Lake Erie water quality in new ways and hopefully provide insight into how to improve the health of this vital ecosystem.

Why it matters?

The data collected as part of the HTLP is used extensively to understand nutrient sources, model

the effectiveness of different land practices on nutrient runoff, set loading targets to reduce the occurrence of harmful algal blooms (HABs) in Lake Erie, and predict the size of the seasonal HAB in the western Lake Erie basin. The data has helped inform practices needed on agricultural lands to reduce nutrient runoff. The data will also be used moving forward to assess the progress towards reaching loading reduction goals.

pollutant Measurements of export from watersheds are used to compare the amounts of pollutants derived from diffuse nonpoint sources, such as agricultural and urban storm runoff, with contributions from point sources, such as sewage treatment plants. Detailed knowledge of concentrations and loads of nutrients and suspended sediment exported through these river systems has added greatly to our understanding of the impacts of rural, largely agricultural land management practices on stream water quality and ultimately the quality of both the Ohio River and Lake Erie. This information has also permitted detection of trends in water quality, especially changes in loads of several forms of phosphorus and nitrogen that greatly influence the development of harmful algal blooms and oxygen-devoid "dead zones" in Lake Erie, inland lakes and reservoirs, and the Gulf of Mexico.

The HTLP is the only known program that has high-frequency continuous water quality sampling over a long-term time period. It has made possible the following initiatives and accomplishments:

• Data from the HTLP was used in the establishment of target phosphorus loads for the western and central basins of Lake Erie by Annex 4 of the Great Lakes Water Quality Agreement. These loads represent a 40% reduction in dissolved reactive and total phosphorus relative to 2008 loads. Our monitoring supplies much of the U.S. data needed to assess the sources of P to Lake Erie annually.

- Evidence provided by the HTLP showed that the loading of dissolved reactive phosphorus into Lake Erie began to increase in the early 2000s concurrent with the return of harmful algal blooms to the Western Basin of Lake Erie. These data combined with satellite assessment of bloom severity by NOAA have allowed for the development of an annual forecast for bloom severity in Lake Erie since 2012.
- HTLP data have enabled direct assessment and evaluation of the watershed-scale effectiveness of BMP implementation programs aimed at nutrient load reductions from watersheds to Lake Erie, Grand Lake St. Marys, and the Ohio River. Results have already found substantial declines in watershed loads of nitrate and total phosphorus.
- Scientists at numerous universities have developed watershed-scale models linking land uses to patterns in watershed loads and rely on HTLP data to calibrate and validate their models. Together, these universities (University of Michigan, Ohio State University, University of Toledo, Arizona State University) used an ensemble approach to assess the needed scale of best management practices (BMPs) to reduce watershed loads to the target levels. They found a combination of various practices across over 70% of the WLEB

watershed will be needed to meet those goals.

 HTLP data play a critical role in informing state agencies of the progress to improving water quality and the effectiveness of their efforts. For example, the Ohio EPA uses our data to develop watershed nutrient mass balances for all of Ohio's major watersheds. These data show the proportion of phosphorus and nitrogen that come from nonpoint sources, point sources, and home septic systems. Also, HTLP data are being used to develop the new Maumee Watershed TMDL.

Ongoing Research

The NCWQR staff and collaborators are also involved in numerous research endeavors beyond the scope of the HTLP including, but not limited to those highlighted below.

- Looking for the occurrence and sources of veterinary pharmaceuticals in Lake Erie tributaries through the use of in-situ passive sampling (POCIS) techniques. Because some pharmaceuticals are specific to certain uses, they may also be useful as a tracer for estimating sources of nutrients from livestock versus wastewater inputs. This project is in collaboration with the Water Sciences Laboratory at the University of Nebraska-Lincoln.
- NCWQR staff members are part of the Lake Erie Research Network (LEARN), which is tasked with developing a monitoring program for the wetlands being constructed throughout the State of Ohio as part of the H2Ohio

program. The primary goal of this program is to assess the effectiveness of these wetlands at helping to reduce nutrient inputs into rivers and streams (Figure 3).

- Assessing the watershed scale effects of implementing BMPs to address meeting phosphorus reduction targets. This project is being led by Jay Martin at OSU and will be using a private-public partnership approach to BMP implementation.
- Exploring the impact of rivers on phosphorus delivery to western Lake Erie in order to gain a better understanding of how phosphorus levels change through in-stream processes before entering Lake Erie. This project is led by Jim Hood at OSU and is in collaboration with the USGS.

Service and Outreach

To promote the sustainable use of water resources through education, NCWQR staff members give over

Figure 3. Redhorse Bend Wetland that was installed in 2021 as part of the H2Ohio program and is currently being monitored by the NCWQR.



Watershed

forty informative presentations each year about their research findings to a wide variety of audiences at scientific conferences as well as meetings of civic and student groups. They often collaborate to sponsor symposia and conferences that bring scientists, policymakers and landowners together to address local and regional water quality issues. NCWQR staff members tailor water resource presentations to meet the needs of a variety of audiences and educational purposes. Several staff members also teach in Heidelberg University's Watershed Science program including topics on field sampling methods, watershed management, and ecosystem services to name a few.

To further their outreach capabilities the NCWQR became the fiscal agent for the Sandusky River Watershed Coalition in 2017. The mission of the SRWC is to provide leadership for the conservation and enhancement of the Sandusky River watershed and its natural resources through community-based planning, education and action. Find more here: http://www.sanduskyriver.org/

The NCWQR's research findings are readily accessible, along with the HTLP data, publications generated by the NCWQR staff are listed on their website (https://ncwqr.org/). The NCWQR chemical laboratory provides both well water and surface water chemical testing services for public agencies as well as private citizens. We use approved methods to produce high quality analytical results for research and health screening needs. A variety of testing packages are available: nutrients/inorganics and sediment, and/or metals. Sampling test kits can be ordered by selecting the choice of water tests from their website and completing an order form, or you can contact them by phone or email and they will help you determine which test(s) will meet your specific needs.

Moving forward the NCWQR plans to continue its efforts of monitoring and understanding the complex interactions of human impacts on water quality issues in watersheds both large and small throughout the Great Lakes region.

If you would like to contact the NCWQR please visit their website or reach out to Dr. Laura Johnson (*ljohnson@heidelberg.edu*) or, Jakob Boehler (*jboehler@heidelberg.edu*).

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Built for Safety: Designing Safety Into Your Next Construction Project

by Stephen Crede, Burns & McDonnell

Every day on the job, individuals in the construction industry are exposed to a variety of safety hazards. Based on data from the Center for Construction and Research Training, the rate of non-fatal injuries has dropped over the previous decade from 119.5 per 10,000 full-time equivalent employees to 95.7 per 10,000 full-time equivalent staff. However, over the same time period, there has been an increase in the number of fatal injuries per year. In 2011, there were 781 fatalities and this number rose to 1,034 fatalities in 2020.

The reduction in construction site injuries is encouraging. Over the last several decades, there have been numerous initiatives used to reduce the number of safety incidents on sites, and these initiatives have made a real impact. These efforts include the formation of the Occupational Safety and Health Administration, companies instituting health and safety plans, industry- and companyinstituted requirements for wearing safety gear onsite and focused national marketing initiatives like Construction Safety Week. But why haven't these same efforts resulted in a similar downward trend in fatalities?

When it comes to work that needs to be done at completed facilities in the water and wastewater industries, construction and maintenance plays a big role. It's important for these finished facilities to be safe. Despite safety programs, better regulations, an increase in training, and more, why do fatal injuries continue to happen fairly regularly? Is it an issue of construction workers not being adequately trained or following the training they've received? Is it an issue of staff being required to engage in work activities that are not as safe as they could be? Is it a matter of how facilities are designed? Or does all of the above play a role?

Making Safety the Foundation of Construction

Why does designing for safety at water and wastewater facilities matter? At Burns & McDonnell, we believe safety is paramount. In fact, "Safety is First" is one of our guiding principles. The goal of every job is to send workers home safe. We have incredible training programs and safety protocols. We also operate by having design engineers actively engaged during the design process with construction personnel who will ultimately be responsible for the installation of the materials and equipment that's designed. While this engagement focuses on many things (construction materials, schedules and more.), a key aspect is looking at the constructability of the design itself. Can the design be constructed and installed in a safe manner?

In addition to engaging with our construction professionals, we encourage our design engineers to interact with our clients' operations and maintenance

Safety

personnel. Digging into how they do their jobs, what works and what doesn't is crucial. This gives our designers insight into how to improve upon the design and enables us to build safety into the design for the client and our own construction specialists.

By engaging operations and construction teams throughout the entire design process, we create safer projects long term, and hopefully, make the overall water and wastewater industries safer.

But, what does a safer project look like? And the number one question clients always ask: Will it cost more money?

Take, for example, this situation that occurred on a recent project. We often get called upon to upgrade aging facilities. We were providing construction engineering on the reconstruction of a lime softening water treatment plant that had been designed by another engineering firm. The plant was a traditional gravity lime softening plant where the entire treatment process was being redone, but the existing operations building remained in place, including the lime feed room. During the construction of the new lime softening basins, the concrete's final elevations were checked and were precise. But when the new lime troughs were installed, it was found that when the troughs made it back to the lime feed room, they were nearly 7 feet above the finished floor. The troughs were completely inaccessible to the operations and maintenance staff to perform the necessary cleaning and maintenance.

The solution ended up being the construction of multiple elevated platforms with stairs and ladders to enable the necessary access within the confines of the tight existing space. This resulted in a significant change order to the client. It also resulted in a solution that presented the operations and maintenance staff with a situation that had several opportunities for a slip, trip and fall incident. An additional risk created by this situation was one of construction. Had the troughs been designed at a lower elevation, it would have been a less risky installation for the construction staff and wouldn't have involved doing construction work above their heads.

Not planning appropriately and building safety into a design can be costly. Paying a workers' compensation claim or dealing with a lawsuit for just one incident could be much more expensive than being proactive and designing a facility with safety at the forefront.

Project owners can avoid safety missteps by involving construction, operations and maintenance staff early in the design process and learning what it takes for them all to do their work. It is possible to generate designs that do not need to be modified during construction or after a project is complete. By involving construction staff, designs can be reviewed prior to construction and adjustments can be made that allow for safer construction when looking at excavations, laydown areas, crane picks, etc. resulting in safer projects and happier clients.

When a project owner deliberately has a project designed with safety in mind, there's a decrease in potential construction hazards, fewer injuries, lower long-term facility costs, an increase in workers' peace of mind and a reduction of lives put at risk. Here are a few things to consider when designing safety into your next project:

Conduct a detailed walk down. When

Safety

working on an existing water or wastewater facility, it's important to look at all different facets of the project because many existing facilities were built in the '60s or the '70s. Some are even older than that. Building standards have changed and there are many building aspects that no longer meet code. Because many facilities have been grandfathered in, upgrades have not been required. But when looking at these projects, owners should make a point of bringing everything up to code, required or not. Prioritize must-do projects versus projects that don't have to get done but are recommended. And remember, anything that will make the space a safer one for construction workers, employees and visitors should be at the top of the prioritization list.

Talk to the operations staff. Collecting information from a variety of users, such as operations employees, can help with design and construction synergies, save time and money and eliminate redundant efforts and expenses. Talking to the operations staff and getting their feedback before a project begins and throughout the construction process is especially important, since they will be in charge of operating the facility long term. It's vital to understand how they operate, whether in an existing building that is being rehabbed or one that is being built from scratch. Find out what members of the operations team like about how things operate and what they don't like. Determine what their big pain points are, what they'd like to see in a perfect world, and what they would prefer to not have to deal with when the project is done. Try to incorporate as much of what the team says into design, bearing in mind the client's ultimate goals and the fact that there are budget limitations. Get a wish list from operations team members of things they need to make their jobs easier and safer. Issues of concern could include anything from access points to how sampling is done. Chemical deliveries and storage will also likely be of great concern, as will automation versus manual operations. That's because manual operations might involve running around to different parts of the facility to open or close valves, manipulate gates or divert critical flows. All this information should be shared with the construction team as well. That way, when issues arise during construction, the construction team can be actively involved in developing solutions that are functional but also take into account the client's staff being able to perform their respective jobs.

Communicate with maintenance **personnel.** Improper maintenance accounts for many on-site safety incidents. Safety priorities for the maintenance staff will likely be different from the operations staff, so meet with the two teams separately. The maintenance staff will be concerned about how to safely access equipment to clean and repair it. For example, if a chemical feed pump stops working or if a chemical storage tank springs a leak, the maintenance crew would want valves and access panels in places that aren't too high or too obscured to reach. They would also be concerned about being exposed to chemicals should a spill occur. Remember, when the maintenance and operations staff go to work, a million personal choices must be made to make sure individuals stay safe. Through a facility's design, project owners can take some choices and decisions out of their hands, giving workers fewer on-site safety issues to worry about. This information can also be critical to construction personnel who must frequently work around existing equipment and facilities that are still in operation

Safety

but may be in various states of deterioration. This could be anything from process equipment to pumps to stairs, railings, platforms, etc. This can help inform the construction team on how to better go about constructing the new improvements without further risk of injury.

Conduct a constructability review.

This review determines what specifically needs to be done to construct a design safely, especially when it comes to more challenging construction. Solid on-site safety controls call for eliminating hazards, replacing hazards, isolating workers from hazards and, if needed, changing the way people work. For example, if a 40-foot-deep excavation needs to take place, the design and construction teams will have to make sure they have the ability to lay back side slopes so that the site won't collapse. But what if there isn't sufficient space to construct the project that way? This is where construction personnel become indispensable in reviewing designs and identifying areas for improvement, including changing processes, if necessary.

Safety on a construction site starts long before a project gets awarded to a contractor, before contracts are ever signed or before anyone orders a piece of equipment or sticks a shovel in the ground. It's a mindset that must run through every aspect of a project. Before beginning a job, all project stakeholders, including the construction team, should be encouraged to mitigate long-term risks by working together to design facilities and processes with worker safety top of mind and the end goal of zero safety incidents being the only acceptable number.



Stephen Crede serves as a senior project manager providing design and construction management on a variety of projects for Burns & McDonnell. From troubleshooting to developing innovative solutions, he provides project oversight and quality assurance services for drinking water, wastewater and stormwater projects of all sizes.

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Inspecting 100-Year-Old Sewers Which one should we inspect first to understand condition assessment?

by Cecilia Mazzei, City of Cleveland, Division of Water Pollution Control; Scott E. Belz, AECOM; and Constantine (Costas) Kontos, AECOM

Introduction

The Division of Water Pollution Control (WPC) is responsible for managing the sanitary sewage and stormwater collection system in Cleveland, Ohio. The system is comprised of approximately 1,436 miles of sewer lines, 27% of which has been estimated to be older than 100 years (from 2016). WPC desired to understand its collection system to prioritize projects in its Capital Improvement Program (CIP). To achieve this, a condition assessment and evaluation of sewers exceeding 100-years of service was completed over a five-year period. This article will demonstrate how performing pipe condition assessment screening with a pole camera can significantly save costs while still providing accurate assessment information.



Figure 1 Sewershed Boundaries and Prioritization

The project used an approach that incorporated existing maintenance information to identify problem areas and prioritize work, first by area then by individual sewer segments. The project utilized ESRI ArcGIS (GIS) as the platform for all inspection data collection and results storage. Standard methods of inspection, condition assessment, and data collection were followed, but through the pipe screening approach, the project was able to reduce the overall amount of inspections, providing significant cost savings..

Compiling Existing Information

AECOM reviewed the available information associated with the City of Cleveland Sewer System. GIS maps including topography, collection system (including manholes with manhole numbers assigned), wards, and parcels helped to categorize assets by sewershed. Records related to issues, inspections, cleaning, and Water in Basement (WIB) information were evaluated in the prioritization process.

 Sewershed Development- The Cleveland sewer system was delineated into 14 sewersheds and named "A" through "N". The sewersheds were generated based on length of pipe, the number of manholes, regulators, overflows, pump stations, and other appurtenances. All field work was managed by sewershed. Figure 1 Sewershed Boundaries and Prioritization shows the sewershed boundaries developed for the project and prioritization.

- Prioritization Development- Each sewershed was evaluated using a model which determined consequence of failure (COF) and likelihood of failure (LOF). COF and LOF were multiplied together to provide a risk score that served as a priority ranking number. The scores range from 350 to 541, with a score of 350 being lowest priority and 541 being highest priority. Risk score determined when each sewershed would be inspected within the five-year program.
- The LOF for a given pipe is based on a set of ratings. Ratings were based on two conditions:
 (1) likelihood of failure regarding pipe age; and (2), known problem area ranking from one to three where one is highest priority.
- The COF was scored on depth of sewer below grade, diameter, and potential impact to important public facilities above or near a sewer (e.g., roadways, railroads, and water system). COF utilized a scoring system from one to three with three having the highest consequence.

The model was developed and implemented to determine the prioritization of each sewershed from highest to lowest priority, resulting in a ranking of the sewersheds, in descending order of priority, as follows: J, M, G, K, H, F, D, L, N, I, B, A, E, and C. This ranking represents the order in which the sewersheds were to be investigated and analyzed.

Manhole Inspection and Pipe Screening with Pole Cameras

The project team field staff utilized pole cameras to identify sewer segments ahead of traditional tracked/wheeled CCTV camera inspections. Both manholes and sewers were inspected with the pole cameras in all the sewersheds over the five year period.

Pole cameras were used to perform manhole condition assessments based on the National Association of Sewer Service Companies (NASSCO) approach. Inspectors scored each manhole from 1-5, with 5 being the worst. Manholes or pipes that could not be inspected were listed as 0. While in the manhole, inspectors performed NASSCO based condition assessments on the pipes, and assigned condition scores, 1-5. Crews followed a NASSCO Manhole Assessment Certification Program (MACP) and Pipeline Assessment Certification Program (PACP) inspection and include the following:

- Manhole materials
- Pipe materials
- Condition Assessment of all components
- Rating of structure
- Rating of pipe
- Top and Landscape photographs

The high-quality visual provided by the pole cameras allowed inspectors to evaluate approximately 200 feet of each pipe (100 feet in the

upstream manhole and 100 feet from the downstream manhole). Inspections were performed using handheld tablets linked to the City's GIS platform and captured construction materials, condition, score/rating, and photographs. An additional photograph was captured if a defect was identified during inspection.

Observations identifying a manhole to have a substantial defect that could impact the health or safety of the public (surcharged) were provided to WPC via an email notification and phone call. During the first year of inspections, ten manholes were identified to have an issue requiring notification. Similarly, pipe observations that were critical to operation and maintenance were also sent to WPC.

Prior to traditional CCTV inspection, pole camera inspections identified sewers with significant debris, severe structural damage, and other issues. Below is a summary of the work completed for the project.

Overall Summary

• 13,146 manholes inspected in the100-year-old



areas during the five year period

• 5,822 sewer pipes screened in the 100-yearold areas during the same period.

Sewer Screening Summary

In total, 248 miles of 100-year-old sewers were screened in the five year period. Each individual pipe was given a score between 1 (good condition) and 5 (poor condition).

Tables 1A through 1E, show the Screening Structural Scoring Results for Year 1 through 5. The tables show the defects by percentage from each year in the 1-5 scoring in tabular and graphical presentation.

Data Collection

This City's ArcGIS Online (AGOL) system and

Tables 1A-1E







Year 2 Screened Sewers >= 100yrs (2018)

Structural Score	Percentage	
0	6%	
1	2%	
2	28%	
3	61%	
4	3%	
5	1%	

Table 1B Sewer Screening Structural Scoring Results Year 2



Year 3 Screened Sewers >= 100yrs (2019):

Structural Score	Percentage	
0	11%	
1	2%	
2	45%	
3	38%	
4	4%	
5	1%	

Table 1C Sewer Screening Structural Scoring Results Year 3



Year 4 Screened Sewers >= 100yrs (2020):

Structural Score	Percentage	
0	5%	
1	2%	
2	52%	
3	36%	
4	5%	
5	1%	

Table 1D Sewer Screening Structural Scoring Results Year 4



Year 5 Screened Sewers >= 100yrs (2021):

Structural Score	Percentage	
0	25%	
1	3%	
2	46%	
3	24%	
4	3%	
5	0%	

Table 1E Sewer Screening Structural Scoring Results Year 5



associated suite of applications was determined to be the tool best suited for field data collection. AGOL includes a mobile field application named Collector. The field inspections were split into two processes, manhole and pipe screening inspections and full CCTV inspection.

Pipe screening inspection procedures were developed to streamline the field data collection process in order to maintain the integrity of the system and efficiently collect the needed information. To achieve a streamlined process, the data was "stubbed out", meaning the manholes and pipes identified for inspection were created displayed in the application prior to field work, allowing the field crews to fill out the attribute information in the application, rather than having to create new features.

A script was developed to split pipes in the middle to have an upstream and downstream portion of the pipe for initial screening. A field crew would then inspect the manhole and fill out preliminary information, such as Operation and Maintenance (O&M) conditions, structural conditions, date inspected, and any further comments. Photos were taken of the manhole, including a landscape and invert photo, and attached to the manhole point using the Collector Application. A screen capture of the desktop version of the application is shown below in Figure 2 Pipe Screening Inspection Application Example.

Data was uploaded immediately to the City's GIS database. All data was organized in the AGOL Collector program which allowed quality control from both the field and office. The City and project team were able to observe progress and the data through the GIS dashboard that was customized for the project.



CCTV Inspection

Engineers reviewed the pole camera inspections and recommended traditional CCTV inspections for pipes with a score of 4 or higher. Furthermore, the GIS-based approach enabled engineers to determine if adjacent pipes should be considered in capital improvements that might include multiple segments or an entire street.

This review identified sewer areas which were then evaluated for the following:

- Should a sewer be televised that is adjacent to a sewer rated 4 or 5? The sewer characteristics and screening observations were reviewed to make a decision if these sewers should be considered for CCTV as it relates to potential CIP project recommendations
- What is the level of cleaning needed to televise the sewer? The amount and type of debris was considered for the level of effort and based on the project's available funds.
- Is the sewer within the priority areas as determined by WPC.



Figure 2 Pipe Screening Inspection Application Example

Traditional CCTV work was conducted by multiple contractors. All inspections utilized NASSCO's Pipeline Assessment Certification Program (PACP) standards for pipe investigation.

Condition Assessment

Condition assessments included reviewing the results of the manhole and pipe inspections. A cursory review for assets with inspection scores of 1 and 2 was performed. Assets with scores 3 and above received detailed evaluation and inclusion in a table summarizing the defects and determining the overall condition of the asset. Detailed condition assessments included the following:

- Evaluation of three distinct condition scores,
 i.e. operations and maintenance (O&M);
 structural; combined.
- Complete detailed review for structural grades 3-5
- Determination of recommended rehabilitation

Condition assessment was performed upon completion of the inspection of sewers. The engineering review of inspection data resulted in a recommendation for repair, maintenance or reinspection for each pipe segment and structure in the project area that have been evaluated. The process of assigning rehabilitation recommendations consists of the following steps:

 Logging defects during inspection in accordance with NASSCO PACP/MACP standards

- 2. Inspection of database and assigning scores to each of the defects
- 3. Assessing the condition of the sewers and manholes using the structural and operational grades based on the logged defects and other available information
- 4. Performing an engineering review of the internal condition grades, defect information, inspection video, and available supplementary information to make rehabilitation recommendations.

Rehabilitation Recommendations

The outcome of the condition assessment process is the accurate understanding of the condition of the pipes and structures, from which the rehabilitation recommendations are made. Rehabilitation recommendations vary from continued monitoring through re-inspection to complete replacement based on the present condition and projected performance of the structure.

There are five levels of rehabilitation used for this project. Assigning a rehabilitation level helps establish schedule and priorities for rehabilitation. These rehabilitation levels include:

- Level 1 Continue Monitoring Existing Sewer: Sewer structure(s) is in good condition and only requires regular monitoring to ensure that deterioration is not occurring.
- Level 2 Clean the Existing Sewer: Sewer structures need cleaning to prevent hydraulic

failure (e.g., flooding, flow bypassing, dry weather overflow, and blockage).

- Level 3 Stabilize the Existing Sewer (Spot Repair): Sewers need local repairs to prevent further deterioration. The objective of this approach is to maximize the remaining useful life of the existing sewer by delaying the natural deterioration processes.
- Level 4 Line the Existing Sewer: More extensive work is required and would include renovating a sewer to enhance its structural and hydraulic performance and increase its life.
- Level 5 Replace the Existing Sewer: Replacement and/or abandonment of the existing sewer. This is most often selected when the existing sewer is badly deteriorated and cannot be rehabilitated, where the sewer requires rehabilitation and is located in an undesirable location, or where the sewer lacks sufficient hydraulic capacity.

Rehabilitation Level	No. of Rehabilitation Manholes	No. of Rehabilitation Pipes	Total Pipe Length (ft)
Level 1 - Monitoring	6,403	307	69,730
Level 2 - Cleaning	712	126	32,748
Level 3 - Spot repair	1,142	143	33,836
Level 4 - Lining	490	125	30,882
Level 5 - Replacement	53	44	10,664

Table 2 Summary of Rehabilitation Levels

A summary of all manhole and pipe rehabilitation levels evaluated in the five year period is included in Table 2 Summary of Rehabilitation Levels.

Conclusions and Cost Savings

The use of a pole camera to perform condition assessments resulted in significant savings by the City of Cleveland for several reasons:

- 1. The City estimated that traditional CCTV inspection of all of the pipes 100 years old and older would have cost over \$18M at the onset of the project. Using the pole camera to perform both manhole and pipe inspections allowed for cost-effective identification of those assets that needed investment and those that obviously did not. Assets in those categories would not benefit from the more costly traditional CCTV investigation.
- 2. The program provided accurate condition information to contractors who were estimating the level of effort on light and heavy cleaning work.
- 3. The program added data to the existing GIS network including inspection information, photographs and condition assessment of manhole and pipes which was nonexistent prior to the project.
- 4. The program reduced standard CCTV inspections in areas that did not require it.
- 5. City estimated \$12M in savings incurred over the duration of the 5-year program.



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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 Exhibitiononly 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 City of Bellevue City of Canton City of Celina City of Dayton 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

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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

"The only thing constant is change." – Heraclitus

Have truer words ever been spoken? If the past two years have taught us anything, it is that change is inevitable. OWEA is no exception to this, and these changes will make for a stronger association and industry.

One of the most exciting areas of change is in WHO we are becoming. Recently, our new President Brandon Fox shared a photo from the 1940 Water Purification Conference that he discovered during an office clean out. I am sharing this photo along with a selfie taken by outgoing president, Jason Tincu during our recent Executive Committee Meeting. These photos really show how much this association has changed and grown in relation to who we represent and who we are becoming. We are now a group that is made up of all genders and all ages. Our members work as front-line operators, supervisors, lab personal, salespeople, and engineers.



To stay relevant, we know we must continue to change and grow. Recent decisions and changes will help us do just that! We are starting a Diversity, Equity, and Inclusion (DE&I) committee. We are working with leaders in both the public and private sectors, along with those from the Water Environment Federation (WEF) to develop a committee that will ask the tough questions and have the challenging discussions. We know developing a diverse workforce is key to improving our labor challenges. This committee is the first



step in ensuring our organization will continue to represent all members of the wastewater sector. We are stronger when ALL voices are at the table and are hopeful this group can examine all that we do with a DE&I lens.

We also want to continue to grow our membership and the best way to do that is by offering options! WEF membership features lots of perks, including award winning publications and a discount for attendance at WEFTEC and specialty conferences. It's truly a great value. However, we recognize that the cost of WEF membership may be out of reach for those from smaller communities or who's employers might not cover the cost of membership. In response to this we have chosen to offer a state only option. This option will not include any WEF benefits but will hopefully lead to an increase in our reach. State membership is \$50 for operators and lab personnel and \$90 for other professionals. This new membership option represents a great opportunity to reach out to that co worker who's not been a member before and chat about why you are a member. All the information about both WEF membership and state only membership is available on our website.

We know we have a qualified worker shortage and workforce needs are changing. We want to ensure we are working to promote the industry and get those qualified employees into this profession and KEEP them in it. This means as an organization we have to keep pace with our ever-changing workforce and their training needs. We asked you, our members what your needs were, and we heard loud and clear that licensure preparation to help operators obtain their license is a large need. We have created a task force for training and are working to offer you something that is different and a cut above what is currently available. You will hear more about this endeavor as the year progresses.

As you can see, we are changing! While sometimes change is challenging, I firmly believe OWEA will be stronger for these changes. We will grow membership and help produce better educated operators. We will promote and develop a diverse workforce. Your executive committee and office staff is flexible and will pivot as needed to best serve our members and the wastewater profession in Ohio.

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The True Value of Membership

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

Introduction

Most human beings yearn for a sense of belonging. Mental health experts tell us that human interaction where common goals are shared, and friendships are developed, is one key to a happy life. Belonging can take many forms including schools, tribes, professions, fraternal organizations, and churches to name a few.

In this article, I emphasize positive aspects of membership in the Water Environment Association and our new option, the OWEA State Membership. The leadership of this organization introduced the new State Membership at the One Water Conference in July 2022.

WEF Lifetime Membership

IadheretoastrongbeliefthattheWaterEnvironment Federation (WEF) is the premier organization for water quality professionals. On July 1, 2022, I marked an anniversary of being a WEF member for 39 years. Through the years I developed many great relationships with WEF staff and fellow volunteers on a national level. I served on the WEF House of



Delegates for two terms for six years and am currently a member of the WEF Government Affairs Committee. I like being part of an international group dedicated to protecting and preserving water quality and the interactions with people from across the United States and other countries.

As a former committee chair for the OWEA Government and Regulatory Affairs Committee, I benefited greatly by my association with the WEF Government Affairs Committee by getting information, critical insights on legislation and participating on the Water Week Fly In. The intellectual power of WEF in association with other Member Associations such as OWEA benefited our committee greatly.

Irecently was awarded a WEF Lifetime Membership. This is a longevity award for someone who has been a WEF member for 35 years and has reached age 65. I was given a handsome plaque, a new membership card, and lapel pin.

WEF Lifetime Membership offers member discounts on books and some conferences, but most important for me is achieving this honor of longevity in this illustrious organization. For those meeting life member criteria, I urge you to apply. The application process is simple, and I received an almost immediate response from WEF.

OWEA Only Membership

As discussed in this issue of the Buckeye Bulletin, the State Membership option was voted on and passed by the Executive Committee in March 2022 and introduced at the One Water Conference in July 2022. Rationale behind this option is based on the premise that many of our members capture their full membership experience in Ohio and not through WEF except for the monthly magazine. Over the last several years our membership numbers have been stagnant and we felt this state only option was a great opportunity for growth. Benefits include lower membership dues and the same OWEA member benefits as full WEF members receive. Our OWEA staff developed a brochure comparing membership options.

After very insightful discussion with OWEA's leadership team, I realized several things:

- Many of our members work in multiple areas of manufacturing, consulting, and utility management including wastewater, drinking water, and other public works. Their interests are broad versus narrow.
- Employers will often pay for only one membership. Due to cost, many water professionals are forced to make choices when funds are short. For example, I personally have wanted to be a member of both AWWA and WEF, but due to my primary vocational interests, I have always been more connected to WEF.

We hope that State membership will appeal to water professionals wishing to explore OWEA for the first time without paying the full \$170 WEF and OWEA dues (professional membership dues which I paid for many years). Over time, we hope for two things to occur:

- The lower cost option of State membership will benefit many of our members wishing to focus on events in Ohio at a more affordable cost than what was possible in the past.
- Over time, we hope that this membership option will be a stepping stone for members to ultimately become acquainted with WEF and then be encouraged to become full WEF members. While I have relished my association with OWEA, I would not have become the water

professional I am today without my association with WEF.

In Closing

State Membership will provide water professionals with an affordable stepping stone to explore OWEA and then later join WEF if they so choose. Ultimately, we are trying to provide another membership option recognizing that some members derive their membership experience only at the section and state level, while others are involved with WEF at the national level.

Dedication to Jim Greener

I dedicate this column to my friend James (Jim) L. Greener, II (1944-2022). We were notified of his passing on May 10, 2022, by his close friend Stuart Bruny. While I first met Jim in 1987 while working at the Ohio EPA, I believe that we developed a friendship around 2014 through section meetings and annual conferences. While Jim was twelve years my senior, we shared a common past including working for the Ohio EPA Grants Program, a passion for our profession, promoting clean water, the Ohio Water Environment Association including being past presidents and WEF Delegates, and a common employment history by working for both consulting firms, state, and local governments. I will always remember him for his zeal, cheerfulness, and quick smile. We were both story tellers. I spent a part of the day with him at the Northeast Section Meeting in Massillon on September 30, 2021 and then driving him home after his car accident around noon. Despite the accident

Jim remained upbeat and cheerful. We spent a pleasant two hours driving to his home. I had looked forward to seeing Jim and Stuart at the One Water Conference this year. Rest in peace my friend!





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Josh Holton, President

I am extremely excited and humbled to serve as the 2022-2023 Southeast Section President. It is hard to imagine this journey through the Section. During this journey, I have met so many great people who are truly dedicated individuals to promoting the future of the water industry. Trying to wrap my mind around this journey that has encompassed getting married, having two beautiful girls, one employment change and a few position changes. I started down the joyous OWEA path as a freshly out of college graduate and with the persistent guidance of Brandon Fox to become involved in this great organization.

I stumbled or fell head over heels into this field. While attending Capital University for Education and Political Science, I had the terrific opportunity to work part-time for Fairfield County Utilities. After graduating college while I was still figuring out what I wanted to do with my life, Fairfield County offered me a full-time position. It is in this time that I fell in love with the water industry and the people who dedicate their lives for the betterment of tomorrow. I then had the opportunity to grow with Southwest Licking Community Water and Sewer District. I am now currently the Wastewater System Supervisor for the District.

I want to thank our outgoing President, Tiffany Maag for her dedication and commitment to the section as section President as well as her many other roles throughout her journey. The 2022-2023 Executive Committee will be chaired by Tiffany Maag-Past President; 1st Vice President-Amy Eberhart; 2nd Vice President-Aaron Pennington; Secretary-Jamie Mills; Treasurer-Kelli Jamison; Third Year Director-Cory Smith; Second Year Director William "Tucker" Randles; First Year Director-Joe Cook. The Executive Committee is excited to plan this year's upcoming events. We have one last event scheduled for the remainder of this calendar year, which will be in late September or early October. This meeting's focus will be on pretreatment which is outside our normal schedule. This will allow us to do plant tours that deal with industrial pretreatment not just the industries themselves.

I hope everyone had a wonderful time at the One Water Conference. We are so thankful for those that could attend and learn from each other. I encourage everyone to reach out to your colleagues to attend OWEA events. The amount of information exchanged is truly remarkable. The people of OWEA are such a large asset to the water community.









NES WEA

Jennie Celik, President

Hello OWEA, and welcome to a new program year for 2022-2023. How time flies! It feels like yesterday when I was nominated to the Executive Committee. Now, five years later, I am excited and honored to serve as NESOWEA President.

I'd like to extend thanks and gratitude to our outgoing President, Bill Zawiski. Bill has been a dedicated volunteer serving on the NESOWEA Executive Committee (EC) over the past six years. He has also chaired the NESOWEA Watersheds Committee for many years. Bill is a great supporter of our organization and is passionate for educating others – both professionals and students – about our industry. Our EC will certainly miss his humor and jokes, and (as a band member in his spare time) his professional AV equipment set-up abilities. Thank you for your service, Bill! It was a pleasure to rise through the EC chairs with you.

I'd also like to extend many thanks and gratitude to our outgoing Treasurer, Todd Taylor. Todd has served as Treasurer since 2014. His dedication to our organization goes above and beyond expectations. Todd's second treasurer term ended during the volatile pandemic, and recruiting new volunteers was a challenge. With the support of our EC, Todd agreed to continue serving without hesitation. To recognize Todd for his service, he was awarded Outstanding Volunteer at our May Business Meeting. Thank you, Todd, for your long-term commitment and dedication to our Section. We are grateful for your long-term service. Our NESOWEA Executive Committee for 2022-2023 contains two new representatives. Please welcome Gary Fedak as incoming Treasurer and Matt St. Pierre as 1st Year EC Member. Our NESOWEA Executive Committee for 2022-2023:

- Bill Zawiski, Past President, Ohio Environmental Protection Agency (OEPA)
- Jennie Celik, President, HDR
- Steve Baytos, Vice President, City of Akron
- Krishna Chelupati, Secretary, Stantec
- Kristi Babcock, 3rd Year EC, City of Wadsworth
- Doug Dietzel, 2nd Year EC, City of Lorain
- Matt St. Pierre, 1st Year EC, Wade Trim
- Gary Fedak, Treasurer, Lake County, Department of Utilities

I am very much looking forward to an active 2022-2023 program year for OWEA and our Section. We all have experienced much uncertainty through the past two years with the ability to host events in-person. The NESOWEA has successfully been returning to inperson seminars and events, and we look forward to continuing to do so.

Please look for our NESOWEA event announcements at *www.ohiowea.org*. We welcome you to attend our events, or contact us regarding joining a committee or volunteering. By becoming active in our organization, you will meet new people, strengthen existing relationships, and feel rewarded for giving back to our great industry. I hope to see you soon!

Jennie Celik, jennie.celik@hdrinc.com





Justin Bahar, President

I am so thankful for the opportunity to serve as the SWOWEA Section President for 2022-2023. The time spent getting to this point has gone by quickly, with lots of movement within the executive committee and everyone has done a tremendous job learning on the fly. Volunteering in this organization has given me such immense respect for all the different committees and individuals that put countless hours in to make these events a success. A huge THANK YOU to now past President David Reinker. You did a wonderful job leading us during a difficult to navigate first year back from the pandemic, from masks and box lunches to buffets you made it work. Enjoy past president duties and know that you have done a great job all the years you served on the EC. Also, a big thank you to my colleague, Jason Tincu (current OWEA President) for the push to join the EC from the start.

A little about me. I am the Assistant Treatment Superintendent for the Metropolitan Sewer District of Greater Cincinnati (MSD). I am a Professional Engineer and hold a Class III WW Operator License. I graduated from Anderson High School, attended Ohio University for a bachelors and master's degree in Mechanical Engineering before starting my career as a design engineer with Brown and Caldwell in 2008. After 6 years I came to work for MSD in 2014. Being born and raised in Cincinnati and the son of a former MSD employee, you could say that wastewater is in my blood. I continue to live in Anderson Township and reside there with my wife of 7 years, Laura, and our three daughters Briana (5), Hannah (3), and Mia (3). Outside of work, I enjoy climbing, mountain biking, soccer and golfing, whenever my girls let me off the hook.

My vision for this year is to get our numbers back up to the pre-pandemic era participation. This will require not only reengaging those we've lost along the way, but bringing in new operators, engineers, consultants, contractors and business managers who will benefit from the many great opportunities SWOWEA provides. Please reach out to me with questions about volunteering, or suggestions for the SWOWEA Executive Committee, because we are here for you.

Our Executive Committee for 2022-2023 will be:

- David Reinker, Past President, City of Miamisburg
- Justin Bahar, President, MSD
- Kevin Stillwell, Vice President, Clear Consulting, Inc.
- Bryan McNutt, Secretary, City of Middletown
- Ed Smith, Treasurer, City of Mason
- Chris Zdinak, 1st year Director, MSD
- Joseph Kamalesh, 2nd year Director, Stantec Inc.
- Travis Cooper, 3rd year Director, Fairborn



Left – Past President David Reinker; Right – President Justin Bahar Buckeve Bulletin - Issue 3 | 2022

NWOWEA Past President Luncheon

photos courtesy of Todd Saums and Elizabeth Wick

On May 6, some of the NW Section Past Presidents got together at Stone Ridge Golf Course in Bowling Green. It was great to see each other. It was not the best day for golf. We all had a good time anyway!





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* Further discounts on Full Conference & Expo registration are extended to Academic, Life, Professional Operator, & Young Professional members of WEF, and to Students (members & non-members). Rates listed for WEF Members "Expo Only" exclude the E-Global member category. To view all rates, visit www.weftec.org/register.

In Memorium

1996-1997 OWEA President Jim Greener passed away

by Stuart Bruny

James (Jim) L. Greener, II, 77 passed away May 9th, 2022. Jim graduated from Cleveland State University with a BS in Civil Engineering and from Akron University with a MS in Civil/ Environmental Engineering. Jim began his professional career as a regulator with the Ohio Department of Heath in the Northeast District Office(NEDO). He moved to Ohio EPA when it was created in 1972, working in the NEDO and in central office until

1978. He served as the Public Wastewater Manager and was instrumental in agency wastewater start up programs. Jim was also a key player in the initial Ohio EPA construction grants program. Jim spent many years as a consulting engineer with John David Jones and Associates and Metcalf & Eddy before becoming City Engineer at Ashland, Ohio. Although retired when he passed away, he most recently worked for

Portage County Water Resources Department. Jim was a registered Professional Engineer, a Certified Environmental Auditor, a Registered Environmental Manager and held Class III Water and Wastewater certifications.

Few people were more active and supportive of NEOWEA and OWEA. Jim served as a Northeast Section Officer from 1984-90 and President in 1989-90. He was Northeast Section Delegate to OWEA from 1990-92, and held all officer positions



at OWEA, becoming President in 1996-97. Jim served on the Legislative Committee(Chair), **Annual Conference Committees** and several WEF Committees, Government including Affairs(15 years), Residuals Management, and Non-Point Source. He also served 3 years as OWEA Delegate to WEF. Jim received many awards including the OWEA's Larry Moon Award and Lifetime Engineering Achievement Award and

WEF's Arthur Sidney Bedell Award. He was the 2016 Northeast Section Keith Riley "Outstanding Supporter" Award recipient. Jim was inducted by his peers into the 5S Society, class of 1998, and became a WEF Life Member in 2009.

Jim was an avid Cleveland sports fan, following the Indians(Guardians), Browns and Cavs for many years. He loved all things Notre Dame and relentlessly followed their athletic teams. He was proud of the many letters to the editor that were published, most related to the environment, environmental policy or occasionally politics. Jim loved and often talked about his three children. He had extensive collections of books, vinyl records, VHSs, DVDs and CDs. His sense of humor was unmatched. OWEA, Ohio's environment, his family and friends will miss Jim Greener. To my good friend, of nearly 50 years, may you rest in peace until we meet again.

Certification Committee

by Kathy Beckett, Certification Chair

The OWEA voluntary certification program recognizes wastewater professionals who pass rigorous examinations for OWEA Wastewater Laboratory Analyst certification and Industrial Waste Inspector certification. This program allows individuals opportunities for professional development and promotes education in the field of water quality. Although certification is voluntary, many employers across Ohio require the OWEA Laboratory Analyst certification for wastewater laboratory analyst positions.

Computer based testing (CBT) for Wastewater Laboratory Analyst and Industrial Waste Inspector certification examinations are available by applying online at OWEA *https://www.ohiowea.org/ certification.php*. Once approved you will receive an email from AMP Customer Service to schedule your exam at a PSI testing center located near you.

The following individuals achieved OWEA Wastewater Laboratory Analyst certification from April - June 2022.

Class I Wastewater Laboratory Analyst

Seth Detlor

George Haggerty

Cameron Taylor

Class II Wastewater Laboratory Analyst Emily Darnell

Vivian Miller

Class III Wastewater Laboratory Analyst Ralph Rabish

Join me in congratulating these professionals on their accomplishments.

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





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Committee Reports

Collections Committee

by Dan Martin and Afaf Musa,

Collections Co-Chairs

Please join us for the Collection Systems Hands On Seminars this fall – coming to a municipal location in YOUR section:

Southwest Section - October 6, 2022 Montgomery County Environmental Services

Northeast - October 13, 2022 Akron WRF

Southeast- October 20, 2022 Central Maintenance Facility (DCRSD)

Northwest - November 3, 2022 Northwestern Water & Sewer District

Topics may vary by section, but include:

- Chopper Pumps (with demo unit) Crane Pumps / Excel Fluids
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- Bypass Pumping Strategies Blue Tank & Pump
- Pump Station and Force Main Cleaning Jack Doheny
- Watertight Manhole Integrity ConSeal

Four contact hours of credit are planned with coffee and lunch at a very affordable price. More details to come. Special thanks to our venues, local section coordinators, and our presenters.

If you have any questions or would be interested to learn more about our active, dynamic committee, please feel free to contact our co-chairs Afaf Musa and Dan Martin: *musaab@cdmsmith.com, dmartin@raconsultantsllc.com*. Have a great summer! *www.ohiowea.org* We believe **communities** can make a profound impact towards **improving our climate and creating a better environment** for their citizens.









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2022 Student Design Competition

by Muralikrishna Chelupati, Student Design Competition Chair

Congratulations to Anna Soehnlen, McCallah Ferry and Noor Fahoum from University of Akron and Arianna Killing, Molly Drews and Jillian Bastock from Cleveland State University for winning the 2022 Student Design Competition. A list of students who participated in the competition is below.

This year's competition was held virtually on Friday, April 22^{nd} , where four (4) teams presented their innovative ideas to a panel of judges from OWEA. Thanks to Keith Riley, Jason Tincu from Greene County, Christen Wood from Jacobs, and Jonathan Jankowski from NEORSD for volunteering their time as judges for the competition. The winning team received an all-expense paid trip to attend the One Water conference in Cleveland and WEF Student Design Competition at WEFTEC in New Orleans. The University of Akron team presented their project A Comprehensive Assessment of the Akron Water Reclamation Facility at One Water and will present at WEFTEC. If you are attending WEFTEC, please show your support for the next generation water professionals by attending their presentation.

Thanks to Steve Baytos from City of Akron and George Remias and Nicholas Merchant-Wells from NEORSD for providing the wastewater and stormwater projects for the competition. Wastewater teams had an opportunity to tour the Akron Water Reclamation Facility. Additionally, we would like to thank Tom Zocolo from City of Akron, David Gleason, Mark Loria, and Bryce Rizzo from Stantec for providing guidance to the teams.

We would like to thank Dr. Sanda Kaufman and Dr. Brice Grunert from Cleveland State University, Dr. Kurt Rhoads from Case Western Reserve University and Dr. Chris Miller from University of Akron for promoting the design competition at their universities and encouraging their students to participate in the competition. Competitions such as the Student Design Competition offers students opportunities to work on real world projects and apply the skills learned through the coursework, improve presentation and public speaking skills, experience working in a team environment, network with water / wastewater industry professionals and peers from other universities.

If your water reclamation facility / utility have ideas for wastewater and / or stormwater projects for the design competition, please contact the SDC committee members Paul Solanics, Krishna Chelupati and Meredith Cariglio. In addition, the student design committee is looking for volunteers for mentors / adviser roles for the 2023 competition. If you are interested, contact Krishna at *Muralikrishna*. *Chelupati@stantec.com*

Committee Reports

Name	School	Team	
Abby Slates	Case Western Reserve University	Wastewater	
Andi Chakraborty	Case Western Reserve University	Wastewater	
Sofie Iwamasa	Case Western Reserve University	Wastewater	
McCallah Ferry	University of Akron	Wastewater	
Anna Soehnlen	University of Akron	Wastewater	
Noor Fahoum	University of Akron	Wastewater	
Lilian Velez	Case Western Reserve University	Stormwater	
Savannah Walters	Case Western Reserve University	Stormwater	
Avi Horwitz	Case Western Reserve University	Stormwater	
Anthony Bartsch	Case Western Reserve University	Stormwater	
Grace Warren	Cleveland State University	Stormwater	
Kanani Sanders	Cleveland State University	Stormwater	
Brandon Fitzpatrick	Cleveland State University	Stormwater	
Jillian Bastock	Cleveland State University	Stormwater	
Arianna Killing	Cleveland State University	Stormwater	
Molly Drews	Cleveland State University	Stormwater	



Team 1 - Case Western Reserve Universisty



Team 2 - University of Akron



Team 3 - Cleveland State University



Team 4 - Cleveland State University

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