Ohio Water Environment Association
Volume 90:2 | Issue 2 2017

Buckeye Bulletin

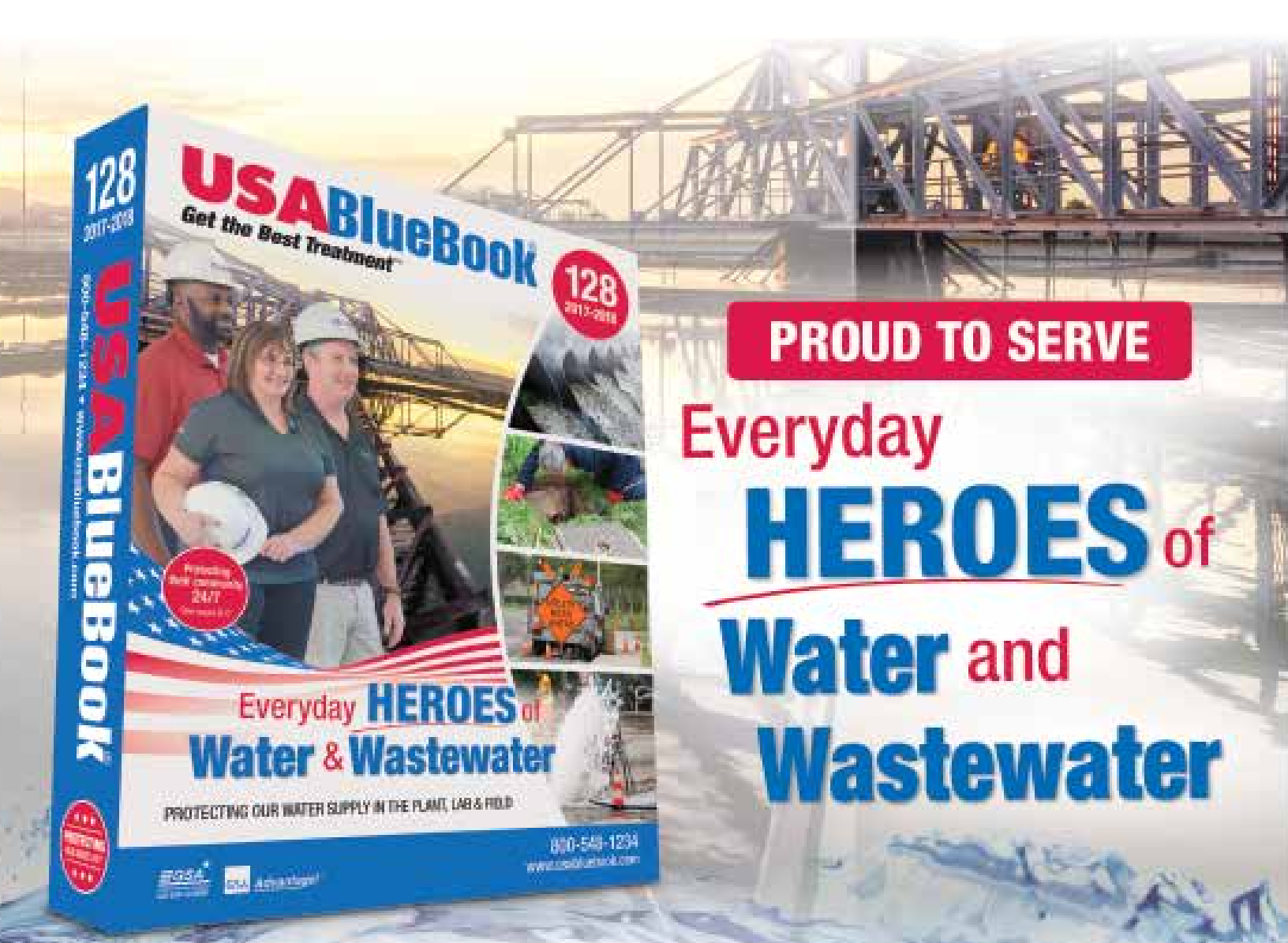
OWEA2017
2017 Conference Edition
June 26-29th, 2017
Cincinnati, OH
Details Inside

Appalachia Ohio Alliance

Read More Inside
pg. 60-62

Ohio Water Environment Association
Preserving & Enhancing Ohio's Water Environment

www.ohiowea.org



PROUD TO SERVE

Everyday HEROES of Water and Wastewater

Your #1 Source for Operations & Maintenance Supplies

USABlueBook is proud to serve the heroes of water and wastewater who work to keep our water supply clean and safe every day. Since 1981, USABlueBook has provided operators with the highest quality supplies, service and support. With 94,000+ products available, USABlueBook delivers 85% of in-stock orders in 1 to 2 days—all backed by a 100% Satisfaction Guarantee.

Request your FREE catalog today!

800-548-1234 www.usabluebook.com

USABlueBook®
Get the Best Treatment™

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.

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

Ohio Water Environment Association
1890 Northwest Blvd, Suite 210
Columbus, OH 43212
T: 614.488.5800
F: 614.488.5801
E: info@ohiowea.org
www.ohiowea.org

Elizabeth Wick, Publications Chair
Amy Davis, Executive Administrator
Megan Borror, Office Assistant
Chelsea Cameron, Office Assistant

Photos in this issue provided by: Cover Photo - provided by Ohio Appalachia Alliance. Other photos WikiCommons, OWEA Section and Committee photographers, article contributors, advertisers, Mike Welke, Amy Davis, and Megan Borror (list not all inclusive).

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

Article Deadlines: 1st day of January, April, July, and October

Publication Dates: Spring, Summer, Fall, and Winter

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

OWEA is a Member Association of the Water Environment Federation
601 Wythe Street
Alexandria, VA 22314-1994
T: 703.684.2400
F: 703.684.2492
www.wef.org

Water Environment Federation
the water quality people

Features

Departments

The Buckeye Bulletin is published four times per year by the Ohio Water Environment Association.
Individual subscriptions included with association membership.

2016-2017 Executive Committee

President Ted Baker
Baker and Associates
kingsnu@aol.com - 440.461.4577

President-Elect Jamie Gellner
Hazen and Sawyer
jgellner@hazenandsawyer.com - 513.469.2750

Vice President Fred Smith
CDM Smith, Inc.
smithfj@cdmsmith.com - 614.572.6123

Past President Elizabeth Wick
Ohio Environmental Protection Agency
elizabeth.wick@epa.ohio.gov - 419.373.3002

Secretary-Treasurer Jane Winkler
janewink1127@gmail.com - 513.910.3775

Senior WEF Delegate Tom Angelo
Municipal Treatment Solutions, LLC
tangelo@munitreat.com - 330.219.7883

Junior WEF Delegate Tom Fishbaugh
Ohio RCAP
tfish@fishbaugh.com - 419.639.0012

Junior WEF Delegate Dale Kocarek
Stantec
dale.kocarek@stantec.com - 614.486.4383

NW Delegate Kim Riddell
Alloway
kim.riddell@alloway.com - 419.234.4507

NE Delegate Mike Welke
City of Warren
mwelke@warren.org - 330.841.2595

SW Delegate Jason Tincu
Brown and Caldwell
jtincu@brwncald.com - 937.673.7563

SE Delegate Brandon Fox
City of Columbus
bdfox@columbus.gov - 614.645.3153

2016-2017 Section Presidents

NW President Jeff Thompson
jthompson@cityofstmarys.net

NE President Paul Solanics
psolanics@solonohio.org

SW President Jason Tincu
jtincu@brwncald.com

SE President John Owen
john.owen@epa.ohio.gov

2016-2017 Committee Chairs

Annual Conference Sharon Vaughn and Marty Davidson
sharon.vaughn@daytonohio.gov, marty@blanderson.com

Auditing Doug Clark and Tom Fishbaugh
douglas.clark@bgohio.org, tfish@fishbaugh.com

Awards Mike Frommer
mfrommer@co.delaware.oh.us

Certification Kathy Richards
krichards@akronohio.gov

Charitable Outreach Alicia Adams and Afaf Musa
aadams@munitreat.com, musaab@cdmsmith.com

Collection Systems Bill Horst
horstb@mcohio.org

Contact Hours Marc Morgan
marc.morgan@cantonohio.gov

Governance Elizabeth Wick
elizabeth.wick@epa.ohio.gov

Government and Regulatory Affairs Dale Kocarek
dale.kocarek@stantec.com

Laboratory Analysts Melodi Clark and Denise Seman
mlclark@columbus.gov, dseman@cityofyoungstownoh.com

Membership Tom Angelo and Deb Houdeshell
tangelo@munitreat.com, dhoudeshell@msconsultants.com

Past Presidents Doug Clark
douglas.clark@bgohio.org

Plant Operations Kim Riddell and Joe Tillison
kim.riddell@alloway.com, jtillison@bgohio.org

Pretreatment and Industrial Sharon Vaughn
sharon.vaughn@cityofdayton.org

Public Education Kevin Stilwell
kstilwell@raconsultantsllc.com

Public Relations Tom Angelo
tangelo@munitreat.com

Publications Elizabeth Wick
elizabeth.wick@epa.ohio.gov

Residuals Jamie Gellner
jgellner@hazenandsawyer.com

Safety Mike Welke
mwelke@warren.org

Small Systems Roberta Streiffert
rjstreiffert@wsos.org

Sponsorship Ted Baker
kingsnu@aol.com

Utility Enhancement Vacant
contact Amy Davis if interested

Watershed Anil Tangirala
atangirala@msconsultants.com

Young Professionals Alicia Adams
aadams@munitreat.com

Get Involved - Join a Committee Today

The Ohio Water Environment Association has 25 committees which focus on various aspects of the water quality field and association operations.

Contact OWEA at ***info@ohiowea.org*** or the chair of a committee that interests you for more information.

OWEA NEWS

The OWEA office is pleased to announce the addition of Chelsea Cameron to our team bringing our staff up to three members. Chelsea has been with us part time since October and was brought on for a full-time, permanent position in March. She comes to us from the medical field where she had various positions from clinical to clerical work for the past 15 years. She has an 11 year old daughter and is excited to be a part of the OWEA team.

OWEA Calendar

June
25 Executive Committee Meeting
26-29 OWEA Technical Conference

October
11-12 OWEA Plant Operations Workshop

November
16 OWEA Watershed Workshop

December
7 OWEA Biosolids Workshop

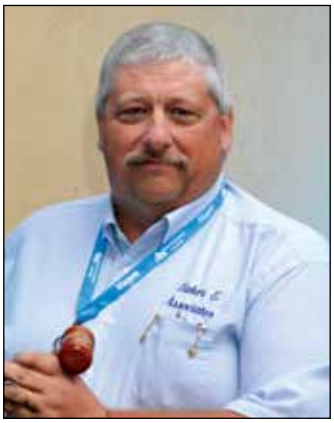
Welcome New Members

January 2017 - March 2017

Wasel Abdulsahib
Nana Ackerson
Ata Adeel
Lisa Agriesti
Matt Ambrogi
Kelsey Amidon
Daneil Baxter
Debmalya Bhattacharyya
Tom Bohrer
Chris Bowers
Joel Bradford
Delante Brady
Teresa Brandenburg
Chelsea Cameron
Christopher Chaney
John Christenson
Dave Church
M. Lee Clapp
Susan Clark
Elizabeth Clowes
Kevin Custer
Jenn Delebreau
Abdullah Diab
Cody Dibacco
Scott Eardley
Lowell Eisnaugle
Mark Feckanin
Derek French
Martin Gandolf
Eric Karl Gaskell
David Glisic
Kevin Granfors
Michael Gray
Simon Gundy
Johnathon Jankowski
Cody Kelley
Kevin Kempffer
Rick Kepler
Jameson King
Lawrence Knapp
Martin Langer
Peter Lehman
Tom Lilly
Gerald Mach
Dennis Massingill
David McCarty
Michael McCormick
Joseph McCoy
David McNeeley
Bryan McNutt
Wayne Messer
Mitchell Miller
Anthony Parone
Don Patton
Daniel Peoples
Howard Philipps
Robert Pintabona
Patekka Pope Bannister
Taylor Price
Edward Pritchard
David Rager
Tony Reese
Andrea Remias
Jan Rethmel
Douglas Sacha
Ty Kevin Saunders
Steven Schneider
John Simpson
Richard Sinclair
Arthur Smith
Phillip E. Smith
Anthony Spring
Robert Steimle
Winford Sterling
Mark Stieber
Richard Stockton
Donte Stoner
Charles Taylor
Natalie Thompson
Ryan Tonon
Gregory Tracy
Joe Tussey
Michael Ulan
Timothy Vandrasik
John Vanni
Kristen Vonderbrink
Francesca Wagner
James Warzlow
Sara Weekley
Mark Wensel
Steven Yeager
Danny Yodzis
Bradley Yost
Nathan Zgnilec

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.

My fellow OWEA members, it is hard to believe that this is the last Presidents message that I will be writing. In fact this is now my fifth try at doing so, the first four all found themselves destined for the circular file. As I close out my final months as your OWEA president I find myself wondering how I could ever express in words what an honor it has been to serve in this capacity.



Ted Baker
OWEA President

When I joined this organization in August of 1990 I could have never imagined myself in this position. I remember sitting at meetings, both section and state wondering if I would ever make it 20 or 25 or even 30+ years in this business. Wondering if I could ever dare to live up to the man my father was in this business. I know now that I can make it in this business as I am now in my 27th year, and I know that I will never be my father. Just as many, and I mean many of you are, my father was one of a kind. It has been over six years now since we lost my father and I hope he is looking down proud of the person that I have become.

It is my hope that I have left our organization just a little bit better off then when I took office. As a board we have made progress on many tasks that past presidents have started, and the tasks of this year will be no different. With an organization as large as OWEA the ships direction just simply doesn't move that fast. I look forward to working with Jamie Gellner as he takes the wheel and continues to move our relevance forward.

We have already seen growth in our training numbers and by the time this issue hits the newsstand we will have completed our first ever multi day training course on Troubleshooting Activated Sludge. The board is already hard at work on introducing more training opportunities for our members, including ethics classes for our consultant based membership. And we are making progress on being the go to organization for operator training, so that those new and young operators can improve their skills and earn higher certifications.

We are looking for ways to expand student chapters to other colleges and universities in the state using the Cleveland State success as a guideline. And I am personally excited to see our three largest service providers, The NEORSD, The City of Columbus and Cincinnati MSD all participating in Operations Challenge at this year's State Conference. Based on the early attendance growth at our workshops I expect this year's Conference to be nothing short of outstanding. The Southwest Section picked some great people to lead this years charge and I hope we see many new faces in Cincinnati.

Before this concludes I absolutely must thank those that have been on this journey with me for the last year. These outstanding individuals give selflessly to better this organization, as did all of those that came before them. Our three WEF delegates Tom Angelo, Tom Fishbaugh and Dale Kocarek who have dedicated no less then 11 years to this organization. The Executive Committee of Elizabeth Wick, Jamie Gellner, Fred Smith, Jane Winkler, Kim Riddell, Mike Welke, Jason Tincu, and Brandon Fox this journey would be meaningless without friends like all of you. To our OWEA staff led by Amy Davis and to all of the hard working committee chairs, thank you for everything you continue to do.

And now it is time to say goodbye. There is still no written words that can express the honor this has been. Being the OWEA president will be part of who

Ted Baker is currently the owner of Baker & Associates, a manufacturers' rep firm in the state of Ohio, where he has worked for the past 26 years. He is a member of the Select Society of Sanitary Sludge Shovelers (5S) and a recipient of the Keith Riley Outstanding Supporter award. He has a Bachelor of Science degree in Economics from The University of North Carolina, Greensboro.

Ted resides in Munroe Falls, Ohio with his wife Mary. They have two children, one daughter, age 22, a recent graduate of American University and one son, age 20, a Junior at Xavier University. Ted is an avid golfer and geocacher and he and his wife love to travel, especially to Walt Disney World in Orlando, Florida.

2017
Executive Committee Meeting Dates

June 25, 2017 Hyatt Regency – Cincinnati, OH

I am forever and I thank each of you for allowing it to happen. My hope for all of us is that we can each continue to do what we love for as long as we are able, because everything each of you do every day makes a difference in thousands of people's lives.

To my father, I love you, I miss you and thank you for encouraging me to be part of something special
Ted Baker
President, Ohio Water Environment Association

Harry Baker, Ted's father (LEFT) and Ted Baker (RIGHT).

Executive Committee Position Nominations

Interested in being part of the state executive committee? Nominations are being accepted through May 31, 2017 for the positions of WEF Delegate, Secretary-Treasurer, and Vice President. If you are interested in one of these positions, send a letter of interest along with a letter of support from your employer to Nominations Chair, Dan Sullivan at *dan@sullivanenvtec.com*

Our Focus Remains the Same

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

Remembrance of the 1970s

Saturday Night Live Festrunk Brothers in the 1970s

I remember the 1970s with fondness. To me it was a formative and very good time as I transitioned from Junior High School to High School, and College. I graduated with a degree in Civil Engineering in 1980.

The 1970s were a welcome contrast to the 1960s, marked by the Vietnam War, civil unrest, and three assassinations. Culturally, the decade seemed light, cheerful and unrestrained. Old traditions changed. The Beatles broke up, and new TV shows such as *Mary Tyler Moore* and the *Carol Burnett Show* became popular as Saturday night staples.

One of the most popular shows of the time was the original *Saturday Night Live*. One of my favorite spots featured the Festrunk Brothers as the "two wild and crazy guys", who escaped Communist Czechoslovakia to party in the United States. Dressed in wild colors and leisure suits, this spot was inspired by real life Czech comedian and banjo musician Ivan Mdadek. Being of Czech ancestry, I was fond of this segment.

On the National Front

Politically, the 1970s included several points of inflection on national views of the US Presidency and government. People became more skeptical of government. Nixon resigned, was pardoned by Gerald Ford and Jimmy Carter elected. Carter, an outsider, was viewed a refreshing change from career politicians.

In many respects, views are similar today. Jimmy Carter captured the populist vote in America with people seeking change, much like Donald Trump did in 2016. So, history repeats itself. Donald Trump, with no direct experience in government achieved what most felt was unachievable up until late election night on November 8, 2016. Through the primaries, one by one able men and women dropped out, Mr. Trump remained strong, seemingly invincible until he became "The Candidate."

When it Comes to Elections

The 2016 US Presidential election changed the views of pundits and pollsters alike. The assumption that voters fall neatly into two static categories – Republican and Democrat – is no longer correct. Most people seem to be a unique prism of conservative and progressive views, tempered by realism and common sense about their needs, concerns, and dreams.

Wendell Wilkie, 1940 Presidential Candidate

Donald Trump is not the first populist to run for national office that never held office before. In 1940, Wendell Wilkie (1892-1944) ran for President against the aging Franklin Roosevelt (1882-1945). While Wilkie lost the 1940 election, his showing was respectable. His reputation continued to grow and later he became a trusted advisor to President Roosevelt during the last few years of his life. A Democrat until 1939, Wilkie spent his career as an attorney involved with the utility industry. Had he not died in 1944 at the age of 52, it is likely that he would have been a force in politics in the next decade.

Views on Infrastructure

Political views on infrastructure appear to be often in the "top 10," but seldom appear to make it to the "top 3." Having gone on the WEF Fly In to Washington DC for six years, I have drawn the conclusion that "infrastructure funding is important but not always considered urgent." Most of our officials universally agree that needs for water and wastewater funding of infrastructure is very important.

Based on my own research, I have concluded that "infrastructure movements" have been motivated by the following:

Major Public Works Infrastructure Programs of the 20th Century

Act, Program or Project	Primary Years	Motivating Factors	Benefits
Defense Highways Act of 1956	1956-1974	National defense	National interstate system
Works Progress Administration	1935-1943	Unemployment	Many public works projects of lasting value
Civilian Conservation Corps	1933-1942	Unemployment of young adults	Improvements to national parks
Hoover Dam	1931-1936	Commerce, development, and water supply	Development of the Southwest
Clean Water Act, Construction Grants Program	1975-1992	Public reaction to deteriorating waterways, which were not fishable or swimmable	Sewer systems and wastewater treatment plants

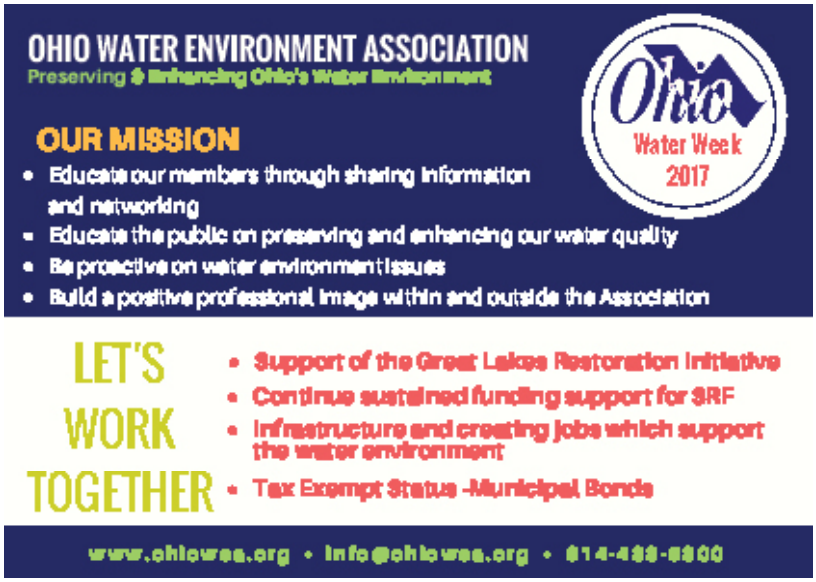
Our Role and Responsibility

Unfortunately, I was not able to attend our annual WEF Fly In event in March 2017 but OWEA was fortunate to have a seasoned group attend: Doug Clark, Fred Smith, Jason Tincu, and Amy Davis. They will report on their visit in another article.

One thing that we did different this year was to have a concise elevator pitch to keep our message simple and to the point. Our leave behind is featured to the right.

After the Republicans failed to repeal and replace Obamacare, the President appears to be gradually turning his attention to an infrastructure funding bill. While past discussions on infrastructure always focus on highways, bridges, and airports, it is our responsibility as an organization to make sure that our elected officials do not forget the need to continue to fund water and sewer infrastructure.

So far, our efforts along with others at WEF and AWWA have helped keep funding of the State Revolving Fund (SRF) to respectable levels. This must continue. It is not a Democratic or Republican position, but one born of common sense and demonstrated need. It is a populist view.



Tom Angelo

Tom Fishbaugh

Dale Kocarek

The "Public Communication and Outreach for Member Associations Committee" is one of the House of Delegates (HOD) Committees of which I, Tom Fishbaugh, and Dale Kocarek are members. As the name suggests, we are charged to communicate with the public and to help the Member Associations (MAs) in getting the word out about what we do.

One of our endeavors has produced what we call an elevator speech. Ever been asked "What is it that you really do?" This elevator speech will help you answer that. It was designed inform in the time you take an elevator ride.

HOD Public Communication and Outreach for Member Associations Draft Elevator Pitch

Revised April 21, 2017

Ongoing access to clean, safe water is essential to our way of life!

- Plentiful, predictable, and sustainable clean water has tremendous value!
- Safe and clean water is key to Public Health and protecting environmental gains:
  - Advances in W/WW treatment are responsible for some of the greatest improvements in public health over the past century, including:
    - The virtual elimination of typhoid fever and cholera and
    - A 74% reduction of the infant mortality rate in the USA
  - Since the enactment and implementation of the 1972 Clean Water Act (CWA), the number of fishable and swimmable waterways in the USA has nearly doubled. Prior to the CWA, numbers of these waterways were steadily declining.
- Investing in clean water grows the USA economy and creates jobs
  - Every $1 invested in clean water infrastructure increases long term GDP by $6.35, and provides $23 in public health related benefits
  - Each new job created in clean water leads to 3.68 jobs in the national economy (1)
- The USA clean water infrastructure is failing
  - Average age is 60-130 years old
  - The ASCE Committee on America's Infrastructure gives USA's aging clean water infrastructure a "D+" grade
  - The NY Times describes the deteriorating clean water infrastructure as a "ticking time bomb that is ready to go off."
- What can be done?
  - Urge our elected officials to refocus the nation's policy discussion toward the value of clean water and the environment as well as the consequences of failure of our clean water infrastructure.
  - Provide significantly more investment to ensure access to safe and clean water for all Americans.
  - According to the USEPA, $300 billion is needed in clean water infrastructure investment.

Create a Legacy for our Nation's Future!

Use this to let people know who we are.

WEF is committed to increasing the awareness of the impact and value of water.

WEF is a founding partner in the national Value of Water Campaign (*www.thevalueofwater.org/*) and works closely with the American Water Works Association (AWWA) to develop tools and resources that will help support your efforts to educate and inform consumers, public officials, decision-makers, and stakeholders about the value and importance of water.

WEF is assembling a toolkit of items to our members to communicate the importance of our jobs and the value of water. The WEF Value of Water webpage and toolkit can be found at *http://wef.org/resources/for-the-public/value-of-water/*

SWOWEA

Jason Tincu, President

col·lab·o·ra·tion - the action of working with someone to produce or create something

In my humble opinion, there is no more important and impactful word in our chase for continual improvements in water quality than **collaboration**. Individual ventures within the water quality industry typically work well within their lane: regulators reducing pollution thru NPDES and other permitting initiatives, POTWs meeting permit conditions at the lowest cost, R&D and technology doing what they do, the engineering field solving problems for utilities and clients, utilities solving challenges for their individual rate-payers, etc. However, there is limited payback to our initiatives when we stay in our lanes due to boundaries, influence, control, etc. Conversely-when we collaborate, we can break down some of the barriers to maximize impact for our stakeholders and society. If we plan to solve tomorrow's (heck, even today's) water quality challenges, we must **collaborate** to maximize impact!

Regulators working with utilities to improve permitting approaches and understanding related challenges, utilities working alongside their neighbors to invest and make smarter decisions that benefit a broader community and provide better value, R&D listening to all these entities to make sure technologies are aimed at the right (and practical) problems, engineering working with all the above to advance our approaches, technologies and infrastructure, agriculture and other industries understanding their role and responsibility in water quality and stepping up to the table…you know the saying "it takes a village" and we, the water quality industry, are the village!

In January, SWOWEA hosted its Industrial Waste Seminar at the Manor House in Mason, OH. The session was well attended with 150 reps from the public, private and regulatory arenas—all **collaborating** with stories of challenges, success, and technologies. Pictured above are reps from **StandardAero** (Cincinnati), the 2017 Karl G. Voelkel Industry Award winners. This award is given to an industrial facility in the Southwest Section of the Ohio Water Environment Association for outstanding environmental achievement. The presentation of this award is in recognition of an industry's outstanding contribution in waste minimization, pollution prevention, environmental compliance, and environmental

StandardAero reps from Cincinnati

stewardship. The purpose of the award is to provide a venue where southwest Ohio companies can be recognized for a job well done in improving the water environment in southwest Ohio.

And lastly in spirit of **collaboration**, the SWOWEA was excited about April's joint Section Meeting with SEOWEA in West Jefferson and London. This opportunity allowed each section to reach across geographical boundaries and bond while also 'seeing how the other section works and lives'. Many thanks to the SEOWEA Executive Committee for reaching out as well as to SWOWEA Vice-President Steven Reese for making it happen. We enjoyed this opportunity!

Below is an active list of 2017 SWOWEA events. More info will be released on our website and the OWEA calendar as event coordination evolves.

June 1 - "Nearly Free" Plant Operations Seminar, Xenia

July 13 - LAC, YSI, Yellow Springs

September 9 – SWOWEA Social Event, TBD

September 21 - Section Meeting, Muddy Creek WWTP, Cincinnati

October 12 - LAC, Sidney

November 16 - Plant Operations Seminar, Manor House

Early December - Past President's Luncheon

NWOWEA

Jeff Thompson, President

Hello fellow OWEA members,

A section meeting was held in Tiffin Ohio at the Pioneer Mill in April. Over 90 people were in attendance and enjoyed good presentations, and an excellent meal, consisting of smoked brisket and pulled pork. On behalf of the Northwest Section Executive Committee I would like to thank Kevin Hughes and his staff for the warm welcome, and tours of their sewage treatment plant. Twenty attendees were also able to tour Tiffin Metals and their pretreatment system.

If anyone gets to the Tiffin area, I highly suggest visiting Pioneer Mill. I know I plan on making a special trip back up there to enjoy the food. I have included a picture of Pioneer Mill and as you can tell it is the original mill and the inside is just as beautiful as the outside. There are also a lot of antique items on showcase within the building.

Pioneer Mill Restaurant

I would also like to invite everyone to attend our May meeting and golf outing on May 17th in Napoleon. Check the OWEA website for the meeting announcement. You can attend the meeting, and then play golf. It doesn't get any better than that!

I would like to remind everyone in the NW section that articles can be submitted regarding the ingenious operator contest, it is a good way to get ideas in publication so everyone can utilize the ingenious ideas that someone has used to solve an issue or problem. It can be anything from a tool that was developed, a problem that was solved, a "trick of the trade" or any idea that is unique. It could possibly help somebody out with a problem they have and get you recognized for your idea and a chance at prizes. Entries need to be submitted by June 15th to Jeff Thompson at *jthompson@cityofstmarys.net*. I look forward to seeing some of the ideas that are out there and possibly getting the article included in the Buckeye Bulletin. All we are asking for are ideas. If you don't want to write the article, a member of the Executive Committee can write it up for you.

The section continues to work on localized meetings in hopes that small communities, and their employees, will be able to attend. We hope to be able to get more small communities involved. We realize that a lot of small communities don't have the funds and/or staffing to send employees to a day-long meeting that may be hours away. We want to find localized facilities so communities with small budgets can have employees attend closer and shorter meetings. We would provide lunch, then the individuals can return to their duties, all free of charge. We are hoping it works out.

This year for spouses and Friends Day, I plan on holding a meeting on Kelley's Island and hopefully we'll get to tour a plant, gain some knowledge from a presenter, and enjoy the company of fellow OWEA members. As I finalize the details, I will get the information on the OWEA website. It is always a good time and I hope to see you there.

I am personally looking forward to the state conference this year. It is always a good place to get contact hours, enjoy the get-togethers, and share thoughts and ideas with people with related interest, not to mention the excellent food and beverages that are there.

Hope to see you at the meeting.

Jeff Thompson
NWOWEA President
jthompson@cityofstmarys.net

NWOWEA Ingenious Operators Contest

The NWOWEA Section is presenting the First Annual Ingenious Operators Contest

We at the NWOWEA Section know there are members and non-members out there that have used their ingenuity to resolve an issue. We want to give you the credit you deserve. Send us a description of your invention.

What we Need - Clever ideas related to:

- **Treatment Processes**
- **Maintenance Practices**
- **Safety Measures**
- **Collection Systems**
- **Laboratory Practices**
- **Anything related to the Water Environment Sector**

Win & Publish:

- (4) Individual Section Meeting Fees Paid
- (1) Ops Workshop Fee Paid, Including (1) Night Hotel Stay

How to Enter:

Submit articles by June 15, 2017 to:
jthompson@cityofstmarys.net OR
Ingenious Operator
Attn: Jeff Thompson
101 E. Spring St.
St. Marys, OH 45885

EVEN IF YOU DON'T THINK YOUR INNOVATION QUALIFIES, SUBMIT IT!

SEOWEA

John Owen, President

Hello Southeast Section and welcome to Spring 2017! This will be my last section update as Southeast Section President. Starting in July, Kris Ruggles will become the 2017-18 Southeast Section President.

This year, our April 13th Section Meeting was a joint meeting with Southwest Section. Facility tours were hosted by the City of London and the Village of West Jefferson. I would like to offer my thanks to Dan Leavitt, superintendent of the London WWTP and to Lyndon Johnson, superintendent of the West Jefferson WWTP and to their staff for their gracious hospitality. I would also like to thank Kris Ruggles and Melodi Clark, and Jason Tincu and Steven Reese of Southwest Section, for all their work in putting this joint meeting together as well as to all the presenters.

Our May 11th section meeting was hosted by Fairfield County with plant tours held at Fairfield County's Tussing Road Water Reclamation Facility and at the City of Pickerington WWTP. A big thanks to Tony Vogel and Don Rector and their staff for their hospitality as well as to the City of Pickerington. Also, the May meeting was our annual Past President's Luncheon which also included presenting our annual section awards. Thanks to all the past presidents who attended as well as congratulations to all our 2017 section award winners!

Well, this is my last Southeast Section Report. I would like to thank all of our Section Meeting hosts; Delaware County, City of Newark, the City of London and the Village of West Jefferson and Farifield County for all of the time and effort you put into preparing your facilities for our section meetings.

I would also like to offer a very big thanks to the Southeast Section Executive Committee for your continued hard work, enthusiasm, and support of our Southeast Section members. It has been a privilege and honor to serve as your section president.

NESOWEA

Paul Solanics, President

Hello NESOWEA members:

The change of seasons seems to go by faster and faster every year. It's hard to believe the end of my presidential term with the NESOWEA Executive Committee is quickly approaching. The Executive Committee and committee chairs have accomplished a lot in the past year. Eighteen section events and activities were hosted through the section from June 2016 through May 2017. This provided 49.5 contact hours for our members; of which, 26.5 hours were free. Over half of the total contact hours were provided by the section sub committees, which includes; the Young Professionals, Lab Analyst, Education, Industrial Wastes/Pre-treatment, Biosolids and Collections Committees. These events were not exclusively to provide contact hours but also included public outreach events such as, judging science fairs, beach clean-ups, resume reviews, fund raising at the Biomaster Golf Outing and a membership social at our annual clambake dinner.

In addition, the Executive Committee is in the process of finalizing the updates and revisions to the Rules and Regulations and Policies and Procedures for the section. These were daunting tasks that have been on the "to do list" for the last few years. Thanks to the Committee for their perseverance in the effort to keep this moving forward.

The financial outlook for the section continues to be strong with sufficient funds to support expenditures for future meetings and scholarship awards. A big thanks to all of our SMECCo sponsors that continue to provide funding for the clambake, Past Presidents' Luncheon and refreshments at all of our events.

The Lab Analyst Committee, chaired by Bev Hoffman, held a workshop on March 29th at the Canton Training Facility. The Watershed Committee Workshop, chaired by Bill Zawiski was held on April 5th at Sippo Lake in Canton. The sun came out just in time for the guided tour around Sippo Lake to see projects that were initiated to improve the water quality of the lake. The Young Professionals Committee, chaired by Ashley Williston, held a tour of the wastewater treatment process at American Axle Manufacturing (AAM), see the Young Professionals update in this issue of the Buckeye Bulletin for details. The Pretreatment Workshop, coordinated by Donna Kniss, was held on April 20th at the EPA Northeast District Office, Twinsburg. Thanks to Bev, Bill, Ashley, Donna and Mike Welke for your ongoing efforts to provide these amazing free events for our members.

The May section and business meeting has been rescheduled to May 19th at the Rocky River Wastewater Treatment Plant. I would like to remind everyone that we will be voting on the proposed revisions to the Rules and Regulations at this meeting in addition to voting in a new member of the Executive Committee for the Northeast Section.

Mike Cook has finalized the details for the Biomasster's Golf Outing on July 21st. This years' event will be hosted at Grantwood Golf Course in Solon. We are currently seeking sponsors and golfers to participate in this annual event to raise money for our scholarship fund. Please see the website for registration and sponsorship details.

The Membership Committee, chaired by Mark Hutson, needs your help. In our ongoing effort to save the trees, we are requesting section members to register their current email address. Our goal is to reduce our reliance on snail mail and eventually go to all electronic mailings of Sparkling Waters. The list of members that still receive hard copies of *Sparkling Waters* is 150 out of 771. Our immediate goal is to reduce this amount

Pictures from the Northeast Section Watershed Workshop held at Sippo Lake, Canton on April 5th.

by 50%. If you are currently receiving hard copies of *Sparkling Waters*, please contact Mark Hutson at *mark.hutson@burgessniple.com*. If you do not have a computer or are unable to receive electronic copies, please contact Mark as well.

Muralikrishna Chelupati is currently piloting a student design competition at Cleveland State University. Students presented their projects on April 28th. Please see the Young Professionals update in this issue of the *Buckeye Bulletin* for further details. Thanks to Krishna and the Y.P. volunteers that donated their time to support this outstanding public outreach effort.

Finally, as this is my last President's message, I wanted to say that it has been an honor to serve on the Northeast Section Executive Committee for the past six years. I am proud to have been part of an organization comprised of passionate, dedicated and hardworking volunteers that support our mission to preserve and enhance Ohio's water environment and to provide clean water for our future generations. I am certain that the Executive Committee and all involved will continue to lead the charge to educate the public about the importance of clean water and about the many rewarding career opportunities involved in this profession. If this sounds like something that you would like to be part of, I encourage you to volunteer and pay it forward.

Hope to see you soon,
Paul J. Solanics
psolanics@solonohio.org

Section Awesome Operator Awards

Do you know an "Awesome Operator"?

You know... someone who goes above and beyond at their job every day! Each section of OWEA is sponsoring an "Awesome Operator" award. Award will vary by section but each will offer at least one One Day Free Admission to the Annual Conference!

Please watch for announcements via your section emails and on the OWEA website.

Nominations should be made by a supervisor or someone who works with the nominee routinely in the field. Feel free to nominate anyone in your organization that you feel is deserving of recognition.

The Awesome Operator nomination form can be found here:
http://www.ohiowea.org/owea_awesome_operator_awards.php

Feel free to contact Kim Riddell at *kim.riddell@alloway.com* with any questions.

Northeast ***Northwest*** ***Southeast*** ***Southwest***

Government & Regulatory Affairs Committee Update

by John Owen, P.E., Government and Regulatory Affairs Vice-Chair and

Dale Kocarek, P.E., Government and Regulatory Affairs Chair

On behalf of myself, John Owen, and the rest of the OWEA Government and Regulatory Affairs (GaRA) Committee, I want to thank all of our presenters and attendees at the One Water Government Affairs and Regulatory Workshop help on March 9, 2017.

I want to also thank everyone from the Ohio AWWA that contributed to making this a great event. I want to especially thank the following leaders of Ohio AWWA and OWEA:

Thanks to Stacia Eckenwiler for approaching me on March 17, 2016 and suggesting the joint workshop concept and working throughout the year to make it happen.

Thanks to John Owen for his steadfast support to me as Chair and service to OWEA over the last decade. John has been an incredible force for OWEA in raising the bar for our workshops.

Thanks to Linda Carter of OAWWA for the incredible assistance provided behind the scenes and on "game day."

Thanks to Robin Rupe for helping me moderate at the event and being part of our planning process.

Thanks to all of the presenters who agreed to make time for our workshop including: Ohio EPA Director Craig Butler, Assistant Chief Beth Messer, Assistant Chief Brian Hall, OWDA Executive Director Steve Grossman, WEF Government Affairs Director Claudio Terneiden, USEPA Director of Water Permits Deborah Nagle, Elizabeth Toot-Levy, Guy Jamesson, Chad Dunn, Stacia Eckenwiler, Tim Wolfe, Susan Schel, Geoff Guss, Tyler Converse, Jeff Swertfeger, and Keven Slaven

The workshop was held at the Nationwide Hotel and Conference Center in Lewis Center. This year there were 218 registrations for the 6.0 contact hour/PDH event. For the first One Water Government Affairs Workshop it was a great showing!

This year's joint Ohio AWWA and OWEA workshop featured presentations ranging from regulatory/governmental updates to specific discussions for both water and wastewater industries. Ohio EPA Director Craig W. Butler returned this year and provided an update on Ohio EPA's direction and goals with an emphasis on issues surrounding drinking water, lead and nutrients. Following Director Butler, programmatic updates were provided by Beth Messer, Assistant Chief of Ohio EPA's Division of Drinking and Ground Water and Brian Hall, Assistant Chief of Ohio EPA's Division of Surface Water. Also during the morning joint session there were presentations by Guy Jamesson, of the City of Columbus, regarding Ohio EPA's Nutrient Mass Balance Study Report and by Steve Grossman, Executive Director of the Ohio Water Development Authority, who provided an OWDA Update.

The afternoon of the workshop was split into two tracks, the Water Track was dedicated to Ohio AWWA-related topics and the Wastewater Track was dedicated to OWEA topics. For the Wastewater Track, Claudio Ternieden, Water Environment Federation's Director, Government Affairs, gave an update on current wastewater issues on Capitol Hill, and Deborah Nagel, Director Of US EPA's Water Permits Division gave a presentation on integrated planning. GaRA Committee member Elizabeth Toot-Levy gave a presentation of water quality with respect to Ohio grain farmers and Chad Dunn and Stacia Eckenwiler gave a presentation on wet weather improvements at the Columbus Southerly WWTP.

For the Water Track, Tim Wolfe of MWH and Susan Schell, Ohio EPA, Division of Drinking and Ground Water provided an OAWWA technology committee update which was followed by Geoff Guss of McWane Ductile who gave a presentation of the PVC pipe industry's attempt on controlling pipe specifications. Tyler Converse with the City of Canton and Jeff Swertfeger with the Greater Cincinnati Water Works gave an update of Ohio AWWA's Water Utility Council. Kevin Slaven with Arcadis gave a presentation involving integrating asset management and contingency planning into One Plan.

Should any of the membership have topic suggestions for next year's workshop, which will be scheduled in early March of 2018, please contact GaRA Chair Dale Kocarek or GaRA Vice Chair, John Owen.

WEF/NACWA Fly-In Overview

by Jason Tincu, Brown and Caldwell

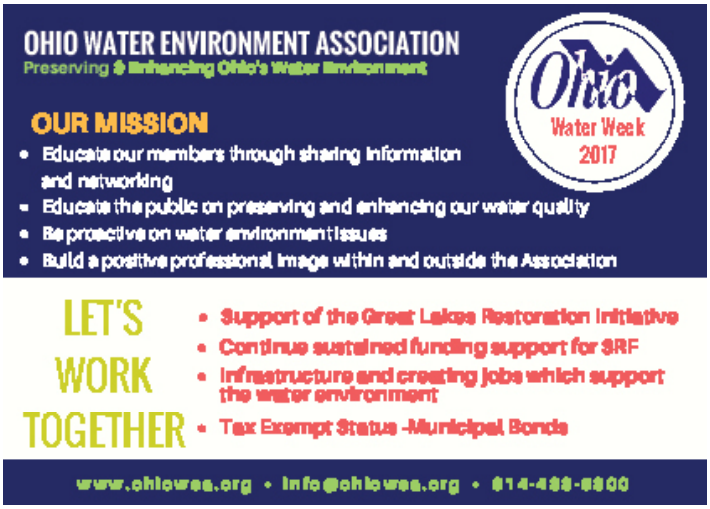
During the week of March 20th, I had the honor of representing the great state of Ohio and Ohio Water Environment Association at this year's WEF/NACWA Fly-In alongside an amazing group of OWEA reps. This was my second year participating in this event and I must say that it was a very rewarding experience! You might ask, "What is the Fly-In and how does this benefit Ohioans and OWEA membership?" Broadly (from what I've been able to ascertain in two visits), it's an opportunity to have impact at the policy level through relationship building, collaboration, and education.

Reps from all over the US convene in Washington DC during Water Week – a week dedicated to highlighting all facets of the water industry. Meetings and workshops are held at the host hotel for the first day and a half or so, bringing everyone up to speed with the climate in DC (obviously some interesting dialog occurred this year), the state of water policy, and some strategic asks that we, as an industry, need to vocalize. This year, there were also roundtables held to collaborate and understand the state of various service disciplines and challenges. I sat in the Technology and Innovation session where we talked about what it is going to take to unleash some of the amazing technologies that are available to us. Our job, from there, is to meet with our reps in the House and Senate to build these relationships, and collaborate and educate…which we did!

Running around the Capital is both exhausting and fun! The House and Senate office buildings are separated by over a ½ mile walk over the hill. This year's adventure had us crossing this pathway four times in one afternoon. I participated in meetings with the offices of Congressman Bob Latta, Congressman Mike Turner, and Senator Sherrod Brown. We also dropped into Senator Rob Portman's office to do some introductions and leave some paperwork. Our main message during meetings this year was ***(1) introducing OWEA and offering technical assistance in any way, shape, or form, (2) requesting funding support for the Great Lakes Restoration Initiative, (3) requesting sustained funding for the State Revolving Loan Fund, (4) the recommendation to maintain tax-exempt status for municipal bonds and (5) reinforcing the economic benefits of water related investments in taxes, jobs, and opportunities.*** Your OWEA reps plan to do some mid-year touchpoints and events (hopefully) with said representatives in an effort to advance relations, collaboration, and education with our friends in DC.

In closing, this is a very rewarding experience and initiative! I am very grateful to the state of Ohio and OWEA for the opportunity to represent 11M Ohioans in DC. In the event that anyone has any comments, questions or suggestions surrounding this initiative, feel free to contact me directly at *jtincu@brwncald.com*. Thank you!

Fly-In Participates at dinner. From Left to Right: Jason Tincu, Southwest Section Delegate, Amy Davis, Executive Administrator, Fred Smith, Vice President, Wendy Clark, and Doug Clark, Past President (2011-2012).



Fly-In Leave Behind for Legislatures.

Plant Operations Update

by Kim Riddell and Joe Tillison, Co-Chairs

Planning is in full swing for the 2017 Operations Challenge which will be held during our annual conference at the Hyatt Downtown Cincinnati on Monday, June 26th, 2017. We are happy to announce that the event will again be an invitational with up to 12 teams being hosted. The deadline to register is May 15th, 2017. Registration is open and contest rules are available on the website, so check it out or contact Kim or Joe to be put on a mailing list for all pertinent information. We currently have two Ohio teams registered and are expecting two additional Ohio teams and at least one invitational team. The event will run all day Monday with a few of the Safety, Maintenance and Collections events being held in the evening during the Monday Welcome Social! Awards will be Tuesday during the Exhibitor Reception.

Our 2017 workshop will be held at the Nationwide Conference Center (formerly North Point Conference Center) on October 11th and 12th, 2017. We are working on a great line-up again this year! Topics are still being considered for this year's workshop, so if you have suggestions or would like to speak about some new facility innovation, please contact Kim or Joe soon. Save some money in the training budget and be sure not to miss this great opportunity to learn from some nationally recognized leaders in the industry as well as some Ohio "home-grown" bests! We look forward to seeing you there!

In addition, we have some other very exciting things planned on the operator training side of things. OWEA hosted a sold-out workshop on Troubleshooting Activated Sludge – An Advanced Course for the Experienced Operator at the Delaware County Alum Creek facility on May 9-11, 2017. This was an advanced three day, hands-on course instructed by Lynn Marshall, Rich Weigand and Jon VanDommelen. We have plans in the works to hold another workshop like this in the fall so if you'd like to be put on the waiting list for this course, please contact the OWEA office or Kim Riddell.

We also have some other new training efforts in the planning and development stages, so if you are interested in putting a team together for Operations Challenge, becoming a member of the committee or assisting as a judge / volunteer for Operations Challenge, please contact Kim Riddell at 419-234-4507 or *kim.riddell@alloway.com* or Joe Tillison at *JTillison@bgohio.org* or 419-354-6274. We would love to have you on board!

Kim Riddell, *kim.riddell@alloway.com*
Joe Tillison, *JTillison@bgohio.org*

Test Your Knowledge – Take the Operations Quiz

1. Phosphorus can be found in wastewater is which form(s)?
a. Orthophosphate
b. Organic Phosphorus
c. Polyphosphate
d. All of the above

2. Grit is washed in order to _____?
a. Increase filterability
b. Remove organic material
c. Remove inorganic material
d. Improve settleability

3. Devices utilized to increase or decrease voltage are known as?
a. Switches
b. Transformers
c. Control Boards
d. Circuits

4. Gear, vane and lobe all describe what type of pump?
a. Positive displacement pumps
b. Plunger pumps
c. Centrifugal pumps
d. Airlift pumps

5. Single celled animals that reproduce through binary fission and have complex digestive systems are known as:
a. Bacteria
b. Algae
c. Nematodes
d. Protozoa

Answers noted below. Questions, comments, or submit a suggested question? Email OWEA at *info@ohiowea.org.*

Answers: 1-D; 2-B; 3-B; 4-A; 5-D

Publications Committee

by Elizabeth Wick, Publications Chair

I hope that everyone has noticed the Buckeye Bulletin updates that we have implemented over the past year. Thank you to Megan Borror, OWEA staff, for thinking of ways to bring the magazine into the future, yet still meet the needs of our members. This year is the Buckeye Bulletin's 90th volume! During the year, there will be a little bit of history in each issue. It is good to look back at how far we have come, but we can't get stuck there. We have to keep looking forward.

As the Publications Committee, we have the responsibility of making sure that the magazine content is accurate and falls within the article guidelines. Sometimes an article is submitted that goes beyond the guidelines and falls into what some of us label as a sales pitch. When this happens, members of the committee will reach out to the author for changes or edit the submissions prior to publishing.

All of the articles, information, and advertising presented in the Buckeye Bulletin are provided with the goal of increasing the reader's technical and organizational knowledge. Everybody benefits from hearing about new (or tried and true) products, services, technology and systems that may be available. The Ohio Water Environment Association does not recommend or endorse any particular piece of equipment used in the wastewater treatment process.

As Publications Chair, I encourage utility owners, operators, engineers, and manufacturer's representatives to write articles about processes and/or equipment that has worked well. If there is a process or piece of equipment that didn't work well for your utility, we would also love to hear about the innovative ideas put into place to improve the situation.

Please remember that this is your magazine and the Publications Committee wants to make this magazine as useful to the membership as possible. If you have any ideas for themes, topics or technologies you would like to read about, please contact Megan Borror at the OWEA office (*meganborror@ohiowea.org*) or Elizabeth Wick, Publications Chair (*elizabeth.wick@epa.ohio.gov*).

Certification Committee

by Kathy Richards, Certification Chair

Hello and Happy Spring to you all! First and foremost I want to wish the very best of luck to each of the 28 individuals who sat for the Voluntary Laboratory Analyst and Industrial Inspector examinations last month. I look forward to congratulating you all upon successfully achieving the next level of certification!

And speaking of examinations, we are in the process of recruiting additional proctors for the twice yearly testing. The amount of time involved is minimal, only one Friday morning in April and one in October. Training will be provided and all test materials are delivered to the test site. If you have a current Wastewater Laboratory Analyst Class IV certification and have access to an appropriate room for the examination, please consider volunteering to assist in this very important opportunity. Contact me if you are interested.

Also, keep in mind that 2017 is a renewal year. Information will be provided following the grading of the October exam. Anyone passing an examination in 2017 will not be required to renew, but all other certificate holders will need to submit $25.00 and update their contact information for renewal. We are hoping to accomplish the vast majority of notifications and payment submissions electronically, so please help get the word out to make sure I have a good email address for you!

- Kathy Richards

Safety Committee Update

by Nathan Coey, City of Pataskala, Safety Committee Co-Chair

Greetings and well wishes to you as you read this update from your OWEA Safety Committee. I consider it a privilege to share with you my thoughts through this publication. I live my life every day, as if it is my last. I do my best to live every day to the fullest, drinking up every drop as a gift. I temper this gift daily knowing I am 'the lucky one'. On my very worst day, it pales in comparison to many around the world and even in this nation. My stomach never aches too long due to hunger, I have shelter from the elements, and ability to provide for my family.

Pictures can tell a great deal without speaking any words. In October, I read an article about a water main break in Boston. Two workers perished as the trench they were working in flooded with water in a matter of seconds. The 14 foot trench trapped the workers with no time for escape. I kept this article and picture because it moved me.

I have been involved in some stressful main line jobs, but nothing like this. The anguish, pain, stress, and fear in these pictures hit me hard. Investigative reports indicate the two workers in these pictures escaped the trench and it appears they were helping with efforts to save their co-workers. Very tragic. A somber reminder of the dangers of our employment. Safety can never take a day off.

Recently the *Boston Globe* reported the details of the investigative report that resulted in the death of Kelvin Mattocks (age 53) and Robert Higgins (age 47). On October 21, 2016 workers "were killed while working on a water and sewer project in a 14-foot-deep trench. The two men were buried to their waists after the trench collapsed. Then a fire hydrant that had been supported by the collapsed dirt was suspended by the water supply line, causing the line to break and fill the trench in seconds. Co-workers tried to save the two men, but the deep and fast-flowing water hindered their attempts."

The report also indicated that the trench had no shoring "despite an expandable metal trench box being on the site". The report also states that at the time of the accident the contractor was levied fines from OSHA from past indiscretions. It was revealed that the company owner forged documents regarding the completion of safety classes, specifically trench safety courses. The company owner is now facing multiple charges, "including two counts of manslaughter".

The tragedy of this incident centers at the loss of life. They were first trapped and drowned within seconds. The loss of life in this investigation could have been prevented. The shoring equipment was on site and the workers made a costly decision to not utilize the available protection. The investigative report indicates records were falsified regarding safety training. I can only deduct that this tragedy was directly related to poor safety education. Poor safety education begets poor safety. On that tragic day in October 2016, there seemed to be no voice of reason for worker safety. The incidents of that day will forever haunt all those involved.

If you do not have a safety program in your workplace, use this story as motivation. Education, direction, and sanctity of life are the very basics of any safety program. Educate others on the dangers of the workplace. Have directions on how to handle all tasks in a safe manner. Respect your life and those around you at all times.

Godspeed,

Nathan W. Coey
Utility Director

Students & Young Professionals Update

NESOWEA Young Professional Update

by Ashley Williston

On April 12, 2017 American Axle Manufacturing (AAM) hosted our Spring YP Event. The event consisted of an informative presentation on the history and current wastewater treatment process for their manufacturing facility, plus a tour of the manufacturing area and treatment plant. At the Twinsburg, Ohio facility, AAM designs and supplies aluminum die casting components and assemblies for powertrain applications. The manufacturing process used at AAM creates a difficult wastewater treatment challenge. Our Young Professional Group enjoyed learning about the process that AAM uses to address their unique waste stream and the challenges that Bill Cleary has overcome over the last years as the operator. After the event we gathered at a local restaurant. AAM generously reserved a private room for our group and had an unbelievable appetizer spread for us all to enjoy. Our Young Professionals Group is very thankful to AAM for allowing our group to tour their facility and learn about their treatment of their waste stream. A special thank you to Robert Stuhldreher, Bill Cleary, and Sarah Blough for hosting our event.

Our next YP Event will be a joint event with AWWA's YP group. Franco Noce from Cleveland Water will be providing our group a tour of Crown Water Treatment Plant on June 8th, 2017. To receive the NESOWEA YP emails to hear about our upcoming events and other YP information send me an email: *ashley.williston@burgessniple.com*.

NE Young Professionals at AAM event on April 12th, 2017.

NESOWEA Student Design Competition Update

by Krishna Chelupati

Northeast Section of the Ohio Water Environment Association (NESOWEA) has launched an exciting new Student Design Competition (SDC). It was modeled after the WEF Student Design Competition held annually at WEFTEC. The purpose of the competition is to promote "real world" design experience for students interested in pursuing an education and/or career in water and environment science and engineering. The competition is typically geared towards upper class students and/or graduate students, however all students are encouraged to participate.

We are piloting the program this year with Cleveland State University (CSU). Paul Solanics and Muralikrishna Chelupati developed guidelines and met with CSU faculty and students in January to discuss and promote the student design competition. The faculty and students were excited to learn about the competition and three student teams expressed interest in participating in the SDC. The teams submitted abstracts for their topics of interest and we assigned members of the Northeast Section to advise students throughout the process by providing input and feedback on the projects. A kickoff meeting was held on February 24, 2017 to connect the student teams with their mentors. We would like to thank Tom Voldrich, Alicia Adams, Shakthi Varman Jayavelu, Mitchell Myers, David Gleason and Meredith Cariglio for graciously volunteering their time to advise the students.

The teams will present their solutions to a panel of participating NESOWEA judges on April 28, 2017 at CSU. OWEA members are welcome to attend! For additional information, contact Muralikrishna Chelupati: *Muralikrishna.Chelupati@stantec.com*

NE Student Design Competition Kickoff Meeting

Lab Analysts Committee Update

by Denise Seman and Melodi Clark, Committee Co-Chairs

Happy Spring!

How has 2017 been treating everyone so far? Things have been zooming along here in Y-town – I can hardly believe summer is almost here (yeah!)

State conference is right around the corner, has everyone put in for their travel? There are a lot of great things available this year, I urge everyone to try and attend – even if it's only for one day.

We're setting up for the fall workshop, if you have any topics you would like to see covered, please let us know.

A shout out to Tom Zocolo from Akron: welcome aboard! Tom is joining Beverly Hoffman as co-chair for the NE section. Tom holds a Bachelors Degree from Kent in Environmental and Conservation Biology. He hails from Girard and plays in a rock band in his off time. Tom has been employed at the City of Akron since June of 2015.

SW LAC – Karen Tenore and Jim Davis

The SWOWEA LAC held a meeting on February 9 at the Dayton WRF. We had a total of 50 attendees, and presenters from OEPA and the City of Dayton. Attendees could earn up to three contact hours at the meeting.

On April 6, an LAC meeting was hosted by the Metropolitan Sewer District of Greater Cincinnati Laboratory, and held at the MSDGC Laboratory. We had a total of 35 attendees, and presenters from MSDGC, Alloway, and WEL Enterprise. Attendees could earn up to 2.75 contact hours at the meeting.

The remaining schedule for meetings in 2017 are:

- YSI-Yellow Springs July 13, 2017
- Sidney WWTP October 12, 2017

To inquire about being added to our e-mail list or to get information about attending, hosting, sponsoring or presenting at a future LAC meeting, please contact the chairs or any of the committee members.

Committee Members:

Lynette Hodnicki, City of Fairfield

Lori Kyle, Greene County

Teresa Shinkle, Greene County

Gregg Mitchell, City of Sidney

Roger Rardain, City of Fairborn

Dr. Robert Smith, YSI

COMMITTEE CONTACT INFORMATION

Co-State Chair
Denise Seman
(330) 742-8820
DSeman@YoungstownOhio.gov

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

SW Co-Chair
Karen Tenore
(937) 333-1501
karen.tenore@cityofdayton.org

SW Co-Chair
Jim Davis
(937) 496-7051
DavisJi@mcohio.org

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

NW Co-Chair
Terri Brenner
(419) 872-8041
tbrenner@ci.perrysburg.oh.us

NE Chair
Bev Hoffman
NESOWEALAC@gmail.com

Join Your Section's Lab Analysis Committee

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

NE LAC –Beverly Hoffman

The Northeast Section held the first lab meeting on March 29th at the Canton WPCC training facility.

Twenty-three section members joined us for a two and a half hour session on understanding the Microbial Community in activated sludge. Jon VanDommelen and Tom Zocolo gave the presentations along with a microscopic view of live bacteria and a demonstration on staining a slide.

A big WELCOME to Tom Zocolo who is going to join our LAC section committee and help me out as the co-chair. We will start planning our summer meeting in April, so if anyone has a topic they would like to have presented please let me know. Looking forward to having a great 2017 with two or three more meetings this year.

Bev Hoffman, City of Geneva

LAC section co-chairs:

Bev Hoffman / *nesowealac@gmail.com*

Tom Zocolo/ *TZocolo@akronohio.gov*

LAC section committee members:

Marie Simon / *marie@northcoastlabs.com*

Lisa Feigle / *lisaf@gacdwr.org*

Amy Starkey / *ajstarkey@co.stark.oh.us*

SE LAC – Melodi Clark

Well it is finally Spring. We had a wonderful meeting on March 28th that YSI in Yellow Springs hosted for us. Once again we had a great turn out and I want to give a huge thank you to Rob and Chris with YSI for putting on some great presentations. I am looking at doing three more meetings this year and hopefully doing them for free. If you are in the Southeast area and would like to host one of our meetings please let me know.

NW LAC- Tony Hintze and Terry Brenner

Spring is here and the Lab is as busy as ever. When most people think of spring they think of flowers popping up but for us in the Lab it means DMR-QA's popping up. So be sure to spruce up your procedures.

Our email list and the NWOWEA Lab Analysis Committee group on Facebook continues to grow. Don't miss out, come join us. If you are interested please send us an email. (*tjhintze@gmail.com*) or (*tbrenner@ci.perrysburg.oh.us*).

We are currently working on our next meeting so watch your email and keep an eye out for notices on the OWEA website. If anyone has a topic they would like to see presented or if you know of someone who would like to present a topic at one of our meetings, please let us know!

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

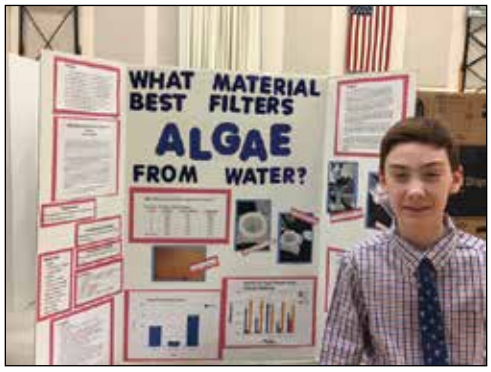
Committee mission statement:

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

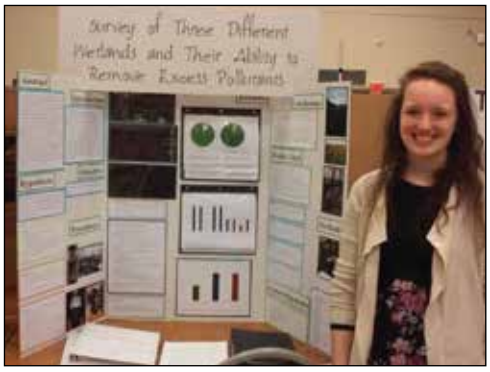
NWOWEA Science Fair Winners

Below are pictures with the project name and the information on our three awards given to science fair students in NW section who had the outstanding water or wastewater related project. Each student received a congratulatory letter, certificate, and a $100 award. Great work!

Ohio Northern University Fair winner Megan Ketner.



The Ohio State University - Marion Fair winner Jacob Ziegler.



University of Toledo Fair winner Jordan Skates.

Lucky Seven
Steps to Innovation and Change

by George S. Hawkins, CEO and GM of DC Water

I am frequently asked what approach I have taken to help lead innovation and change at DC Water. I would readily admit that some of my approach is an ongoing work in progress – based on a willingness to try new things, failing sometimes and succeeding others – but intently learning from each experience to help inform a path forward. Now eight years into the effort, I can boil down what we have learned into seven steps for innovation and change.

1. Mission. Change in any enterprise must be driven by a commitment to a clear and important mission. People who are dedicated to achieving a mission are more able to shift practices or procedures and be innovative if the mission is therefore advanced. I realize that for many in the private domain, a mission is revenue and profit – and I respect that. But even within that context, I still believe people need to know and believe they are working on something that matters on a broader playing field.

We are blessed in the water field to be working to improve a bedrock foundation of everything. Yes, everything! Every job relies on access to water. Every life relies on access to water. And not just human lives, EVERY life form. In our world, public and private, we are working to improve the quality, reliability and accessibility of this life giving resource. This is a mission worthy of shouting from the mountaintops, and worthy of constantly making sure we are doing the right thing. Water is a mission that drives performance, and drives innovation to do better. DC Water's tag line is "Water is Life" – which is our simple formulation to connect everything we do to a fundamental purpose.

Message: Constantly highlight the fundamental importance of a mission and how the further and improved attainment of the mission is what drives the need for change and innovation.

2. Listen. Before any leadership, strategic and/or change agenda is announced, leaders should go out and listen to the people that make up the place to be changed. In my experience, these listening efforts always inform the change agenda, sometimes dramatically, and improve the chance of success. Listening allows a leader to adopt ideas and language and reasoning from those who must live with and implement any change to come. People are simply more able to change if their ideas and viewpoints have at a minimum been solicited, and even better, at some level incorporated. Every organization and its people has strengths. Make sure you know what they are to preserve and strengthen them even as change adds new dimensions. I have often seen visionary leaders fail at this critical first step – which ultimately only inhibits their own goals for an enterprise.

Message: Go inward to listen to your team before suggesting a new strategic or change agenda. Your agenda can only be improved, can only add elements that need to be preserved and strengthened, and change can then be owned by everyone.

3. Challenge. I often say a crisis is a terrible moment to waste. We are obviously willing and driven to innovate in the face of a crisis – we do what needs to be done. Sometimes a crisis that is relatively slow to develop, or has an impact in a big organization, and is therefore harder to spot. The daily grind may lull us to become desensitized to the crisis, or perhaps it has been happening long enough that the challenges now seem to be the norm.

Yet the crisis for water utilities is real and dire, even if it has been building for decades. In stark contrast to the "water is life" mission, we have challenges galore: old infrastructure, new contaminants, climate change, an aging workforce, invisible services, lack of public awareness, a risk averse approach and a lack of revenue and financing – just to name a few. Particularly in comparison to the worth of the mission, the need for improvements to water infrastructure is nothing short of a shocking calamity. Terrible grades for an essential infrastructure resource and the need for hundreds of billions of dollars of investment is a shocking reality.

Leaders should not shy away from this challenge, but highlight its immediate reality and relevance in a personal and practical manner to the organization at hand. We can then connect a strategic and change agenda to solutions and improvements – to help solve the crisis.

Message: Much more change and innovation is possible in response to a crisis than in a steady, calm state. Be honest about the crisis and connect your agenda to the solution.

4. Outside Game. Building on the first three, start

change with communications with external stakeholders. And start the external effort by understanding your relationship to the world external to your enterprise. Can you answer the questions of how your enterprise is perceived, how people hear about you, how is your customer service? At DC Water (known as DC WASA when I began), we were not well regarded with respect to any of these criteria. Yet we know that our solutions on every other front rely on public support – for more funding, for patience during construction, for understanding in service upsets, for awareness of our role in the community. We absolutely had to improve, to change, and to do so quickly.

Fortunately, developing innovative communication approaches is probably the least costly initial step, and the one that can gain the quickest response. For us, we changed our name to DC Water, adopted the "Water is Life" brand and built a new social media presence. We started proactively reaching out to media and stakeholders of every kind and built a story about our critical role to every job and life. We emphasized the crisis in the system and used every water main break or service disruption as an opportunity to tell our story, rather than moment to duck the spotlight. We called for drinking water alerts when problems arose, emphasizing that the health and safety of our customers was our foremost priority. Some called external affairs the "soft" side of the enterprise. I believe it is the hard core of the effort – for without a story that people can understand and support, nothing else can happen.

I am gratified to report that our reputation in the community changed fairly rapidly. By being honest, we started to be trusted. By being open, we started to be understood. By telling our story, we started to gain support.

And by telling our story we started to believe it. We believe that we are the most important environmental organization in any place we exist, which is everywhere. What we do is a bedrock of civilization and all life. What we do is so important that we must be open to all ideas and approaches – just like we have done with communications. How we talk has huge influence on how we walk.

Message: Focus on your stakeholders and customers. Develop a compelling story about why what you do matters, and why people should support you. Be creative about telling this story – if you are honest and straightforward, people will listen. If you have a good story, they will support you. And if the story is compelling, your team will believe it too. The more the team embraces the story, the more the external world sees the story, and a righteous feedback loop grows.

5. Inside Game. Following these steps, your team at this point will have had a chance to engage with leadership before a change agenda is adopted and is now hearing about the importance of their efforts in external communications. Seal the deal by focusing key aspects of the change and strategic agenda to improve the conditions for your own personnel. Ultimately, change must be supported by the people of the enterprise to really succeed – the agenda must be a joint agenda. Gaining support from the troops is straightforward – the team needs to have been heard before the change starts, must sense their input in the agenda itself, and then must see and feel that change benefits them in their daily efforts.

For DC Water, we started with a focus on safety, solving and investing in several long-standing problems. We also resolved some key management practices I had heard about during my internal focus which both boosts morale, and demonstrates that we had not only listened, but heard and acted. We made several improvements to the trucks of our personnel that made their job easier and improved communications and integration. From the beginning, change at DC Water has not just been about how we interact with our customers, but how we support our own personnel.

Message: Make sure your own personnel both sense their contribution to your change agenda and know how it makes their work and lives better. Then the change is OUR change, and we are all pulling on the same oar forward. Then the ship really starts to move!

6. Highlight. Shower those who are driving innovations with attention and acclaim, and be sure that folks from all parts of the organization, and doing all sorts of work, are included. For DC Water we have highlighted several giant innovation efforts – most of which have succeeded (our innovative biosolids management program) and some of which have not (a cancelled project to implement solar at our facility). Innovators are rewarded and highlighted for their effort and good ideas, even if some do not pan out. We also focus on including the whole organization – not just those parts usually associated with innovation (software, technical gadgets, science). The video we have produced to highlight innovation features one of our veteran employees redesigning the pick that pulls off manhole covers, and building it by welding new pieces together in the machine shop. This is work by one of our veteran employees on one of the most simple of our tools. It is also a tool our team uses every day, so its improvement is meaningful and connects right back to demonstrating that innovation helps our own personnel too.

Message: Shower attention and acclaim on the innovators, and be sure to include people from throughout the organization. People will get the message and want to join the fun!

7. Professionalize, Personalize, People. Innovation on specific projects or areas needs to be professionalized within the enterprise to institutionalize creativity. For DC Water we created one of the first Innovation Chiefs in the industry, created a matrix scheme with innovation champions in every division and worked with the

Board to develop a strategic plan that was founded on innovation and creativity. Innovation must be personalized – highlighting people at every step (rather than the gadget or process, highlight the person who invented the gadget or adopted the new approach), include innovation goals in performance standards and reviews — make achievement of productivity improvements by people a core value of the enterprise. Then always hire people with creativity and innovation in mind. This final point is one of the most important – to incorporate creativity and innovation into the necessary bureaucratic functions of any enterprise, and see it then reflected in how people are hired, promoted and rewarded.

This seven step approach can build a culture of excellence and innovation in almost any enterprise. Most important is how each of the points builds on and supports the others – the whole is much stronger than just a sum of the parts. Developing a sense of mission and urgency is propelled by a communications strategy. Communications build awareness in our customers, but then also propels them to seek a higher standard of service from us in return. Employees understanding how innovation helps them in their job are more likely to be creative and innovative with others. Everyone on the team are motivated to perform to uphold our mission, and our pride in delivering it.

"This seven step approach can build a culture of excellence and innovation in almost any enterprise."

Go forth and conquer, not over a defeated adversary, but side-by-side with a growing band of trusty allies!

The People Place

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

Jason Tincu, SW OWEA Delegate, *jtincu@brwncald.com*

Career Opportunities

No charge for job seekers.

No charge to post a position if you or a fellow employee are an OWEA/WEF member.

$167 for a 30 day posting if not a member.

$167 for a Professional Membership

We encourage you to join OWEA and reap all the benefits of membership. Same price as a posting!

Find OWEA on your favorite social network

Are you a social media guru? Find out how you can become part of OWEA's social media team. Email us at *info@ohiowea.org*

WEF Utility Partnership Program Member Utilities

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 onto 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 any-time throughout the registration period. **ALL employees at the UPP utility will also be eligible for member rates for the OWEA Technical Conference and Exposition, OWEA Workshops, and events.**

All employees at the utility will be eligible to register for a WEFTEC Exhibition-only pass at NO-Charge.

WEFTEC registrations can be included in the UPP Membership transaction, at the time of enrollment or can be grouped and submitted closer to WEFTEC.

UPP also includes a special, NO-Charge membership for Public Officials designated by the Utility, at their discretion.

Up to five new WEF/**OWEA** members can be added by the utility each year, at no charge for the first year of membership.

UPP utility will be eligible for distributor pricing on all WEF products and services – that's 40% off list pricing. In addition to traditional items this discount also extends to online learning in the new WEF Knowledge Center.

UPP members will be eligible for special discounted registration for other WEF Conferences and events.

OWEA currently has 20 municipalities signed up for the Utility Partnership Program.

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

Or contact Amy Davis, *amydavis@ohiowea.org*, 614.488.5800

Avon Lake Municipal Utilities
City of Canton WRF
City of Celina
City of Columbus DPU
City of Fairborn
City of Harrison
City of Mansfield
City of Marietta WWTP
City of Newark Wastewater Treatment Plant
City of Oberlin
City of Solon
City of Toledo Water Reclamation
City of Troy Ohio
City of Twinsburg
City of Warren WWTP
Clermont County Sewer District
Fairfield County
Lake County
MSD of Greater Cincinnati
Northeast Ohio Regional Sewer District
Sanitation District No 1

Rocky River Wastewater Treatment Plant

A regional facility serving the Cities of Bay Village, Fairview Park, Rocky River and Westlake, OH

Plant Details

- Design Average Daily Flow of 22.5 MGD
- Design Peak Daily Flow of 45 MGD
- Highest Recorded flow of 170 MGD in 2011
- Serves a population of approximately 86,000
- Discharges into Lake Erie

History

The Rocky River Wastewater Treatment Plant was originally constructed in or around 1939 after complaints were brought against the Village of Rocky River and multiple surrounding communities from the Cleveland Metropolitan Park Board. Previous to the construction of the plant, an Imhoff tank and a cesspool were the means of disposal for the sanitary wastes discharged by the citizens of what was then the Village of Rocky River. This cesspool drained into Spencer creek, which flows through the area that was known as Hahn's grove, and is now the location of the current plant. This presented a health and safety issue for those residents downstream of the cesspool and along the banks of the creek. The citizens of Bay Village discharged into Huntington Creek which traversed property owned by the parks board. Fairview Village had sewers that flowed directly into the Rocky River. Bonds were approved in the 1920s for construction of such a facility, but due to the downturn in the economy, construction was not able to proceed until the late 1930s, with monies made available through the Works Progress Administration (WPA). The original plant consisted of a settling basin and sand beds. Growth in the area in the 1940s and early 1950s overloaded the plant by more than 200%. A period of contentious discussion took place throughout the 1950s, trying to determine who would pay for, and where a new or larger facility would be constructed. Construction finally began in 1958, and a $4million dollar plant opened for operation in 1962. The plant produced 4 to 5 MGD upon start up, and had a treatment capacity of 16 MGD ADF. The new plant consisted of a screen house, grit removal, primary clarification, chemical enhanced treatment, secondary clarification, and chlorine addition for disinfection. Anaerobic digestion and sludge drying and incineration were the method of residuals management. It had a staff of 8 operators, a mechanic, a janitor, an office assistant, and a superintendent. The plant was operated by Cuyahoga County and was part of sewer district 6, which included Bay Village, Rocky River, Fairview Park, Westlake, and Rockport Township.

In the 1970s, regulation required secondary treatment processes be added to the wastewater treatment plant. These improvements were constructed as a two-phase project, with estimated costs equaling approximately $5 million dollars. The projects were partially funded with federal monies, the remainder as bonds issued. Construction began in 1970s of an experimental carbon filtration unit, post primary clarification. Unfortunately, this system failed within one year of start up, and a second project was required to construct four fixed film reactors. The new plant included settled sewage pumps, an auxiliary clarifier, fixed film reactors, final clarifiers, and two new anaerobic digesters. The vacuum filters were removed, and belt presses were installed for sludge

A crane is ready to replace equipment at the Rocky River WWTP Fixed Film Reactor Buildings.

Overhead View of Rocky River WWTP circa 1939.

dewatering. These improvements brought the plant up to 22.5 MGD ADF and a peak flow of 45 MGD.

Around the same time that the 1980s project was completed, the four cities currently paying for the operation of the county wastewater plant, decided that it would be in their best interests to take over ownership of the facility. The original agreement, drafted in 1982, created a management committee comprised of the four city mayors, and one at-large member, serving a two year membership, with each city getting to nominate a member every eight years. The committee determined that administration of the facility would be done through the city of Rocky River, with each city paying their share of operational and improvement costs as dictated through the mandated, every three year sewer flow and strength study. Each city was allotted a portion of the ADF, and any that discharged more would be given a higher rate. Since the 1980 expansion, a pump station at Lake Road, and Excess Flow Primaries were added to the plant.

Treatment Process

Each city owns a collection system that conveys wastewater to the plant. These flows are combined in a chamber just outside of the headworks building. Flow is channeled to mechanically cleaned Huber Rakemax bar screens from the influent junction chamber. Five channels hold one screen each, with an individual capacity of 37.5 MGD. The total screening capacity for the building is 150 MGD. During average daily flow, one screen is in-service. During storm events, settings in the SCADA system trigger more channels to open depending on the incoming flow. At flow rates of greater than 128 MGD, flow is bypassed over a 39 foot sharp crested weir straight to the effluent channel. A bubbler/area velocity sensor measures the flow through the bypass.

Four Parshall flumes channel flow into 1 of 4 aerated grit chambers. Ultrasonic flow meters measure flow through the flumes and the flow data is transmitted through SCADA. The chambers are each designed to handle a maximum of 32 MGD each and are opened as needed during higher flows. Two blowers aerate the wastewater to maintain freshness and to keep organic materials in suspension, while allowing the heavier, primarily inorganic material to settle to the bottom of the chamber. The square chambers slope to a channel on one side of each tank, where an auger carries the material to a collection sump shared between two tanks. A series of buckets on a chain pull the grit up to a classifier where it is washed and dewatered before being deposited in a 3 cubic yard grit dumpster. The dumpsters are moved and dumped by forklift into the grit and screenings yard box. Typically one to 1.5 grit dumpsters are filled each day. During winter months the dumpsters are kept inside until the morning of a scheduled pickup to avoid problems dumping the material at the landfill due to freezing temperatures. During the warmer months, the boxes are dumped every other day.

After grit removal, all flow is channeled to one of three primary clarifiers systems depending on flows. In this channel, sodium hypochlorite is dosed for odor control purposes during warmer weather months. Ferric chloride is also dosed in this channel for phosphorus reduction. When flows to the WWTP reach levels higher than 25 MGD, the auxiliary clarifiers are put into service to allow for adequate settling and CBOD removal. A control gate in the influent channel is set for a flow rate (currently 32 MGD but stress testing in 2017 will determine if higher flows are acceptable), and when flows reach that set point, the gate lowers, forcing flow over a sharp-crested weir into a line that runs to the auxiliary clarifiers. The rectangular clarifiers were installed in 1982 as part of a major capital improvement project. Influent flows into each tank through a motor operated slide gate into the inlet distribution channel. The flow is then dispersed across the tank width by a baffle into the clarification zone. Flow then passes under a scum baffle and then through V-notch weirs into one of six rectangular launders per tank. Primary effluent then flows into a channel, connected to a 42" pipe, which connects to the settled sewage pump station. The solids that have settled to the bottom of the tank are scraped into collection hoppers at the influent side of the tank via a traveling bridge system.

Overhead View of Rocky River WWTP 2016.

When the level in the tank reaches greater than 12", the SCADA system sends a signal to the control panels on the bridges which command them to move down and back on a rail system that is the length of the tank. Scum is removed to troughs through this same process, and flows back to the original primary clarifiers. Electrically actuated valves in the basement are opened, and pumps remove the solids to the primary clarifiers.

Due to pumping capacity restrictions, and secondary treatment process restrictions, flows above 45 MGD are sent to the Excess Flow Primaries. This system was installed in 2001 as part of an 11 million dollar capital improvement project. An electrically actuated downward opening gate is controlled through the SCADA system. During moderate rain events, flows are diverted to this tank for equalization, and then returned as soon as plant influent flows drop below 25. A total of 2.5 million gallons can be stored for later treatment. When the total flow to these tanks exceeds 2.5 million gallons, which is only during significant storm events, a disinfection process (sodium hypochlorite and sodium bisulphite) is started and controlled through the SCADA system. The disinfected primary settled storm related flow is then blended with fully treated effluent and sent to the lake through our effluent line. There are no actual sludge collection mechanisms in the tanks, however hydraulically operated tipping buckets flush the tank bottom to hoppers on the influent side of the tank. Electrically actuated valves are then opened and the remaining solids and liquid are returned to the plant at the very south end of the influent channel.

Post primary clarification, flow is channeled into a wet well. Flow is then pumped through a 42 inch line up to a diversion chamber in the fixed film reactor building, 54.02 feet above the intake of the pumps. Pressure sensitive level indicators monitor the level of the wet well. There is a bypass weir located at this wet well. The level is maintained such that a bypass will not occur except in the case of major mechanical failure. The pumps are started and ramp up and down by the use of Variable Frequency Drives. Each pump has a maximum pumping capacity of 15 MGD, which means that we are limited to a flow rate of 45 MGD total secondary treatment capacity with no bypass.

Electrically actuated gates are controlled by the SCADA system to determine which of the four fixed film reactors will receive flow. When the plant flow is below 22.5 MGD, the influent is channeled through two of these reactors, and then through two of the final clarifiers. Flow is then pumped back to the top of the building, and sent through the remaining two reactors, where it flows back down the second two clarifiers. In 2015, all four rotating distributor mechanisms were replaced as part of an improvement project. Each fixed film reactor consists of a rotating mechanism with four arms attached. Each arm has nozzles that spray the primary settled effluent over plastic media which is shaped like miniature wagon wheels. The surface area of the media encourages zoogleal growth consisting of bacteria, protozoa, and other microorganisms. This growth utilizes much of the suspended and dissolved organic material in the wastewater, and converts it to cellular energy, as well as producing the byproducts of respiration and growth in the form of CO2, water, ammonia, nitrite, nitrate, and other molecular substances less toxic than untreated wastes. While our reactors have fans that can provide ventilation, adequate DO is maintained in our reactors simply with the inversion of air from the bottom of the reactor to the top related to temperature shift throughout the media. When the film on the media gets too thick, it sloughs off and flows through to the bottom of the tower, where it is collected along with the treated effluent in an underdrain system.

There are four final clarifiers that are in-service at all times. During two stage operation, two final clarifiers provide first stage settling, and two primary clarifiers provide second stage final settling. Upon entering the clarifier, influent is dispersed across its width by an inlet baffle in to the clarification zone. Scum is separated by a baffle at this point and then pumped to the headworks channel. Flow passes over V-notch weirs into a rectangular launder, and then continues into an effluent channel. First stage flow goes to a wet well, where one of four recycle pumps returns it to the top of the reactor building for its second pass through the reactors. Second stage flows into the chlorine contact chamber where it receives disinfection. A traveling bridge system is controlled by the SCADA system. This bridge has both sludge scrapers on the bottom and skimmers on the top for solids and grease removal. The sludge scrapers pull the settled solids to hoppers on the influent end of the tank. Electrically actuated butterfly valves are controlled through setpoints in the SCADA system, and sludge pumps pull the settled final sludge from the hoppers, and send it back to the headworks channel for settling in the primary clarifiers.

The Rocky River WWTP is required to meet NPDES E. coli limits of less than 126 colony forming units per 100 ml of sample (monthly average). In order to achieve this, we utilize 12.5 % Sodium Hypochlorite to oxidize the pathogenic material. A chlorine contact chamber allows for adequate detention time. The sodium hypochlorite is injected using chemical metering pumps into water carrier lines from the chemical storage building in the lower plant up to the chlorine hut in the upper plant. The dosing point is just post final clarification. A mixer assists in provided homogenous contact, ensuring that the majority of pathogenic material is exposed to the disinfectant. Flows move through a serpentine tank system, with baffles to provide additional mixing. Just prior to entering the final effluent line, the flow is dosed with 38% Sodium Bisulfite to reduce the chlorine residual to below 0.038 mg/L of Total Residual Chlorine, which is also an NPDES permit requirement. Two Hach CL17's are in-service for remote and local monitoring, and the operations department also runs titration type testing for monitoring low level total residual for permit compliance. In 2016, a capital improvement project incorporating the dosing control and residual monitoring was completed. This improvement allows us to set a target remote residual on the operations station computer. The SCADA system monitors the remote chlorine residual and sends signals to the dosing pumps to speed up or slow down, depending on how the residual is maintaining. The sodium bisulfite

pumps are also located in the chemical storage building. Those pumps are currently controlled manually by operators; however plans are in the works to tie them into the SCADA system in 2017. For flows greater than 45 MGD, when the Excess Flow Primaries are in service, a similar system is in place for disinfection of bypass flows. Flows are disinfected in the effluent channel, and are hit with sodium bisulphite just prior to discharge into the bypass effluent line.

Heading into "The Cloud"

In 2016 the Rocky River WWTP started making the leap, in both operations and administration, into the "cloud". This transition began with the use of a web-based maintenance scheduling and tracking software called HIPPO. Maintenance staff and operators spent many hours over the winter of 2015-2016 gathering data about the equipment throughout the plant, and then entering that data into a spreadsheet. The staff at HIPPO took those spreadsheets and put them together in a format that allows operators to input a work request. Something as simple as "Raw sludge pump #1 is making noise" becomes a detailed record of troubleshooting, repair, hours invested, inventory used, and repair company names all associated with this one piece of equipment. When asked what he likes about this system maintenance mechanic Mike Clough says "Down the road, this has the potential to give us a more accurate inventory and reference for parts replacement needs. This also gives us the ability to easily look up how we fixed something in the past." With senior people retiring, passing on this institutional knowledge becomes critical. According to Daryl Radeff, soon to retire maintenance foreman "New guys coming in won't necessarily know right off the bat what is going on with our particular pieces of equipment. I'm going to leave my knowledge in HIPPO as much as I can".

The next step into the cloud involved the use of Right Stuff Precinct Manager, the new payroll software that the majority of the city is now using. This program includes scheduling, time off requests, and leave bank tracking. Staff is assigned a user name and log in, which they can use from any computer: home, and at work. This allows them to request their leave as soon as they know they need it. Assistant Superintendent Keith Bovard has been very involved in the set up of this project. "We have simplified scheduling and planning operations because the schedule is available to everyone and allows everyone to see what staffing levels are on a daily basis." For Christine Gottwald, the person that previously put all of the paperwork for each pay period together, this has streamlined her job significantly. Because staff handles their own requests, "We have minimized mistakes this way." One of the other benefits to this program is the ability to run reports detailing sick leave usage and overtime costs.

The final step into the cloud is being implemented in spring/summer of 2017. Working with integrator Mike Yammine and Systems Group Technologies, the SCADA monitoring system is slowly being transitioned over to ICONICS remote cloud monitoring. "Remote cloud monitoring and analytics provides facility operations and managers a platform to provide real-time process visualization and analytics. The "Internet of Things (IoT)" driven by Industry 4.0 initiatives introduces the ability to increase operational efficiency, improve sustainability and reduce costs. Benefits of using IoT are publishing data securely to the cloud, visualize on any device anywhere, remotely monitor and control assets, integrate with existing equipment and streamline the user experience. Systems Group Technologies integrates ICONICS IoT solutions in any industry providing actionable insight of operational performance. We can integrate with other hardware solutions such as control or monitoring hardware, wireless or private cellular networking and power monitoring for energy analytics." Operators and maintenance staff will have continuous access to plant information by use of both tablets and traditional computer monitors. A web of connectivity is being built throughout the plant on a private wireless communication network. This will allow for connectivity virtually everywhere in the plant fence. That means that when a mechanic is working on a piece of equipment in a basement with no touchscreen, he can see how other plant processes are being affected by the equipment he is working on in real time. During high flow operations, we will no longer have to station a man at a computer in a room, he will be able to bring the computer with him.

Overhead View of Rocky River WWTP circa 1939.

Rocky River WWTP Staff

CarrieAnne Rosemark, Superintendent
Keith Bovard, Assistant Superintendent
Daryl Radeff, Maintenance Foreman
Art Stolze, Laboratory Technician/Pre-Treatment Coordinator
David Miller, Electrician
Operators: Joel Clough, Nate Clough, Ken Gerrick, Dave Goots, Terry Hilt, Mike Jelenic, Mark Kalinowski, Dan Kundtz, Jason Werts
Maintenance Mechanics: Mike Clough, Ed Schaefer
Lab Clerk/Technician: Christine Gottwald

Rocky River Wastewater Treatment Plant Staff operate under the direction of the Management Committee including Mayor Pamela Bobst of Rocky River, Mayor Dennis Clough of Westlake, Mayor Paul Koomar of Bay Village, and Mayor Eileen Patton of Fairview Park

Buckeye Bulletin History

Stay tuned through 2017 as we share a little Buckeye Bulletin history in each issue.

As we get closer and closer to the upcoming conference we can rejoice on these images and Buckeye Bulletin excerpts from past Annual Conferences as far back as the 1960s.


WELCOME
OHIO WATER POLLUTION
CONTROL ASSOCIATION


EXIT

Program - 37th Annual Meeting

OHIO WATER POLLUTION CONTROL CONFERENCE

Commodore Perry Hotel, Toledo, Ohio — June 12, 13, 14, 1963

Wednesday, June 12, 1963

10:00 A. M. - Manufacturers' Forum - New Advances In Coagulants and Coagulation Aids
R. E. Tarbert, Production Manager, Hagan Chemicals and Controls, Inc., Pittsburgh, Pa.
John T. Burke, Production Manager, Nalco Chemical Company, Chicago, Ill.
Carl Bauer, Sanitary Engineer, The Dow Chemical Company, Midland, Mich.

12:30 P. M. - Luncheon
Address of Welcome: Mayor John Potter, City of Toledo
Key Note Address: (To be announced)

2:30 P. M. - "A Unified Program for Utilities In A Metropolitan Area"
Norman R. Drulard, Director of Public Service, Toledo, Ohio
Raymond E. Hall, Lucas County Sanitary Engineer, Toledo, Ohio

3:30 P. M. - Business Session

3:45 P. M. - Reports from Sectional Conferences

4:00 P. M. - Film - Water: Pattern of Life

8:00 P. M. - Discussion Session on Waste Treatment Problems
Moderator: Eugene Amlin, Superintendent of Water & Sewerage, Newark, Ohio

Thursday, June 13, 1963

Sewage Treatment Section

9:00 A. M. - "Observations on Bench Scale Extended Aeration Sewage Treatment"
F. J. Ludzack, Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio

9:30 A. M. - Discussion of above paper
George D. Simpson, Associate, Havens and Emerson, Cleveland, Ohio.

9:45 A. M. - "Operation of A Small Aerobic Digestion Plant"
W. D. Sheets and George P. Hanna, Jr., Engineering Experiment Station Ohio State University

10:15 A. M. - Discussion of above paper
Lawrence Rigby, Superintendent of Sewage Treatment, Columbus, Ohio

10:30 A. M. - "Extended Aeration" - Panel Discussion by about 4 speakers

Industrial Wastes Section

9:00 A. M. - "The Tools for In-plant Abatement of Industrial Wastes"
A. J. VonFrank, Plastics Division, Allied Chemical Corp., Philadelphia, Pa.

9:35 A. M. - "The Operation of an Integrated Treatment System for Cyanide and Chrome in Plating Wastes"
Thomas D. Anderson, Production Engineering, Packard Electric Division, General Motors Corporation, Warren, Ohio

10:10 A. M. - "Extended Experience with Reuse and Bio-Oxidation of Refinery Waste Water in Cooling Tower Systems"
Edward F. Mohler, Jr., Sun Oil Company, Toledo, Ohio

10:45 A. M. - "Thickening, Dewatering, and Disposal of Paper Mill Sludges"
William L. Carpenter, Regional Engineer, National Council for Stream Improvement, Kalamazoo, Michigan

11:20 A. M. - "Influence of Mixing Rates on Efficiency of Metal Finishing Waste Treatment"
V. S. Tadsen, Gibsonburg Lime Products Company, Gibsonburg, Ohio

12:00 Noon - Group Picture - Marble Cliff Quarries Company

Afternoon - Combined Session

2:00 P. M. - "Lake Erie Water Quality Studies"
H. W. Poston, U. S. Public Health Service, Chicago, Illinois

2:45 P. M. - "Progress and Plans in Preventive Pollution Control"
George H. Eagle, Chief Sanitary Engineer, Ohio Department of Health

3:30 P. M. - "Report of Survey of Combined Industrial-Domestic Wastes Treatment Practices in the Ohio River Valley Drainage Basin"
J. F. Byrd, The Proctor and Gamble Company, Cincinnati ,Ohio

4:15 P. M. - "Can Industrial and Domestic Treatment Mix?"
Galen Gault, Superintendent, Water and Sewage Dept., Archbold, Ohio

Evening

6:00 P. M. - Cocktail Hour, Courtesy of Water and Sewage Works Manufacturers' Assoc.

7:00 P. M. - Annual Dinner
Awards Presentation, Max Phillips, presiding
Federation Report, Dr. Jack E. McKee, President, Water Pollution Control Federation

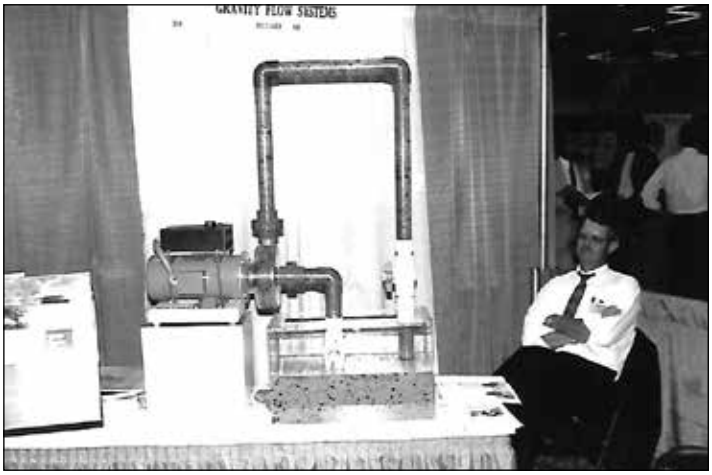
Friday, June 14, 1963

Morning - Combined Session

9:15 A. M. - "How Can Water Pollution Be Controlled?"
"Some of the Current Problems"
Homer Knox, Principal Assistant Sanitary Engineer, Ohio Dept. of Health
"What Sanitary Engineering Solutions are Indicated"
Thomas B. Henry, Partner, Jones, Henry and Williams, Toledo, Ohio
"Do We Have Adequate Financing Available"
E. M. Bancroft, President, Stranahan, Harris and Co., Toledo, Ohio

11:00 A. M. - "An Editorializers View of the Pollution Problem"
David M. Drury, Public Affairs Director, WSPD-TV, Toledo, Ohio

13


GRAVITY FLOW SYSTEMS

Become a 2017 OWEA Sponsor

Sign up at *www.ohiowea.org* or contact OWEA at 614.488.5800, *info@ohiowea.org*

Level/Price/ Points	Benefits
Titanium $7,500.00 60 Points	Website Banner Name on sign at ALL OWEA Registration Tables Thank you in all 4 issues of BB Headline Sponsor Opportunities
Platinum $6,000.00 47 Points	Website Banner Name on sign at ALL OWEA Registration Tables Thank you in all 4 issues of BB Headline Sponsor Opportunities
Gold $4,500.00 35 Points	Website Banner Name on sign at ALL OWEA Registration Tables Thank you in all 4 issues of BB Headline Sponsor Opportunities
Silver $3,000.00 23 Points	Name on sign at ALL OWEA Registration Tables Thank you in all 4 issues of BB Headline Sponsor Opportunities
Bronze $1,500.00 11 Points	Name on sign at ALL OWEA Registration Tables Thank you in all 4 issues of BB Headline Sponsor Opportunities
Copper $1,000.00 7 Points	Name on sign at ALL OWEA Registration Tables Thank you in May and August BB
Nickle $500.00 3 Points	Name on Workshop AM or PM Break signs Thank you in May and August BB
Cobalt $250.00 1 Point	Thank you in August BB

The OWEA Sponsor Committee, led by Chair Ted Baker, offers an innovative Sponsor Program, with headline sponsor acknowledgements and a point based redemption program. As companies and individuals sponsor and support the good work of the Ohio Water Environment Association, they also reap benefits and additional recognition by redeeming points for additional signage, as well as workshop, conference, and event registrations.

Make plans now to select your company's 2017 Sponsor Level. Contact Ted Baker or OWEA for more information.

Ted Baker, OWEA Sponsorship Committee Chair
440.829.8405, *kingsnu@aol.com*

Ohio Water Environment Association
614.488.5800, *info@ohiowea.org*

Points	Description
Speciality Workshop Registration	
3	Government Affairs Attendance
3	Collections Attendance
6	Plant Operations/ Laboratory Analysis Attendance
3	Biosolids Attendance
Golf Outing	
1	Golf Hole Sign
2	Golf Event Sponsor (i.e. Long Putt, Pin shot, Long Drive)
5	Golf Foursome for 1/2 Price
7	Golf Foursome
9	Premier Golf Sponsor (1 Foursome, 1 Sign, 1 event)
2017 Technical Conference and Exhibition Registration Tickets	
5	Full Registration 2017 Conference for 1/2 Price
7	Full Booth Registration 2017 Conference for 1/2 Price
8	Full Registration 2017 Conference
12	Full Booth Registration 2017 Conference
4	Tuesday Only Registration 2017 Conference
4	Wednesday Only Registration 2017 Conference
3	Thursday Only Registration 2017 Conference
5	Extra Meet & Greet Ticket - Tues
2	Extra Banquet Ticket - Wed
Buckeye Bulletin Advertising	
5	1/8 Page ad in 1 issue of the 2017 Buckeye Bulletin
9	1/4 Page ad in 1 issue of the 2017 Buckeye Bulletin
13	1/2 Page ad in 1 issue of the 2017 Buckeye Bulletin
17	1 Page ad in 1 issue of the 2017 Buckeye Bulletin

ROLLIN' DOWN THE RIVER

OWEA2017 Technical Conference & Expo

Save the Dates!

June 26-29, 2017

The Hyatt Regency, Downtown Cincinnati, Ohio

The 2017 OWEA Annual Conference is **Rollin' Down the Ohio River!** You are invited to join us for valuable education and networking opportunities with others in the water quality and environmental fields.

- Multiple Technical Tracks and Sessions
- 80+ Exhibitors and Educational Tours
- 2017 Operations Challenge Invitational
- Facility Tours
- OWEA Awards Brunch, Annual Meeting and Banquet
- Meet and Greet Event with Entertainment
- Contact hours for sessions and tours
- And so much more!

Topics for 2017

- Protecting our Waterways
- Nutrients
- Storm Water
- Energy Sustainability
- Green Technology
- Improving Maintenance
- Innovative Operations
- Biosolids / Solids Recovery
- Innovative Regulatory Approaches
- Laboratory and Safety
- Wastewater Collections

Hosted by the Southwest Section
For information, contact:

Marty Davidson
Conference Co-Chair
513.889.4746
marty@blanderson.com

Sharon Vaughn
Conference Co-Chair
937.333.1860
Sharon.Vaughn@daytonohio.gov

Jamie Gellner
Technical Program Chair
513.469.2750
jgellner@hazenandsawyer.com

Ohio Water Environment Association
614.488.5800
info@ohiowea.org

2017 Sponsors

Titanium

Stantec

Platinum

ARCADIS

CDM Smith

Hazen

Gold

AECOM

Alloway
Your Resource for Defensible Data

Brown AND Caldwell

your trusted advisor
consultants
engineers
architects
planners

Henry P. Thompson Company

quasar energy group

SMITH ENVIRONMENTAL

Silver

AIMAX Software

HDR

Jones & Henry Engineers, Ltd.

Thermal Process Systems

Bronze

AMERICAN STRUCTUREPOINT INC.

BLACK & VEATCH
Building a world of difference.

buckeye pumps

BURGESS & NIPLE
Engineers ■ Architects ■ Planners

fr&h

H.R.Gray
A Haskell Company

KEM
K.E. McCARTNEY & ASSOCIATES
ENGINEERS • PLANNERS • SURVEYORS

ms consultants, inc.
engineers, architects, planners

PRIME AE®

AND
50 Years of Excellence

TnT Engineering, LLC
Willoughby, Ohio

WADETRIM

Copper

Nickle

Peterson Construction Company
Post Printing

Interested in becoming an OWEA Sponsor? Sign up at www.ohiowea.org or contact OWEA at 614.488.5800, info@ohiowea.org

Sponsors committed as of 4/19/17.

Schedule | Monday, June 26 - Thursday, June 29

Monday, June 26

8:00 a - 9:00 p	Registration
9:00 a - 8:00 p	Ops Challenge Events
8:00 a - 5:00 p	Golf Outing
5:00 p - 9:00 p	Exhibitor Setup
6:00 p - 10:00 p	Welcome Social

Tuesday, June 27

7:00 a - 5:00 p	Registration
7:00 a - 10:00 a	Exhibitor Setup
8:00 a – 9:30 a	Exhibitor Breakfast
10:00 a - 5:00 p	Exhibit Hall Open
8:30 a - 10:30 a	Awards Breakfast
10:30 a – 11:30 a	OWEA Annual Business Meeting
11:15 a - 4:00 p	Spouse/Guest Program
11:00 a - 12:00 p	Exhibit Hall Tour (earn one contact hour)
12:00 p – 1:00 p	Lunch in Exhibit Hall
1:00 p - 2:30 p	Round Table Seminar
1:30 p - 2:30 p	Exhibit Hall Tour (earn one contact hour)
1:30 p - 3:30 p	Mill Creek WWTP Tour (earn one contact hour)
4:00 p - 5:00 p	Exhibitor Reception – Including Ops Challenge Awards
5:00 p - 6:00 p	Exhibit Tear Down
6:00 p - 10:00 p	Meet & Greet – The Freedom Center

Wednesday, June 28

7:00 a - 5:00 p	Registration
7:00 a - 8:00 a	Crystal Crucible Breakfast (by invitation)
7:00 a - 9:00 a	Breakfast
8:00 a - 11:30 a	Technical Sessions (4 Concurrent Sessions)
9:15 a - 4:00 p	Spouse/Guest Program
11:30 a - 1:00 p	Lunch
11:30 a - 1:00 p	President's Luncheon (by invitation)
1:00 p - 4:45 p	Technical Sessions (4 Concurrent Sessions)
6:00 p - 7:00 p	Reception – 5S Induction
7:00 p - 9:30 p	Annual Banquet & Awards
9:30 p – 11:00 p	After Banquet - Drinks, Desserts, and Music

Thursday, June 29

7:00 a - 11:00 a	Registration
7:00 a - 9:00 a	Breakfast
7:00 a - 8:00 a	5S Breakfast (by invitation)
8:00 a - 11:30 a	Technical Sessions (4 Concurrent Sessions)
11:30 a - 1:30 p	Conference Committee Lunch (by invitation)

Registration Options

Early Registration - by May 31st:

Full Conference Member	$295
Full Conference Nonmember	$425
Retired Member Full Conference	$175
One Day Only Member	$165
One Day Only Nonmember	$225
Student	$50
Spouse/Guest Program	$160

Late Registration - June 1 and after:

Full Conference Member	$350
Full Conference Nonmember	$475
Retired Member Full Conference	$225
One Day Only Member	$195
One Day Only Nonmember	$265
Student	$75
Spouse/Guest Program	$210

Budget Options*

Tues Tech Sessions & Exhibition	$50
Wed Tech Sessions & Lunch	$75
Thur Tech Sessions - 1/2 Day	$50

*This option for attendees who only want to attend Technical Sessions on Tues, Wed, or Thur, or walk the Exhibit Exposition on Tuesday. Except for lunch on Wed, which is included, food/beverages/networking events are not included in this price.

Multiple Day Combo Available

Exhibitor Registration:

Includes Full Conference Registration for Primary Exhibitor

Member Exhibitor	$700
Nonmember Exhibitor	$875
Extra Booth Attendant (2 max)	$50

Golf Registration:

Foursome	$360
Individual Golfer	$90
Hole Sponsorship Sign	$250 each

OWEA 2017 Sponsorship Levels:

Titanium	$7500
Platinum	$6000
Gold	$4500
Silver	$3000
Bronze	$1500
Copper	$1000
Nickle	$500
Golf	$250
Sustaining	$250

Register online ***www.ohiowea.org***

2017 Operations Challenge Invitational | Monday, June 26

The Ohio Water Environment Association is proud to announce they will host an Operations Challenge Competition and National Invitational as part of the 2017 Technical Conference and Exhibition.

$50 Team Registration (up to 5 people) includes:

Monday Morning - Continental Breakfast
Monday Lunch
Monday Night - Welcome Social at Hyatt Regency
Tuesday's Awards Breakfast
Tuesday's Meet & Greet at The Freedom Center

Registration and details at *ohiowea.org*

Process Control Event

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

Laboratory Event

All week long your ammonia levels have been creeping up at the plant effluent... the laboratory tech is on vacation and you have to get to the bottom of this before the boss gets involved. The purpose of this event is to familiarize teams with the definition and concept of alkalinity and how it impacts plant operations. Team members will be required to run straight and diluted samples of influent ammonia and alkalinity to determine basic alkalinity needs of the treatment plant based on these values. Calculations will be performed to determine if there is adequate alkalinity to complete nitrification or if supplemental alkalinity would be needed. Bench sheets will need to be completed properly in addition to proper performance of such techniques as measuring with graduated cylinders, pipetting and analysis of pH, alkalinity and ammonia using instruments provided.

Some Ops Challenge events will take place during the Monday Welcome Social

Safety Event

While your WRRF facility crew is working, one of the workers collapses in the bottom of a confined space lift station. It is suspected that he/she has been overcome with an unknown gas or lack of oxygen due to a warn 4" check valve gasket in the station. The in-plant rescue / repair team is immediately called to the scene. Two members of the team will enter the confined space, rescue the downed worker and repair the check valve. Two gate valves will be closed and locked out/ tagged out by the entrants, the check valve flapper and gasket will be replaced and the line put back into service. Tools and equipment will be lowered to them by the attendants and all proper confined space entry protocols will be followed during the rescue and repair completing just another day in the life of a WRRF operator!

Collection Systems Event

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

Maintenance Event

Weather in Ohio is always changing, wait an hour it will go from winter to summer. Imagine a summer thunderstorm. A lightning strike has knocked out the power and fried the control panel at a remote lift station. It is time to mobilize your trailer mounted engine and pump set. Before you can take the trailer out, you have to be sure it will work. Your team must perform maintenance on the trailer, engine, and pump. Check the tires, change the filters, vacuum test the pump – just a sample of the tasks to be completed. Wheel the trailer over to the model wet well, then attach the suction and discharge hoses, program the engine and pump control unit, and away it goes. Remember move quickly…the Mayor's house is the first lateral up from the lift station!

Ops Challenge Awards will be presented on Tuesday at the Exhibitor Reception.

2017 Golf Outing | Monday, June 26

City of Mason Golf Center

6042 Fairway Dr, Mason, OH 45040

CITY OF MASON OHIO
THE GOLF CENTER

The foursome includes: 18-holes of golf, cart, driving range & practice facility, light breakfast, lunch, dinner, beverages and prizes.

Golf Hole Sponsor Signs available.

Welcome Social | Monday, June 26, 6:00 pm to 10:00 pm

Eric Jerardi will be performing to start off Rollin' Down the River!

Eric Jerardi, of the Eric Jerardi Band, is considered a true blues rocker.

It's his relentless commitment to touring that has resonated so deeply with audiences. His live shows are legendary across markets in the United States. This commitment has picked up sponsorships with Fender Guitars, Budweiser, and S.I.T. strings. Jerardi has released 7 CD's since 1995 and has worked with some of the industry's best, from producer David Z (Prince, Fine Young Cannibals, Johnny Lang, Etta James), to recording with Chuck Leavell (Rolling Stones, Allman Bros., Black Crowes). Jerardi is musically having the time of his life with the release of The Eric Jerardi Band's new cd "Everybody's Waiting On Me". Jerardi began his musical career with winning a battle of the bands contest in 1989 at Ohio University. Two years later, Jerardi won another contest at OU, which secured a spot on MTV as the Midwest's Best Unsigned College Band. Over the years, he has shared the stage with Little Feat, Robin Trower, and Jim Belushi at the House of Blues, Chicago and LA; played with Eric Johnson on Cape Cod; jammed with Keith Urban, Wynonna, and Kenny Chesney in Nashville; and headlined B.B. Kings in Memphis, Nashville, LA, and Manhattan. He has played in countless blues festivals, major concerts, and a myriad of other shows around the country for the last 25 years.

Mill Creek WWTP Plant Tour | Tuesday, June 27, 1:30 pm to 3:30 pm

METROPOLITAN SEWER DISTRICT of greater CINCINNATI

The Mill Creek Wastewater Treatment Plant (WWTP), which began operations in 1959, is MSD's largest wastewater treatment plant, treating about 100 million gallons of wastewater a day. The plant serves our customers in central Hamilton County, from the northern county border to the Ohio River. MSD's Watershed Operations division is also housed at the treatment plant. **Bus leaves at 1:00 pm from Hyatt Downtown Cincinnati to Mill Creek WWTP.**

1600 Gest Street, Cincinnati, OH 45204, (513) 244-5522.

Round Table Technical Session | Tuesday, June 27 (1.5 contact hours)

TUESDAY ROUND TABLE	
1:00 - 2:30 pm	
Nutrient Load Reductions: Policies for Diverse Perspectives ***Adrienne Nemura, Geosyntec Consultants and Jeff Rexhausen, University of Cincinnati***	Ohio's statewide nutrient reduction strategy and collaborative implementation strategy for Lake Erie rely on reductions from the municipal wastewater/stormwater and agricultural sectors. This panel presentation will explore the scientific and economic challenges facing these sources. It will also provide unique perspectives on commonalities and differences between the two sectors.

OWEA Needs Your Help

A Successful Conference is absolutely dependent on the contributions of time and effort from volunteers. From planning to executing, there are so many tasks to be completed. If interested in helping out, contact:

Megan Borror, *meganborror@ohiowea.org*, 614-488-5800.

You can also sign up using the online form at *www.ohiowea.org.*

Registration: Monday - Thursday
Golf Volunteers: Monday
Exhibit Tour Monitors: Tuesday
Exhibit Hall Assistants: Tuesday
Sign Wranglers: Tuesday - Thursday
Ticket Takers: Tuesday and Wednesday
Moderators: Tuesday - Thursday
Monitors: Tuesday - Thursday

Exhibition | Tuesday, June 27

The Exhibition will be held at Hyatt Regency in Cincinnati, Ohio. The Exhibit Hall will be open Tuesday from 10:00 am - 5:00 pm, with two Exhibit Hall Tours for one contact hour each from 11:00 am - 12:00 pm and 1:30 pm - 2:30 pm. The exhibition will conclude with a reception from 4:00 pm - 5:00 pm in the exhibit hall.

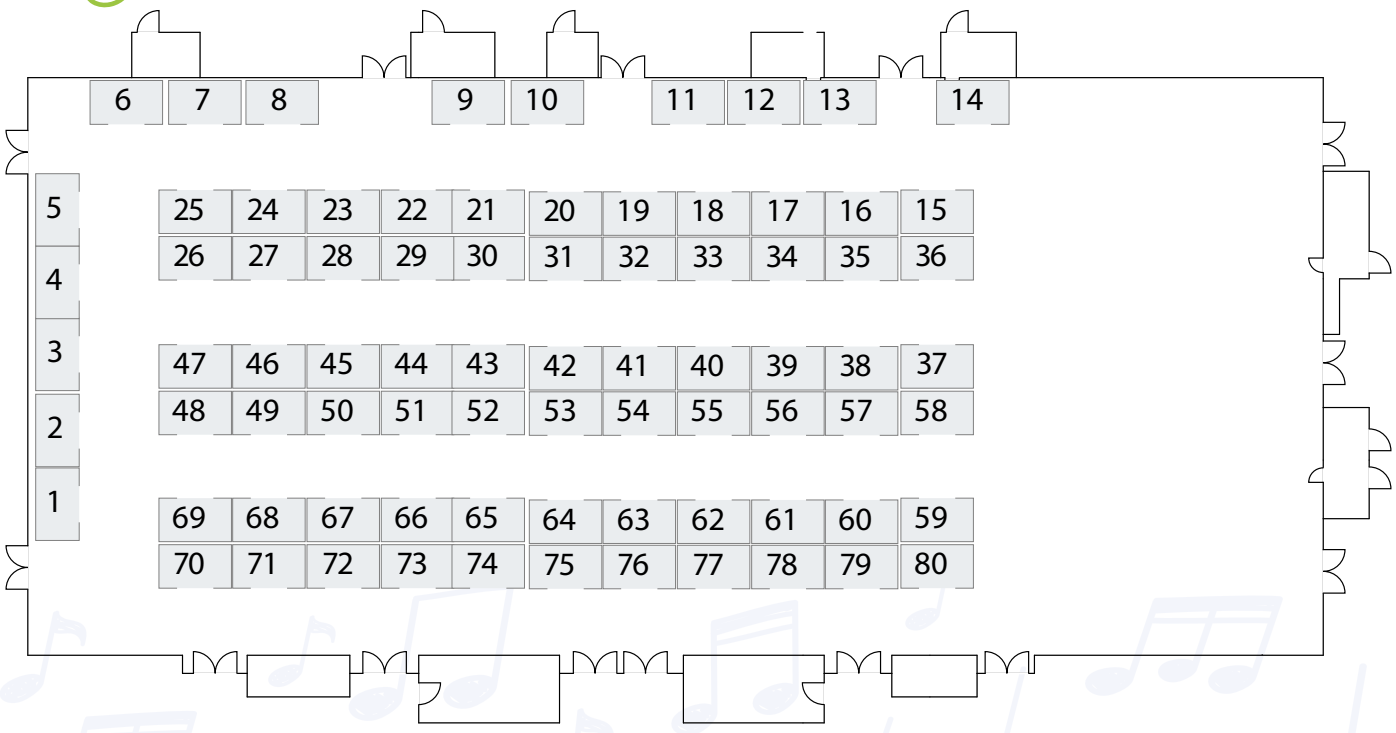
Register online at **www.ohiowea.org.** or contact OWEA at 614.488.5800/*info@ohiowea.org*.

Registration includes one full conference registration for primary exhibitor:

$700 for OWEA members
$875 for Nonmembers
Additional Booth Attendants:
$50 includes Exhibition access and Tuesday brunch

2016 Exhibition

Exhibition Space is almost full! Reserve your booth now!



Exhibitors

360water, Inc.
ADR & Associates, Ltd
ADS Environmental Services
Advanced Rehabilitation Technology
Alfa Laval
Allied Technical Services Inc., Pump Rentals, Underwater Services
Alloway
ASA Analytics
ATR Distributing / Wonderware Cincinnati
BL Anderson
Chaltron Systems Inc.
Chesley Associates
Commerce Controls Inc
Corrpro Companies, Inc.
Covalen
Culy Contracting
CWM Environmental
Daman Superior LLC
Delaney and Associates, Inc.
DN Tanks
Dukes Root Control, Inc.
EJ
Electrolytic Technologies
Engineered Air
Engineering America
ENVIROSCIENCE INC
Evoqua
Excel Fluid Group
Flottweg Separation Technology, Inc.
George E. Booth Co., Inc.
Hach Company
Hayward Gordon
Headworks
Hobas Pipe USA
Horizon Technology Inc.
HydraTech Engineered Products
IDEXX Laboratories, Inc.
InfoSense, Inc.
J Dwight Thompson Co.
JGM Valve
K.E. McCartney & Associates
Kaeser Compressor
Kemira Water Solutions, Inc.
Layne Inliner, LLC
LiquiForce Services
Loan Star Blower
Logan Clay Products
Milliken Infrastructure Solutions
Mission Communications
MSD Environmental Services
Neo Chemicals & Oxides
Nexom
Ohio RCAP
Ohio WARN
Pelton Enviromental
Pentair Water Fairbanks Morse
Prime AE Group
Primex
Raven Lining Systems
REXA
RootX
Sanitaire, a Xylem Brand
Seepex
Smith Environmental Inc
Technique Roofing Systems LLC
The Henry P Thompson Co
The Rovisys Company
Trojan Technologies
Ulliman Schutte
Vogelsang
Vortex Infrastrucure
WesTech, Inc.
YSI, a Xylem Brand

Awards Breakfast | Tuesday, June 27, 8:30 am to 10:30 am

Kickoff the conference by getting together with your peers to honor the best in our industry. The Awards Breakfast will be held on Tuesday, June 27 at 8:30 a.m. After a hot breakfast the OWEA awards will be presented to those individuals that have shown exemplary service and dedication to our industry. Be there not only to congratulate those award winners but also the Crystal Crucible and Golden Manhole winners. The 5S inductees will be announced with their induction to take place at the cocktail hour before the banquet. Eileen O'Neill, WEF Executive Director, will also be there to address us and let us know what is going on at the Water Environment Federation.

Ohio AWARDS

OWEA Annual Business Meeting | Tuesday, June 27, 10:30 am to 11:30 am

Do you know what happens during the year in OWEA? Do you know who represents your Section or who are committee chairs? This is the time to find out about YOUR Ohio Water Environment Association. The Annual Business Meeting gives the membership a chance to see and hear how and what the Association has been doing. Information shared includes financial reports, organizational news, committee news, ongoings of the Sections and a little from WEF. Join us after the Awards Breakfast before you engage with the exhibitors.

Exhibit Hall Tours | Tuesday, June 27, 11:00 am to 12:00 pm and 1:30 pm to 2:30 pm (1 contact hour per tour)

Each tour will include four 15 minute sessions in the exhibit hall, educating attendees about new technology, systems, and BMP's in various aspects of water reclamation and treatment.

OWEA's exhibitors typically include representatives from collections, treatment, stormwater, instrumentation/ SCADA, laboratory services, and consulting engineers. Exhibit tours are a great way to get updates on trends and innovations nationwide as exhibitors include both local and national companies. Sign up for exhibit tours the day of the Exhibits!

Meet and Greet | Tuesday, June 27, 6:00 pm to 10:00 pm at The Freedom Center

My Sister Sarah My Sister Sarah est. 2004

National Underground Railroad FREEDOM CENTER

Opened on the banks of the Ohio River in Cincinnati in 2004, the mission of the National Underground Railroad Freedom Center is to reveal stories of freedom's heroes, from the era of the Underground Railroad to contemporary times, challenging and inspiring everyone to take courageous steps of freedom today. The Freedom Center overlooks the Ohio River and will provide an excellent venue for the much anticipated Meet & Greet. with live performance by My Sister Sarah.

My Sister Sarah has been considered to be one of Cincinnati's most successful and popular "Dance/ Party/Show" bands. The band is composed of four truly ridiculously talented and hilarious guys from diverse backgrounds. They have built a reputation for having very high energy performances, stage props, costumes, and unique adaptations and medleys of popular songs. A state-of-the-art sound system and light show complements our high-impact performances. Each show is a memorable experience as they draw the audience into their world, and make them feel like they are part of the show. This is a definite "crowd participation" band. All this combined makes My Sister Sara Cincinnati, Ohio's premier "show" band.

Reception & Annual Banquet | Wednesday, June 28, 7:00 pm to 9:30 pm

After a long day of technical sessions, unwind at the reception before the Annual Banquet. Watch and listen to the induction of this year's 5S class. Following that ceremony, join your fellow attendees at the annual banquet. Sit with those you already know, met during the conference, or make new friends!

After a wonderful dinner, the WEF Awards will be presented to our prestigious award winners by WEF President Rick Warner. OWEA President, Ted Baker, will have outgoing remarks before he hands over the gavel to incoming OWEA president, Jamie Gellner. The conference couldn't be successful without our sponsors. All of our sponsors will be recognized for the support they give OWEA throughout the year.

Ted Baker
OWEA President

Jamie Gellner
OWEA President-Elect

Rick Warner
WEF President

wef member association

Enjoy the live performance of the The Rusty Griswolds at the 2017 Annual Banquet. The Rusty Griswolds have been performing; bringing energy as only they can to the best music of the 80's. A local favorite, they were voted Best Party / Cover Band in 2004, 2005, 2006, 2007, 2010, 2011 and 2012 by the readers of Cincinnati's City Beat Magazine. The Rusty Griswolds have performed close to a thousand times since forming in 1999. When they're not here, they're playing everywhere from local bars to Reds games, Party in the Park, Live at the Levee in Newport, and a rigorous church festival circuit in summers. And just about everywhere they go, they're greeted by equally enthusiastic throngs of mostly 30-to-50-somethings, singing and dancing along like star-struck teens. How did an '80s cover band comprised of middle-aged men in parachute pants achieve rock star status in Cincinnati? The story starts with a handful of band geeks from Oak Hills High School who played Green Township's Harvest Home Fair on a whim in 1980. A group of friends, really—some of whom have known each other for upwards of 40 years—who just like playing music together.

2017 WEF BOT Representative | Rick Warner, WEF President

Job Title: Senior Engineer, Engineering and Capital Projects
Company: Washoe County Community Services Department
City and State: Reno, NV, USA
Member Association: Nevada Water Environment Association

Rick Warner, P.E. is the 2016-17 President of the Water Environment Federation (WEF), an international organization of water quality professionals headquartered in Alexandria, Va. Rick also presently serves on the Board of Directors of the Water Environment and Reuse Foundation. In addition, he is a senior engineer for the Washoe County (Nevada) Community Services Department. In that role he is responsible for planning, design, and construction for regional water resource recovery and recycled water projects.

Rick is actively engaged with several water reuse projects, and is presently co-leading a regional team developing Nevada's first potable reuse project. Rick is a member of the WateReuse Association, the Water Environment and Reuse Foundation, and the Design Build Institute of America.

A WEF member since 1995, he has held multiple leadership and committee roles. He served on the House of Delegates for three years and is a member of the Utility Management and Water Reuse Committees. Also an active member of the Nevada Water Environment Association (NWEA), Rick served two times on the NWEA Board and as President from 2001-2002.

He is presently collaborating with Dr. Krishna Pagilla, Professor and Environmental Engineering Program Director at the University of Nevada, Reno to help create a Water Innovation Campus – an effort to advance water science and technology for municipal, industrial, and agricultural applications while enhancing the economic, social, and environmental aspects of the water environment.

Rick is a registered professional engineer in the state of Nevada. He received a B.S. and an M.S. in civil engineering from the University of Nevada.

WEDNESDAY MORNING TRACKS				
Time	**Energy**	**Operations**	**Collections**	**Maintenance**
8:00 - 8:30	**Small Wastewater Plants Can Save Money Too** *Ryan Brauen, Wessler Engineering*	**Filters or Settling? Cost Savings by Addressing the Cause - Not the Problem (And Other Benefits)** *Scott Phipps, Hazen and Sawyer*	**Large Diameter Sewer Assessment – When to Take It to the Next Level?** *V. Firat Sever, American Structurepoint, Inc.*	**Digging Deeper to Save the City of Dayton Over Half a Million Dollars on Their RAS and WAS Upgrades.** *Chris Weber, RA Consultants*
8:30-9:00	**Harvesting Operational Inefficiency: Strategies to Succeed in Energy Savings Performance Contracting** *Pete Thomson, Black & Veatch*	**Easterly WWTP - Dry and Wet Weather Treatment Strategies** *Robert Bonnett, NEORSD*	**Miamisburg Ohio, CMOM and Sewer Inspection and Rehabilitation Program** *Sean O'Rourke, Hazen and Sawyer*	**A Comparison of Low-Pressure Membrane Module Performance in a Difficult Secondary Effluent Application** *Jamie Bain, WesTech Engineering*
9:00 - 9:15 Break				
9:15 - 9:45	**High Speed Blower Installation Cuts Electrical Costs and Improves Operations** *Tom Schaffer, Hazen and Sawyer*	**Master Planning Ohio's Fastest Growing County** *Joe Crea, Raftelis Financial Consultants*	**Putting First Things First: NEORSD's Prioritization Process for Gathering Local SSES Data In Support of Member Community Infrastructure Program – Heights Hilltop Interceptor Area** *Andy Lukas, Brown and Caldwell*	**Clarifier Tests Reveal Greater Capacity for Mill Creek WWTP** *Chad Cecrle, Black & Veatch*
9:45-10:15	**Comparing Aeration Blower Technologies on a Wire to Air Basis** *Andrew Balberg, Lone Star Blower*	**Implementing SRT Control at the NEORSD Southerly WWTC Stabilizes Operations and Reduces Costs.** *Don Esping, Brown and Caldwell*	**Cost-Effectively Upgrading an Old, Combined Sewer Pump Station** *Alison Schreiber, NEORSD*	**Case Studies on Recognizing and Replacing Aged Trickling Filter Media** *Larry Li, Brentwood Industries, Inc.*
10:15 - 10:30 Break				
10:30-11:00	**Stirling Engine for Biogas: Gas Scrubbing Not Required** *Brian Mitchell, WesTech Engineering, Inc.*	**Maximizing Pumping Capacity Using Screw Centrifugal Pumps** *Jason Lee, ARCADIS*	**Tunneling Through Time** *Nicholas Sheffield, Stantec*	**Innovative Improvements To Muddy Creek WWTP Grit Removal System - No Space -No Problem.** *Dinesh Kumar Palaniswamy, JACOBS*
11:00 - 11:30	**How to double your biogas dollars** *David Wrightsman, Energy Systems Group*	**Upgrades for a Critical Wastewater Pump Station** *Robin Rupe, NEORSD*	**A Step Towards CSO Elimination: Sunset Ave. Sewer Separation** *Michelle Iannicca, HDR*	**NEORSD Southerly WWTC – Grease Removal System O&M Benefits** *Jeff Ifft, Brown and Caldwell*

WEDNESDAY AFTERNOON TRACKS				
Time	**Regulatory**	**Operations**	**Biosolids/Green Infrastructure**	**Collections**
1:00-1:30	**Capturing Community Collaboration for Innovative Stormwater Strategy** *DJ Wells, Permacultur Engineering*	**Failure Analysis Helps Improve Continuous Sewer Assessment Program** *Bo Copeland, Hazen and Sawyer*	**The Reality of Biosolids Land Application** *Bob O'Bryan, Black & Veatch*	**Next Generation of Sewer Modeling - Isolating RDII Sources** *Hazem Gheith, ARCADIS*
1:30-2:00	**Using Natural Systems to Accomplish Stormwater Separation and Water Quality Goals** *Jason Abbott, Arcadis*	**Managing the Useful Life of Segmented Block Sewers** *Dianne Sumego, Black & Veatch*	**Following up after ten years... an updated long term Residuals Plan** *Andrew Bennett, Hazen and Sawyer*	**Sanitary Lateral Issues, Repair Methods and Costs, Ordinances, and Financing** *Brent Siebenthal, Wessler Engineering*
2:00 - 2:15 Break				
2:15-2:45	**SSO 700 IWAP: Development of an Integrated Water Quality Modeling Framework** *Katie Bollmer, CH2M*	**Overflow Control Using Chemically Enhance High Rate Treatment** *Doug Dietzel, NEORSD*	**Bulk Food Waste as a Viable Revenue Source: Market Assessment** *Mark Strahota, Hazen and Sawyer*	**The Westerly Storage Tunnel and Dewatering Pump Station: How to Hit a Moving Target** *David Gleason, Stantec*
2:45-3:15	**Collaboration Across Boundaries to Achieve Integrated Watershed Management** *Brandon Vatter, Mott McDonald*	**Resolving Operational Issues at the Newark WWTP Using a Collaborative Approach Involving an Industrial Discharger** *Sam Jeyanayagam, CH2M*	**Case Studies Using Rare Earth Technology to Achieve Low Level Phosphorus Limits** *Pam Cornish, Neo Performance Materials*	**OEPA CSO Overflow Reporting – Regional Sewer District Reviews & Updates Process** *Lita Laven, NEORSD*
3:15 - 3:30 Break				
3:30-4:00	**Continuous Calibration of a Model Using a Robust Set of Data** *Victoria Berry, CH2M*	**My journey to create the work culture I always wanted.** *Christen Wood, NEORSD*	**Living Assets: MSDGC's Green Infrastructure Maintenance Program and Use of Performance Indicators** *Leslie Schehl, MSDGC*	**Flow Monitoring Pays for Itself Many Times Over: Case Studies Where Pro-Active Flow Monitoring Resulted in Potential for $100s of Millions in Savings** *Shannon Conway, Stantec*
4:00-4:30	**Interceptors and FEMA and the Corps! Oh My!** *Ryan Brauen, Wessler Engineering*	**#embracingdisruption** *Jason Tincu, Brown and Caldwell*	**A Systematic and Connected Approach for Siting Green Infrastructure to Deliver Optimum Watershed Solutions** *Brandon Vatter, Mott McDonald*	**Evaluating River-influenced Groundwater Infiltration and Sewer Rehabilitation Effectiveness** *Seth Bradley, Hazen and Sawyer*

THURSDAY TRACKS				
Time	**Regulatory**	**Maintenance**	**Wet Weather**	**Nutrients**
8:00 - 8:30	**A Pilot Demonstration: Online Analysis for Wastewater Chlorination and De-chlorination Dosing Control at City of Guelph, Ontario** *Wei Zhang, ASA Analytics*	**Methods of Algae Control in Clarifier Effluent Channels** *Gary Ruston, Wessler Engineering*	**Innovative Approach for Capacity Increase at the North Olmsted WWTP** *Anthony Farina, Hazen and Sawyer*	**More Affordable, Reliable and Recoverable Nutrient Removal** *Jim Fitzpatrick, Black & Veatch*
8:30-9:00	**Will Your Green Infrastructure Program Help You Comply with Your Consent Order?** *Andrew Birmingham, JMT*	**The Effect of Screen Design on Capture Rate and Plant Maintenance** *Matt Bodwell, Enviro-Care*	**Evaluation of Peracetic Acid (PAA) as Wastewater Disinfectant** *Achal Garg, MSDGC*	**Nutrient Removal Optimization at the Fairview WWTP** *Alyssa Mayer, Hazen and Sawyer*
9:00 - 9:15 Break				
9:15 - 9:45	**Separation can be a Good Thing** *Scott Ankrom, Hazen and Sawyer*	**From Pressurized Chlorine Gas to Peace of Mind** *Derek Lubie, Electrolytic Technologies, LLC*	**Pilot Testing to Design Reality: Implementing a Cost-Effective Wet Weather Treatment Solution** *Nicholas Bucurel, Brown and Caldwell*	**An Innovative Approach to Retrofitting for Nitrogen Removal** *Robert Smith, YSI/Xylem*
9:45-10:15	**Bioassay Testing and the TRE/TIE Evaluation Process** *John Hoffman, Alloway*	**Corrosion Control for Water & Wastewater Systems** *James Lary, Corrpro Companies, LLC*	**The State of Enhanced High-Rate Treatment in Ohio** *Jared Hutchins, Black & Veatch*	**Efficient Nutrient Removal at Low DO Concentrations** *Don Esping, Brown and Caldwell*
10:15 - 10:30 Break				
10:30-11:00	**Ohio's SSIs Keep Burning with New Air Emissions Technology** *Shane Carlson, MSDGC*	**Vertical Route or Under Pressure: Aeration Analysis for EBNR** *Lindsey Hassenauer, Hazen and Sawyer*	**Integrated Approach to Managing Wet Weather Flows at the NEORSD Southerly Wastewater Treatment Center to Safeguard Waterways and Protect Plant Operations** *Douglas Reichlin, Stantec*	**Preliminary Assessment of Nutrient Dependency of a Mixed Cyanobacteria Culture** *Elizabeth Crafton, University of Akron*
11:00 - 11:30	**Ammonia Water Quality Criteria: The past, the present, the future** *Elizabeth Toot-Levy, Geosyntec Consultants*	**Disinfection Control Improvements Produce BIG Savings** *Dan Hanthorn*	**MSDGC CSO Challenge: Evaluating Innovative CSO Treatment Strategies** *Will Martin, Hazen and Sawyer*	**A Look Forward - How to Handle Low Level Phosphorus Limits with Creative Solutions** *Jamie Mills, Strand Associates, Inc.*

Hyatt Regency Cincinnati

Join OWEA members and colleagues for a stay at the Hyatt Regency Cincinnati for OWEA's 2017 Technical Conference and Expo. With a direct connection to the Duke Energy Convention Center and a downtown location that places you minutes from the central business district, our luxury hotel in Cincinnati, Ohio is a haven for business travelers. Stay connected throughout your visit and take advantage of a full range of productive services in our business center. Keep up with your fitness routine in our 24-hour StayFit™ Gym, or take a dip in our indoor pool. Dine at Red Roost Tavern, our chic farm-to-table restaurant, showcasing some of our chef's most signature culinary creations from locally sourced, fresh ingredients.

- Standard room rate is $159 per night for up to four persons.
- Complimentary Wi-Fi and high speed Internet is also included in the rooms, public areas, and meeting rooms.
- Valet parking $30 per night with in and out privileges

OWEA room rates available Sunday June 25 - Thursday June 29, 2017.
Make your reservations via the link at *www.ohiowea.org* or call The Hyatt: **(513) 579-1234**
Please ask for Ohio Water Environment Association 2017 Conference
Cutoff date for special rate is Tuesday, May 31, 2017
Address: 151 W 5th St, Cincinnati, OH 45202

2017 Spouse/Guest Program | Tuesday, June 27 to Wednesday, June 28

Tuesday: Carriage Tour of Over-the-Rhine

The Over-the-Rhine district – or "OTR" is located on the north edge of downtown Cincinnati and boasts some of the hottest restaurants and shops in the region. The neighborhood, listed in the National Register of Historic Places, is easily traversed on foot...or enjoy the scenes on the Carriage Tour. Washington Park is near the 137-year old Music Hall, a National Historic Landmark and treasured local venue. Findlay Market is a year-round market with plenty of food vendors with an on-site beer garden. The Maverick Chocolate Company is the city's first bean-to-bar chocolate maker; and the Macaron Bar is the only local bakery dedicated solely to French macarons. Stop by one of OTR's several historic breweries, many originally founded in the early 19th century.

Wednesday: Cincinnati Premium Outlets

Find an exciting collection of 100 outlet stores from top designers and name brands at Cincinnati Premium Outlets®. Conveniently located in Monroe, the mall offers a beautiful outdoor, single-level shopping experience. FEATURED STORES are Coach Outlet, Cole Haan Outlet, Converse, J.Crew Factory, Michael Kors, Polo Ralph Lauren Factory Store, Saks Fifth Avenue OFF 5TH, Tommy Hilfiger, Under Armour

Attendee Registration

First Name *(for name badge)*	Last Name	
Company Name		Title
Address		
City	State	Zip
Email:	Tel #:	
OWEA/WEF # *(req for member rate)*	Spouse/Guest Name *(if attending)*	

Conference Registration	Registration Type	by May 31	June 1 and after	Row Total
Full Conference includes: All Technical Sessions, Exhibition, Awards Brunch, Meet & Greet, Wed Lunch, Annual Banquet	Full Conference Member	$295 ☐	$350 ☐	
	Full Conference Nonmember	$425 ☐	$475 ☐	
	Full Conference Retired *(not working)*	$175 ☐	$225 ☐	
	Full Conference Student *(ID Req'd)*	$50 ☐	$75 ☐	
Tue Only includes: Exhibition, Awards Brunch, Meet & Greet	Tuesday Only Member	$165 ☐	$195 ☐	
	Tuesday Only Nonmember	$225 ☐	$265 ☐	
Wed Only includes: Technical Sessions, Box Lunch, Annual Banquet	Wed Only Member	$165 ☐	$195 ☐	
	Wed Only Nonmember	$225 ☐	$265 ☐	
Includes: Awards Brunch, Meet & Greet, Annual Banquet, Spouse Event	Spouse/Guest Program	$160 ☐	$210 ☐	
Plant Tour ☐ $0 Tues, June 27, 2:15 - 3:45 pm Avail to Full/Tues Registration Options	Extra Awards Brunch Ticket(s)	___ x $35 each		
	Extra Meet & Greet Ticket(s)	___ x $60 each		
	Extra Annual Banquet Ticket(s)	___ x $75 each		
OWEA Golf Outing Monday, June 26				
Includes: Golf Cart, Range, Lunch, Beverages, Prizes and Dinner. 8:30 am Registration, 9:30 am Shotgun Start, 4 person Scramble. Proximity Prizes and Course Winners.	# Team(s) of four golfers	___ x $360 each		
	# Individual Golfers	___ x $90 each		
	Hole Sponsorship Sign	___ x $250 each		
	Print names of golfers:			
			TOTAL AMOUNT DUE	

Register Online at *ohiowea.org*

For Reduced Rate Technical Session/Exhibition Registration Only Options - Visit *www.ohiowea.org*

Tickets will be taken for the events below. Please check which events you plan to attend.	
Included in Full and Tues Registration	Included in Full and Wed Registration
☐ Awards Brunch	☐ Wednesday Lunch
☐ Meet & Greet	☐ Annual Banquet

FORM OF PAYMENT

☐ Check # or P. O. #

☐ Credit Card - you will be emailed a secure link to enter your credit card payment. Or you may call the OWEA office with your credit card number.

☐ **I have read & agree to the OWEA refund policy**

OWEA
1890 Northwest Blvd, Suite 210
Columbus, OH 43212

T: 614.488.5800 F: 614.488.5801 E: info@ohiowea.org

OWEA Refund Policy

Cancellations within 72 hours of the conference or no-shows the day of the conference will be billed in full and will not receive a refund.
Any Cancellation 72 or more hours prior to the conference will receive a 65% refund minus any credit card processing fees.
Any Cancellation 7 days or more prior to the conference will receive a full refund minus any credit card processing fees.

Company Name		
Address		
City	State	Zip
Primary Exhibitor Responsible for Exhibit:		
Email:	Tel #:	
OWEA/WEF # *(req for member rate)*	Fax #:	
Signature _____ (by signing you agree to the Exhibitor Terms & Conditions posted at *www.ohiowea.org)*	Date: _____	

Exhibitor Registration	Registration Type	Cost	Row Total
Includes One Full Conference Registration: All Technical Sessions, Exhibition, Awards Brunch, Meet & Greet, Wed Lunch, Annual Banquet for primary exhibitor.	Exhibit Booth Member	$700 ☐	
	Exhibit Booth Nonmember	$875 ☐	
Add a Professional Membership:	OWEA/WEF Membership	$160 ☐	
Additional Booth Attendant includes: Exhibit Exposition access and Tuesday Brunch in Exhibit Area	Booth Attendant (max 4)	____ x $50 each	
	Print Names:		
Includes: Awards Brunch, Meet & Greet, Annual Banquet, Spouse Program	Spouse/Guest Program	$160 ☐ Early Bird Rate / $210 ☐ After May 31	
Note Special Requests *(subject to avail)*			
Exhibitor Tour: If you would be interested in giving a 15 minute booth presentation, check here: ☐			
	Extra Awards Brunch Ticket(s)	___ x $35 each	
	Extra Meet & Greet Ticket(s)	___ x $60 each	
	Extra Annual Banquet Ticket(s)	___ x $75 each	
OWEA Golf Outing Monday, June 26			
Includes: Golf Cart, Range, Lunch, Beverages, Prizes, and Dinner. 8:30 am Registration, 9:30 am Shotgun Start, 4 person Scramble. Proximity Prizes and Course Winners.	# Team(s) of four golfers	___ x $360 each	
	# Individual Golfers	___ x $90 each	
	Hole Sponsorship Sign	___ x $250 each	
	Print names of golfers:		
		TOTAL AMOUNT DUE	

Note: Please view our Technical Conference webpage to be added to the waiting list:

http://ohiowea.org/2017_owea_exhibiton.php

We hope you can still join us!

Tickets will be taken for the events below. Please check which events you plan to attend.	
Included in Full and Tues Registration	Included in Full and Wed Registration
☐ Awards Brunch	☐ Wednesday Lunch
☐ Meet & Greet	☐ Annual Banquet

FORM OF PAYMENT

☐ Check # or P. O. #

☐ Credit Card - you will be emailed a secure link to enter your credit card payment. Or you may call the OWEA office with your credit card number.

☐ **I have read & agree to the OWEA refund policy**

OWEA
1890 Northwest Blvd, Suite 210
Columbus, OH 43212

T: 614.488.5800 F: 614.488.5801

E: info@ohiowea.org

OWEA Exhibitor Refund Policy

Booth Cancellations received after May 31, 2017 or no-shows the day of the Exhibition will not receive a refund.

A Chat with President Elect, Jamie Gellner

by Megan Borror, OWEA Staff

Staff: Where do you work and what do you do for them?

Jamie: I work with Hazen and Sawyer and Hazen and Saywer is a water and wastewater consulting firm and we focus primarily on municipal water and wastewater so Serving utilities in Ohio and the other states that we have a presence in across the country and again the focus for us is one hundred percent water. So that makes us a little different than other consulting firms because we are so focused in that area and every one of our employees deals with something related to water. My role with Hazen and Sawyer is I'm a Vice President and I know a lot of people get wound up by titles, I do not. I am really responsible for wastewater facility design across the Midwest and I have management responsibilities in both the Cincinnati and Cleveland offices.

Staff: And then how many kids do you have and what are their names and ages?

Jamie: OK I have five kids and I will give you oldest to youngest. Jeremy, 14, Sophia, 12, Rachel, 10, Nicholas, 7, and Helen, 5.

Staff: What is it like having that many kids?

Jamie: Well, my wife and I waited until later to start having kids. We didn't have our first until my wife was 35. What I tell people is if we had started sooner we probably would have had more. Having that many kids is a lot to some and not a lot to others. All kids are blessings and it's chaotic but it's also very rewarding. It's chaotic and challenging but it's extremely rewarding as well and I just can't imagine my life without them. Obviously it's my opportunity to put in a plug for my wife because I travel quite a bit. Certainly during this next year I'll be even busier. She holds down the fort at home. Really keeps all those things going while I'm out doing this work thing.

Staff: Do you have any hobbies outside of work and your kids?

Jamie: Everybody defines hobbies different ways. I would say working out is about the only thing that I do in my free time. [I would say] fitness stuff and camping because we [camp] as a family quite a bit in the summer.

Staff: Moving on to OWEA. How long have you been a part of OWEA?

Jamie: I've actually been involved with OWEA 15 years. That time started when I moved to Cincinnati. I was in Charlotte, North Carolina before my wife and I were in Charlotte and we moved here in 2002. Actually when I moved here I had been involved in operator training and a few things in North Carolina as part of the MA Association down there and when I came to Cincinnati I was working with Malcolm Pirnie and they were very open to me being involved and so I knew that I wanted to be involved.
I actually got involved really quickly with the Residuals Committee. I got here in late 2002 and I think it started really early in 2003. I've been involved since then certainly in the Residuals side of things and then obviously the Executive Committee after that.

Staff: How did you originally get involved with North Carolina's MA?

Jamie: I don't remember being confused about whether I should be involved or not because it actually kind of happened by accident in North Carolina. My supervisor, when I first started, was teaching water treatment plant operations training school. In North Carolina they had it once a year and would be a week long course. What they had was a committee of people that together started and provided all of the training during that week to get somebody ready for the exams.

My boss was doing that and he needed some help and so he asked me very early on and it was pretty daunting to me at the time. I certainly hope it wouldn't be as daunting now having a few more years under my belt. I started doing water treatment plant operations training very early on and I said, "I'm doing more wastewater related work so I would like to do wastewater training and so I started doing the wastewater training after that.

There was always encouragement of giving papers and presentations at conferences and that recognition from the involvement in the organization from that early time was valuable both to the company I worked for at the time but also in terms of my career development. So there was never a question when I came up here that I wouldn't be involved with the local MA and [WEF] in general.

To me it's a contrast between what we find now which is there are still places out there where folks don't get to see that connection early on. I got thrust into it and it wasn't like somebody came up to me and said, 'Hey I want you to get involved.' It kind of built on itself once I got involved and that's one thing I always look at and say, if we can just get people involved a little bit and show them the very narrow window of what the benefits are, most people will come to the table and say, 'I want to do that' because I think it obvious once people get together with a group

at a workshop, at a meeting, or on a committee. Once people start doing that it doesn't take too much to see the benefits, particularly on the consulting side, which is where I'm working. Where we have to have relationships with our clients and the utilities that we work for.

I think it is less so on the operations side but I think that its something that we've got to continue to address at OWEA. How do we provide value to the operations community? and how do we continue to provide that? How do we provide that to younger professionals in operations?

Staff: Is that something you're kind of interested in expanding on during your presidency?

Jamie: Absolutely and I think that a lot of people have been working towards that. The initiative that Kim [Riddell] is leading on the operations training side really goes a long way in that arena if you ask me. And the point to which we can drive that forward next year is something that I want to be involved in. Yes, it's definitely something that I feel strongly about and it's something we have to do as an organization—to remain relevant to our operations members.

Staff: What would you say is your favorite thing about this organization?

Jamie: We just had a meeting with Hazen and Sawyer shareholders this weekend. We do it once a year and the interesting thing about it is that it is business focused but it's also personally focused. I was looking back on that and thinking about each year when we get together it's a chance to catch up with people that we haven't been collaborating with necessarily or communicating with but it's almost like I remember with my cousins when I was growing up. We didn't communicate for the longest time then we got together again it was like we were instantly comfortable with one another, we enjoyed each other's company. We just had a great time and we valued that relationship. And that's the way it is with Hazen and that's the way it is with OWEA. We have a very technically focused organization, it's professionally based, but we're also a group of very close friends. And the point to which you can mix all those things together and get together and have a great time and then also advance our careers at the same time is really powerful.

Staff: What was the reason behind you deciding to get the most involved and join the EC?

Jamie: Actually my involvement in the State EC actually happened, we'll say, prematurely relative to the normal course of the chairs. What normally happens is you go through the chairs on the section first and then after you're president then the option comes up to be the delegate then you take that if you want to.

Frankly the opportunity came up in the Southwest after I had only been on the Southwest EC for a couple years. I certainly thought about it for a while and decided to go ahead and make that leap at the time. Things that weighed into my decision: One, there was definitely a strong push for me to get involved because I wanted to be viewed as someone who had contributed to the profession. I also recognized it as an opportunity to get to know and be around some very successful people in our industry. I think those are probably the two driving things that got me to be more involved. Obviously I have to acknowledge that Hazen and Sawyer was very supportive of my [involvement] also. That made it an easy decision.

Staff: What is your favorite OWEA event or workshop that we put on?

Jamie: I am going to give you an off-the-wall answer here and say the WEFTEC Mixer. I'm trying to look at all the different things, the workshops, the meetings, all of those things and they're all very positive because they give people the opportunity to get together on a personal level and to catch up, to share stories, to continue a relationship. Workshops and conferences also have the technical component which I think is very important. The thing that just popped in my head when you asked that question was the WEFTEC Mixer is an opportunity for us to re-acknowledge that we are a part of our state MA. We're a part of that Ohio family while we're at WEFTEC as well as while we're back in Ohio and I like that part. It's still a social event, it's still fun but I like the reminder that we're part of Ohio and people need to be proud of that but we also need to carry ourselves in that manner at the national level as well.

Staff: What advice would you give someone aspiring to become more involved with OWEA?

Jamie: So one, I think it's very important to your career growth. Two, my advice would be the only thing that you have to do to become involved, and then to see both the benefits as well as the potential in your career, all you have to do is get involved. Volunteer and give a little of your time to the organization. My argument is that the rest takes care of itself in terms of positive reinforcement, personal relationships, professional relationships, and all the things that go along with OWEA become more and more clear as you spend more time doing that. Volunteer a little bit of your time either in a committee, at a section meeting. Volunteer to help out and get to know a few people. The rest takes off from there.

Staff: What are you most looking forward to as president?

Jamie: The thing that I look forward to the most is actually getting to interface with all of the individual sections and the people a little bit more. We have had a certain amount of that from meetings and other things but I really do look forward to working with the individual section ECs. Hopefully interfacing with people in each of those sections also.

I have been attracted to OWEA for all of those personal reasons I mentioned but I really do have an interest in getting to know each of the sections even if it's just a little bit better than I do now. Hearing their interests, their issues, and what are the things we need to help them the most moving forward.

Staff: What is something that you want to do for the members as president?

Jamie: I think there's a couple things that I think are important for us to do for the members. One thing is we've talked for a long time about the value of our membership. What value do we bring to our members? There's always been different answers and different viewpoints on that but you know I feel we can increase our value to membership through a couple things. One is just the training opportunities. The operator training is extremely important for us to continue to provide more value to our membership. Number two, the sections do a fantastic job of providing technical training at the section level and there is never going to be a way that the state OWEA is going to be able to do a better job but we want to support our section in continuing to provide that technical training for membership at that local level. It's affordable, it's easy to get to, it's something that a whole lot more people can be involved in than when you're just looking at the state level. The other thing that's a little harder to get our arms around is this question of relevance. People say, 'We want OWEA to be more relevant in the marketplace.' [They want OWEA] to be more relevant on current issues, to be more relevant on regulatory items, and problems that our membership are having.

I think one thing that Ted [Baker] has been trying to do this year that I want to carry forward is to further empower our committees because I feel like that relevance in each of those different areas can be something that our committees can really help us with. [For Example], the Residuals Committee, that I have been involved with for quite a long time, we're relevant in terms of the local regulations and some of the national regulations in terms of keeping up with those, but our committees including that one, and I'm the one who's leading the charge on, can do a lot more to keep us relevant and to keep our members informed. I would say the two things would be to really push the training to provide more value but also being able to be more technically relevant in current issues and I feel like we need to do that through our committees.

Staff: What is something that you want the membership to know about you as their upcoming president?

Jamie: Being able to serve as president is something that a long time ago I had established was a goal of mine for the reason we've talked about. I am extremely appreciative of the opportunity to do it. I don't take it for granted. I realize that there's a whole lot of people that have come before me that have worked extremely hard to advance the organization and I am a beneficiary of that in a lot of ways. The maturity of our organization, who we are and what we do, is really something that I would say, 'Thanks' to all of those people before me because I feel like I don't have as much ground to plow from that standpoint.

It's my job to serve the membership. I don't want anybody to view me as the President for the reason that I don't like titles, but the truth is that I view this job as being a servant to the membership, being a servant to our employees. I want people to know that I'm focused on what they want. What are their needs? What are their issues? I want to hear those things. My role is to serve the organization and the membership and I'm going to work really hard to do that but I also don't want people to think that I think the title carries so much importance that those day-to-day issues, those day-to-day concerns [are not important to me] or think I don't have time to talk to them.

Staff: Why did you choose this field?

Jamie: My Undergrad Degree is in Civil Engineering and my Graduate Degree is in Environmental Engineering. Both of those degrees and the schools I went to were more general interdisciplinary. It wasn't focused in just one particular area.

When I got out of school I was convinced I wanted to be a Hazardous Waste Engineer because when I got out it was 1997. Back then cleaning up hazardous waste was still a pretty big issue and I often tell people, and I told my wife, that I didn't want to get in the wastewater or water industry because I felt it was too cookbook. That was what my naive viewpoint was on the profession at the time.

I actually took my first job for a consulting firm in the Water Department doing Water and Wastewater Engineering but my hope was always to do landfill work after that. The Landfill Division is what I was convinced I would do after that even after I took the first job. So I serendipitously got into this but as soon as I started working in that department I got involved in some very exciting projects in wastewater treatment plants and things stuck from there for me.

I feel extremely fortunate to have happened into the water and wastewater industry. It's a fantastic career choice and there's a very large degree of job security when you contrast this to other sectors of the business. And frankly, it's a pretty small group of people in total relative to other sectors as well. I tell people I lucked into it.

Staff: Do you have any advice for aspiring leaders in the industry?

Jamie: I wonder if it's somebody else's expression but I thought it was a good one. I think it sums things up rather nicely. "The Three H's: Be Humble, Be Hungry, Be Hardest Working" [Dwayne Johnson].

Fireside Chats

OWEA has started a new article 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: *meganborror@ohiowea.org.*

THE SAME QUALITY YOU'VE GROWN TO RELY ON ONLY BIGGER.

THE NEW RELIASOURCE® MODULAR ABOVE-GROUND LIFT STATION IS THE LARGEST PRE-PACKAGED SYSTEM BY GORMAN-RUPP... AND IT PASSES THE EYE TEST.

The *NEW* Gorman-Rupp modular above-ground autostart lift station is the largest in the ReliaSource® line of wastewater products. Equipped with the latest in Integrinex™ control technology, the new package is designed to keep you up and running...even during power outages. The station is available in sizes up to 11'6" wide by 20' long and can accommodate 2" through 12" self-priming pumps, providing heads up to 320 feet and flows up to 5,200 GPM. Customizable enclosures are available in a variety of fiberglass and optional brick finishes. And, like all ReliaSource products, the modular above-ground lift station is 100% designed, manufactured and tested by the experts at Gorman-Rupp. When it comes to reliable sewage pumping time after time, trust Gorman-Rupp – trust ReliaSource.

Discover your single source for value, performance, and peace of mind at reliableliftstations.com.

DISTRIBUTED BY:

For Northern & Central Ohio Contact:

The Craun Liebing Company

11801 CLIFTON BLVD. | CLEVELAND, OH 44107
216.228.7900 | WWW.CRAUNLIEBING.COM

For Southern Ohio Contact:

SOUTHERN SALES COMPANY
A DIVISION OF TENGARYA MACHINERY

2937 KRAFT DRIVE | NASHVILLE, TN 37204
614.626.3860 | WWW.SOUTHERNSALESINC.COM

RELIASOURCE®

GORMAN-RUPP PUMPS
P.O. BOX 1217 | MANSFIELD, OHIO 44901-1217 | USA
419.755.1011 | GRSALES@GORMANRUPP.COM | GRPUMPS.COM

GORMAN-RUPP PUMPS
The Pump People®

Gorman-Rupp Pumps USA is an ISO 9001:2008 and an ISO 14001:2004 Registered Company

Appalachia Ohio Alliance

by Steve Fleegal, Executive Director, Appalachia Ohio Alliance.

AOA's strategic vision for central and southeastern Ohio features the conservation of riparian corridors with a primary focus on the Scioto and Hocking River watersheds. Clean water is something that we all need and value in one form or another. It is an essential resource, necessary for sustaining our natural systems as well as our developed communities. As demand increases and clean water becomes scarcer, the necessity to enhance our conservation activities to ensure the availability and sustainability of this resource becomes more compelling. The recent, distressing news of dead and dying mussels in Big Darby Creek, our National Scenic River, underscores this responsibility.

The Appalachia Ohio Alliance is a regional non-profit land conservancy that serves central, south-central and southeastern Ohio.

The Alliance is dedicated to the conservation and stewardship of our land and water as sustainable natural resources that are an asset and a legacy for our community.

The condition of the Scioto and Hocking river corridors, including the major and minor tributaries such as the Big and Little Darby Creeks, Big Walnut Creek, Olentangy River, Alum Creek, Salt Creek, et al., reflect our community's values and are indicators of our region's overall welfare and livability. There is a growing recognition that human health and wellbeing, as well as economic development and growth in a community are directly related to the extent and quality of greenspace and natural areas.

Clean water is a community amenity that we can all believe in and work towards. Riparian corridors are key components of the natural infrastructure required to keep our streams flowing and clean. They link communities in the watershed to each other as well as urban to suburban to rural areas, and farms to consumers' tables. Wherever we live and work — houses, yards, schools, churches, businesses, industries, streets, farms, et al. — we are all connected to the hydrologic system and have a stake in its wellbeing.

Healthy riparian corridors provide value and benefit to the community in many ways. They are integral to helping maintain water quality in our rivers and streams, as well as our groundwater. Much of our native fauna and flora rely on healthy ecosystems and habitat provided by connected, linear natural areas such as those along our


Appalachia Ohio Alliance
a non-profit regional land conservancy serving central and southeastern Ohio

The Scioto River Flyway

Free Food and Fun | Open to the Public

Entry Location: 27689 River Drive
Pickaway Township

OPEN HOUSE AND DEDICATION
Pickaway County, Ohio
Saturday, June 18, 2016
10 am to 2 pm

SCHEDULE OF ACTIVITIES

10:00 am: Interpretive Displays Open

11:40 am: Lunch
Free old-fashioned cookout

11:55 am: Dedication Celebration

12:15 pm: Visit the Sites
Tours, Interpretive Walks and Demonstrations

Join us to help celebrate while enjoying our summer-time weather in a beautiful outdoor setting. The Scioto River Flyway Open House and other AOA events are free and open to the public. This event will be held rain or shine. Please come prepared and dress appropriately for the weather and outdoor environment. No pets please.

Appalachia Ohio Alliance invites you to an Open House and Dedication celebrating our newest preserves along the Scioto River. Four properties that comprise a core component of our Scioto River Flyway Corridor initiative will be featured — Marsha Gunder Schneider Preserve, Kreisel Preserve, Cossin Preserve and the Haddox Scippo Creek Corridor Preserve.

Take advantage of this first opportunity to visit and learn more about these spectacular sites. Hear about site history, habitat, restoration plans and community benefits.

Event activities and interpretive displays will be centered in the shady bottomland forest and fields on the Marsha Gunder Schneider Preserve.

Representatives from a variety of collaborative organizations will provide interpretive information and insights related to glacial-shaped geology and geography, archaeology and native heritage, natural history, biological significance and restoration plans, habitat conservation, wildlife, Scioto River Flyway Corridor initiative, local history and family heritage, farmland preservation, and more.

We are grateful to our partner organizations for helping prepare and present site information, including Pheasants Forever, Pickaway County Historical Society, Ducks Unlimited, Pickaway County Park Board, ODNR, Pickaway County Archaeological Group, Audubon, Ohio Wildlife Center, National Wild Turkey Federation and many others.

Appalachia Ohio Alliance
For more event information, visit our website at www.appalachiaohioalliance.org

The Scioto River Flyway Open House and Dedication Flyer and Information Page.

Scioto River at Brad Schneiders.

waterways. Aquatic life depends on clean and abundant water in our streams. Natural stream corridors provide critical migratory pathways for many species including song birds, waterfowl, bats, butterflies and native plants. They provide travel corridors for wildlife such as turkeys, pheasants and deer.

Forested riparian frontage shades and cools the stream while reducing erosion, soil loss, and incising of the stream channel. Leaves from these trees are the core component of the food chain that nourishes and supports aquatic life. Natural bottomlands buffer streams, filter contaminants and provide needed habitat. Functioning floodplains decrease floodwater levels and downstream impacts. Riparian wetlands increase groundwater recharge and provide important habitat for a wide variety of indigenous species, many which are in decline. Adjacent uplands offer diversity of habitat important for many species as well as a place to go when floodwaters rise. Stream corridors provide recreational opportunities for hunting, fishing, paddling, hiking, and other outdoor pursuits.

AOA works to conserve and enhance our land and water resources as sustainable assets for our community. In 2016 we:

- Increased the conservation lands AOA stewards to 80 properties and over 8,500 acres. Secured funding for numerous additional conservation transactions that are in process.
- Undertook expanded efforts to remove and control invasive species on AOA preserves.
- Utilized the board, staff and volunteers to monitor all of our conservation properties.
- Carried out a wide range of stewardship and enhancement activities on AOA's properties, in association with community partners, friends and volunteers.
- Expanded efforts to upgrade baseline site and species data on our preserves.
- Continued our commitment to the conservation of farm and working lands. Participated in the Local Agriculture Easement Protection Program (LAEPP), partnering with Athens, Franklin, Hocking, Pickaway, Ross and Vinton Counties.

Schneider Aerial Image.

"Aquatic life depends on clean and abundant water in our streams."

Cackley with Beaver Dam.

Big Darby group looking at specimens.

Of note, AOA acquired two properties that add to the Scioto River Flyway Corridor, one of our primary strategic conservation initiatives. These purchases were facilitated by a grant from the Clean Ohio Fund Green Space Conservation Program. The 55-acre George Andrew Schneider Preserve, located off of Island Road just north of Circleville in Pickaway County, was purchased from Brad and Katie Schneider. Approximately 3,000 linear feet of Scioto River riparian corridor frontage is protected by this acquisition. This reach of the Scioto River is designated as an Exceptional Warmwater Habitat that is home to a variety of state-listed species. Significant wetland areas are located on the tract. The property is a former agricultural field that was reforested about 15 years ago. AOA will steward the site in a manner that allows the young woodlands to mature into an old growth bottomland forest, providing enhanced riparian buffer and habitat. The property has been managed as a game preserve and is rich in wildlife.

A second property, the Haddox property, is located along River Drive in the south-central portion of Pickaway County. AOA purchased the floodplain area, a 27-acre portion of the larger property owned by Mary Belle Haddox, for riparian corridor protection and habitat connectivity. Approximately 4,900 linear feet of riparian habitat on both sides of Scippo Creek are protected through this purchase. Mount Oval, a historic farm property owned by the Pickaway County Historical Society borders the northeast side of the Haddox site. Combined with the Kreisel and Cossin purchases last year AOA has protected a nearly continuous corridor along Scippo Creek between the Scioto River and Mount Oval. Conservation of the Haddox site and other neighboring tracts help to unite fragmented land and create the larger blocks of habitat required for the sustainability of many of our native plant and wildlife species. These properties protect, enhance and buffer critically important riparian and wetland systems — helping to safeguard the water quality of Central Ohio.

AOA provides opportunities for members and the public to participate in and learn more about our conservation mission. We emphasize nature-based education that features local lands and ecosystems, conveying an enhanced understanding of their significance and relevance to our community. Our numerous programs and events help build partnerships, provide outreach, engage the community, provide hands-on learning and stewardship experiences, and allow friends to visit the lands they have helped to conserve – some of the most beautiful places in our region.

Sycamore at Steward.

For additional information on the Appaliachia Ohio Aliiance, visit our website at www.appalachiaohioalliance.org or email us at aoalt@earthlink.net.

Appalachia Ohio Alliance ▪ P.O. Box 1151 ▪ Logan, OH 43138-4151 ▪

Generous gifts from friends and supporters enabled the Appalachia Ohio Alliance to accomplish much. We are grateful for this support, and for continued validation of our conservation mission.

Vernal Pool Monitoring.

Converting to Biological Phosphorus Removal Can be Cost-Effective for Ohio Plants

by Samuel Jeyanayagam PhD, PE, BCEE, WEF Fellow and Leon Downing, PhD, PE

Introduction

Phosphorus (P) is one of nature's paradoxes. It is essential to life on earth and in scarce supply, yet destructive to the aquatic environment when present in excess. An increasing number of utilities in Ohio are required to upgrade their water resource recovery facilities (WRRFs) to remove P and achieve enhanced environmental protection. The two commonly used approaches include chemical and biological P removal. Bio-P removal, also known as enhanced biological P removal (EBPR), is more sustainable because it reduces chemical use and solids production while allowing P to be harvested as an environmentally-acceptable fertilizer. However, EBPR is more complex and entails many competing and complementing reactions. Yet, a large number of Ohio plants can achieve increased levels of P removal, even if they are not designed to do so, by adopting operational changes and/or low-cost process modifications. This article outlines process fundamentals and important design and operational considerations that can help achieve cost-effective EBPR. Case studies illustrate the performance that can be expected in practice.

Process fundamentals

Enhanced biological P removal is mediated by specialized heterotrophs endowed with the ability to remove P in excess of their metabolic requirements. These organisms are collectively referred to as Phosphorus Accumulation Organisms (PAOs). They are always present in the mixed liquor and normally remove cBOD like other heterotrophic organisms. When stimulated by certain environmental conditions, they are able to achieve excess P removal. The two basic prerequisites for EBPR entail exposing PAOs to:

- Alternating anaerobic and aerobic environments. Anaerobic means devoid of available electron acceptor such as dissolved oxygen (DO) or nitrate.
- Short chain volatile fatty acids (VFAs) in the anaerobic zone.

The process is driven by the cyclical storage and consumption of three storage products within the PAO: poly-b-hydroxyalkanote (PHA); polyphosphate (PP); and glycogen (GLY). A simple illustration of the EBPR mechanism is presented in Figure 1, which also shows the fate of the various constituents inside the PAO and in the bioreactor.

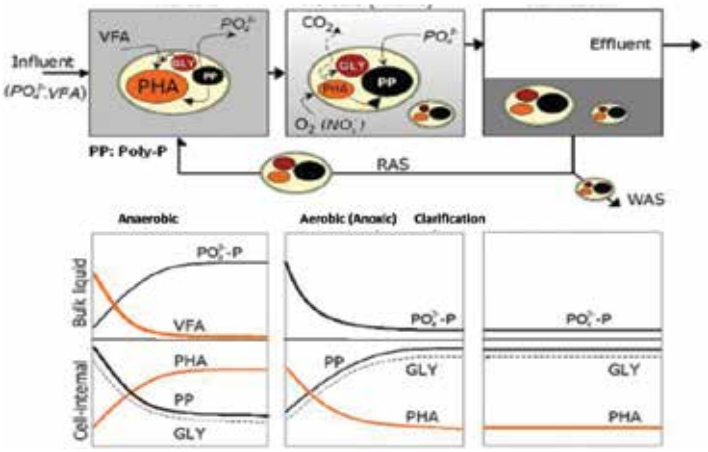


Figure 1: Simplified EBPR Mechanism and Bioreactor Profiles (USEPA)

Anaerobic Zone

Phosphorus accumulating organisms take up VFAs and store as PHA. The energy needed for transporting VFAs across the cell membrane and PHA formation is provided by the cleavage of energy-rich polyphosphate granules (previously stored in the aerobic zone). This is accompanied by the release of phosphate (PO_4^{3-}-P) to the bulk liquid. Approximately 0.5 mg P is released per mg VFA (as COD) sequestered. The reducing power required for PHA accumulation is provided by glycogen (GLY) degradation. In order to maintain electro-neutrality, concomitant release of magnesium and potassium also occurs in the molar ratio P:Mg:K of 3:1:1. Phosphorus Accumulating Organisms cannot metabolize VFAs in the absence of an oxygen source but can use it to build their PHA reserve in the anaerobic zone. This unique ability sets PAOs apart from other heterotrophs and provides them a selective advantage.

Aerobic Zone

As the mixed liquor enters the aerobic zone, PAOs are enriched with PHA and the bulk liquid is high in soluble P (PO_4^{3-}-P). The resulting driving force triggers PAOs to exchange PHA for P. In essence a fraction of the stored PHA is oxidized to provide energy for growth, P uptake and storage as poly-P, and cell growth. In order to maintain charge balance, cations (magnesium and potassium) are sequestered from the bulk solution. In the aerobic zone, PAOs do not have to compete with other organisms for the external food. Because aerobic metabolism results in significant energy production and cell yield, the P taken up in the aerobic zone far exceeds that released in the anaerobic zone, resulting in net P removal when sludge is wasted.

In a secondary activated sludge process, metabolically removed P represents approximately two percent of the VSS on a weight basis. In an EBPR system, the PAOs can store up to 38 percent P on VSS weight basis and, the overall P content of the mixed liquor, considering other organisms, is in the range of 6 to 15 percent VSS basis.

Key Factors Impacting EBPR

The overarching objective of EBPR system design and operation is to maximize PAO growth. In a well designed and operated system, PAOs can represent up to 40 percent of the active biomass (Henze, et al. 2008). While several factors impact EBPR performance, the two most important prerequisites are: adequate food and strict anaerobic conditions. Within limits, greater PAO growth leads to higher PAO fraction in the mixed liquor, greater P content in the waste sludge and higher EBPR efficiency

Feed the PAOs

Since organic carbon serves as substrate (food) for PAOs, wastewater characteristics strongly influence the plant's EBPR-capability. The influent organic content can be measured as biochemical oxygen demand (BOD), chemical oxygen demand (COD), or total organic carbon (TOC). Of these, BOD is typically specified in discharge permits and is the preferred parameter in plant operations. However, COD provides a consistent description of the fate of organic carbon during the activated sludge process and allows sludge production and aeration requirements to be quantified accurately. For these reasons, COD is used in process modeling and will be used here to illustrate the impact of influent organic matter on EBPR. As shown in Figure 2, influent COD can be broadly categorized as biodegradable and non-biodegradable. The biodegradable component is composed of rapidly biodegradable (rbCOD) and slowly biodegradable COD. The rbCOD drives the EBPR process and is of interest to us. It includes two fractions:

Fermented rbCOD: The rbCOD that has undergone fermentation (in the collection system) to produce volatile fatty acids (VFAs), and

Fermentable rbCOD: The fraction that can undergo fermentation in the anaerobic zone of the bioreactor, if favorable conditions exist.

The extent of sewer fermentation will determine the VFA-content of the plant influent. As illustrated in Figure 3, which was developed using plant data, during warmer months, due to increased fermentation in the collection system, a higher fraction of the rbCOD will be VFAs – i.e. the plant influent will be VFA-rich. In the colder months, due to weak sewer fermentation, more of the influent rbCOD will need to undergo fermentation in the anaerobic zone of the EBPR process to provide the needed VFAs. This shows that while PAOs directly consume VFAs, as precursor for VFA formation, it is the amount of influent rbCOD that determines a plant's amenability to EBPR. Figure 3 also shows the safe operating zone (shaded) with respect to EBPR reliability.

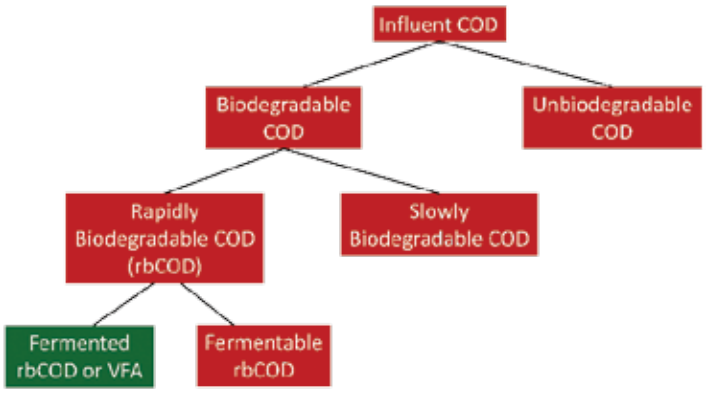


Figure 2: Influent COD Fractionation

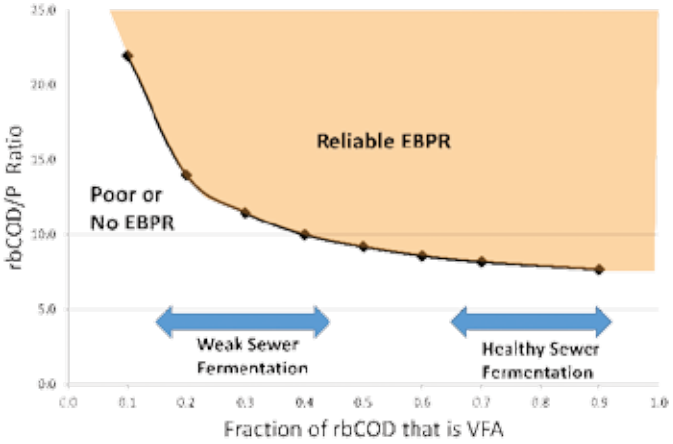


Figure 3: High rbCOD Offsets Low VFA Content (Barnard, et al. 2005)

The minimum substrate requirements for EBPR may be expressed using various measures of organic carbon (Table 1). The cBOD to total P ratio provides a crude initial estimate using readily available facility data. The rbCOD to total P ratio is the most reliable since it includes the VFAs already formed and the fermentable rbCOD that can potentially produce VFAs by undergoing fermentation in the bioreactor anaerobic zone.

Substrate Measure	Substrate to P Ratio in the Bioreactor Influent*
BOD	25:1
COD	40:1 to 45:1
VFA	4:1 to 16:1
rbCOD	10:1 to 16:1

* Includes recycle P loads

Table 1, Minimum Substrate Requirements for EBPR

If adequate VFAs cannot be produced through fermentation in the collection system and/or the bioreactor anaerobic zone, the strategies listed in Table 2 may be implemented to ensure P compliance.

Protect the Anaerobic Zone

The anaerobic zone performs two critical functions:

VFA uptake: Allows PAO to take up and store VFAs as PHA. This is a rapid reaction requiring approximately 15 to 45 minutes to be complete when anaerobic conditions are established at an oxidation reduction potential (ORP) of around -200 mV.

VFA production: Under 'deep' anaerobic conditions (ORP of -300 mV or less) the fermentable rbCOD is converted to VFAs and is made available to the PAOs.

The reaction kinetics are slower and can take as long as 90 – 120 minutes.

Strategy	Description
Active primary	Operate primary clarifier with deep sludge blanket to create anaerobic condition and achieve SRT needed for fermentation. VFA – rich primary effluent delivered to the EBPR bioreactor..
Off-line primary sludge fermenter	Ferment primary sludge in a dedicated tank or gravity thickener. VFA-rich supernatant delivered to the EBPR bioreactor.
RAS fermentation (Figure 4)	Ferment a fraction of the RAS solids in a dedicated tank with SRT ≥ 2days. VFA- rich fermentate delivered to the EBPR bioreactor.
Supplemental chemical addition	Add metal salt to primary and/ or final clarifiers on an as-needed basis
Commercially available VFA	Add purchased acetic/propionic acid to the EBPR bioreactor.

Table 2: Strategies for Supplementing EBPR

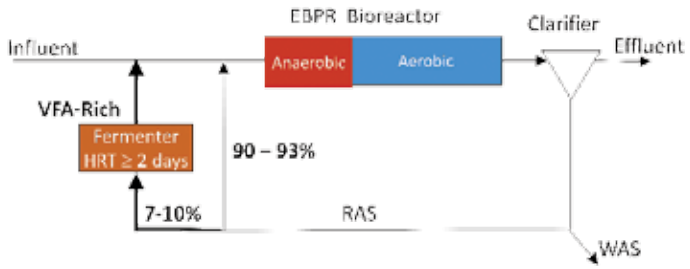


Figure 4: RAS Fermentation (Barnard et al)

The above process requirements lead to two practical implications. First, a longer anaerobic hydraulic retention time (HRT), therefore larger anaerobic zone, is needed for VFA production than for VFA uptake. Even if the influent contains adequate VFAs generated via sewer fermentation, the anaerobic zone should be sized to perform VFA production to ensure consistent and adequate supply of VFAs to sustain year-round EBPR.

Secondly, recent findings seem to indicate that for efficient EBPR performance, the PAOs must be exposed to 'deep' anaerobic environment with an ORP of around -300 mV. Such an environment ensures PAO diversity with the ability to uptake VFAs and ferment rbCOD to produce VFAs. Maintaining deep anaerobic environment means conditions that cause transient anaerobic conditions should be avoided. Table 3 lists major sources of oxygen contamination of the anaerobic zone and corrective strategies that ensure persistent low-ORP conditions.

In addition to the above, Barnard et al (2014) drew attention to the following design and operational features to protect the integrity of the anaerobic zone:

Source	Dissolved Oxygen	Nitrate	Potential Corrective Measure
Influent screw pump	√		Use pump that minimizes air entrainment
Influent pre-aeration	√		Use pump that minimizes air entrainment
Return activated sludge screw pump or airlift pump	√		Use pump that minimizes air entrainment
Free fall over weirs, or turbulent flow in open channels upstream of bioreactor	√		Minimize air entrainment through redesign
Return activated sludge	√	√	Select appropriate process configuration to denitrify RAS. Reduce nitrate by promoting simultaneous nitrification and denitrification
Back flow from anoxic or aerobic zone	√	√	Provide adequate water level drop (6 to 9 in.) between zones. Design baffles to eliminate backflow & maintain a forward velocity of 0.5 ft/s at minimum flow. Provide free passage for scum and foam.

Table 3. Common Sources of Anaerobic Zone Oxygen Contamination

- *Avoid over-mixing*: The anaerobic zone mixing energy should be lower than the commonly accepted value of 8 to 16 W/m^3 (0.3 to 0.6 hp/1000 ft^3) to prevent oxygen entrainment. Top entry slow-speed mixers operating at 2 to 4 W/m^3 should be sufficient to keep the solids in suspension while allowing ORPs to drop to -300 mV. However, the low energy input may cause poor RAS mixing due to density differential resulting in reduced anaerobic contact. Consider the use of mixing chimneys.
- *Bypass excess primary effluent*: During wet weather operation, achieving deep anaerobic condition will be difficult due to reduced anaerobic HRT and inflow of higher ORP flows. Provisions should be available to limit excess wet weather flows to the anaerobic zone.
- *Maintain plug-flow*: Consider staging the anaerobic zone to promote plug flow, which can achieve lower ORP than completely mixed tanks.
- *Appropriate HRT:* Longer anaerobic HRTs can generate more VFAs if deep anaerobic condition exists. Under transient anaerobic conditions, ORPs are typically higher and longer HRTs can be detrimental due to the potential for secondary P release.

Factor	Consequence	Mitigation Alternatives
Poor sludge settleability	Higher effluent total P due to increased particulate P	• Tight SRT control • Avoid low F:M ratio by promoting plug flow • RAS chlorination • Avoid low DO operation • Add polymer to final clarifiers • Selective foam wasting • Spray chlorine on foam • Avoid polymer overdosing during dewatering
Inadequate DO at the beginning of aeration zone.	EBPR not maximized due to poor initial P uptake.	• Staggered aeration • Inter-zone baffles to enhance P uptake rate • Automatic DO control
Struvite scaling	Increased operations and maintenance costs for pipe and equipment maintenance. Reduced conveyance capacity.	• Evaluate struvite recovery options that will reduce scaling • Add dilution water to minimize scaling potential • Adopt routine pipeline cleaning with proprietary chemicals • Feed carbon dioxide to depress pipeline pH, which minimizes scaling • Add chemicals during dewatering to precipitate P • Use chelating agents to prevent struvite formation • Use oscillating electric signal to minimize scaling
Wet weather peak flows	Loss of EBPR due to inadequate VFAs and/or solids washout	• Initiate chemically enhanced primary treatment • Operate bioreactor step feed modes. • Implement primary sludge or RAS fermentation • Add polymer to secondary clarifier to minimize solids washout
Poor dewaterability of EBPR solids	Reduced dewaterability. Increased polymer use. dewaterability. Increased polymer use.	• Consider struvite recovery strategy that will enhance dewaterability
Sidestream P load	Overwhelms mainstream EBPR. Increased struvite scaling.	• Equalize recycle flows • Struvite extraction from filtrate/centrate • Chemically treat sidestream
Secondary release	P release without concomitant VFA uptake under anaerobic conditions.	Avoid the following: • gravity thickening waste activated sludge • co-thickening • storing primary and waste activated sludges • oversizing anaerobic, anoxic, and aeration volumes • deep sludge blanket in final clarifiers Consider the following: • Use dissolved air flotation to thicken waste activated sludge. • Waste mixed liquor from the end of the EBPR bioreactor — waste sludge is aerobic, fresh, and has the highest P content.
Poor hydraulics	Poor EBPR resulting from uneven flow split to bioreactors and clarifiers.	Design or redesign to eliminate uneven flow split.

Table 4: Other EBPR Design and Operational Considerations.

Other Factors Impacting EBPR

While substrate availability and anaerobic zone integrity are the most important prerequisites for EBPR, several other factors deserve close attention during design and operation to ensure process reliability. Table 4 presents a brief description of these factors and common corrective measures. More detailed discussion may be found in Water Environment Federation (WEF) manuals of practice and other wastewater publications.

Case Studies

The following three case studies illustrate how WRRFs have been able to incorporate EBPR through simple and cost effective operational changes. All three plants were able to achieve low effluent P without filtration.

Northern Wisconsin Facility

An activated sludge facility in Northern Wisconsin has plug flow reactors that have historically been aerated. Phosphorus was removed via ferric chloride addition. Starting in 2014, the facility began to reduce airflow to the first zone of the aeration basins to maintain mixing in the zone with coarse bubble diffusers, which provided good mixing while limiting oxygen transfer. Consequently, the dissolved oxygen (DO) was not measurable in the zone. The facility saw a reduction in monthly chemical use from approximately 1,200 gallons down to approximately 200 gallons by implementing tight aeration control, while actually decreasing effluent P from 0.6 mg/L down to 0.2 mg/L. Tight aeration control in combination with VFA-rich influent stabilized EBPR. The performance of this Wisconsin facility demonstrates the viability of converting an activated sludge process to achieve very good EBPR cost effectively.

Indiana Facility

Chemically enhanced primary treatment (CEPT) can be a valuable tool for increasing process capacity in the activated sludge process by increasing the removal of settleable solids and BOD in the primary clarifiers. However, this could potentially reduce the primary effluent BOD going to the activated sludge process and impact the ability to feed the PAOs. At a facility in Indiana that practices CEPT, it was historically assumed that majority of phosphorus removal occurred via CEPT. Field sampling and modelling, however, indicated that more the 50% of the P removal was actually occurring via EBPR even at a relatively low BOD:P ratio of 18:1, which is lower than the typical 25:1 cited as the minimum ratio needed for effective EBPR. However, CEPT only removes the settleable solids and some of the colloidal BOD, leaving the fermentable rbCOD and VFAs in the primary effluent, which drive the EBPR process resulting in less than 0.5 mg/L ortho- P in the effluent. The operating experience at this WRRF shows that despite CEPT, the VFAs and fermentable COD present in the primary effluent are sufficient to achieve good EBPR.

Texas Facility

Operating at low DO levels creates conditions that are conducive for simultaneous nitrification and denitrification (SND) in the aerobic zone of an activated sludge process. Full scale testing at a Texas WRRF has shown that DO setpoints in the range of 0.75 to 1.25 mg/L can maintain the required nitrification while achieving denitrification and limiting the nitrate content of the RAS to the 5 to 10 mg/L range. This reduces the nitrate recycled to the anaerobic selector zone at the head of the aeration basin. Full scale testing has shown that an effluent P concentration of 0.4 mg/L is consistently achievable with an anaerobic zone that is only 15% of the total aeration basin volume. Effluent P performance relative to aeration basin DO setpoints, summarized in Table 5, shows that promoting SND through low DO operation maintains the integrity of the anaerobic zone by reducing the denitrification demand in the zone and preserving the VFAs for PAO consumption. In addition, operating at low DO setpoints can realize aeration cost savings.

Conclusion

The EBPR process concentrates P into biological solids and provides the ability to achieve compliance sustainably. It also concentrates P in an extractable form for potential recovery. When retrofitting existing basins for EBPR, the capital cost to implement ideal EBPR process configuration can be high. However, by taking advantage of emerging industry knowledge and advanced process modeling tools, many plants in Ohio can expect to achieve EBPR with relatively minor and cost-effective modifications to existing facilities, even if the process configurations are not ideal.

Test	Bioreactor Zone Hydraulic Retention Time, min				Average Effluent TP (mg/L)
	Zone 1 30 min	Zone 2 50 min	Zone 3 50 min	Zone 4 50 min	
1	Unaerated	DO = 1 mg/L	DO = 2 mg/L	DO = 3 mg/L	0.5 mg/L
2	Unaerated	DO = 0.75 mg/L	DO = 1 mg/L	DO = 1 mg/L	0.3 mg/L
3	Unaerated	DO = 0.2 mg/L	DO = 0.5 mg/L	DO = 0.75 mg/L	0.3 mg/L
4	Unaerated	DO = 2 mg/L	DO = 2 mg/L	DO = 2 mg/L	0.4 mg/L
5	Unaerated	DO = 1 mg/L	DO = 1 mg/L	DO = 2 mg/L	0.3 mg/L

Table 5: Impact of Low-DO Operation on Effluent TP at the Texas Facility

Legislative Updates in the Division of Surface Water at Ohio EPA

by Elizabeth Wick, Ohio EPA, DSW, NWDO

There are a lot of things going on in the environmental arena right now. Here is a short summary of activity at Ohio EPA in the Division of Surface Water.

2016 Integrated Water Quality Monitoring and Assessment Report

The Clean Water Act (CWA) requires development of an Integrated Water Quality Monitoring and Assessment Report (commonly referred to as the Integrated Report or IR) every two years. Section 305(b) of the CWA requires a description of the state's water quality conditions and the extent to which the water quality provides for safe recreation and balanced populations for fishing; an estimate of how much improvement there has been; and an estimate of what actions are still needed. In even numbered years, the CWA Section 303(d) requires states to submit, through the IR, a list of impaired waters; the pollutants causing the impairments; priority ranking for developing Total Maximum Daily Loads (TMDLs) for the impaired waters; and a schedule for the next two years.

For monitoring purposes, Ohio defines three types of assessment units: watersheds, based on hydrologic unit code (HUC); large rivers (38 segments of the 23 largest rivers in the state that drain more than 500 square miles); and Lake Erie shoreline. The goal of monitoring is to determine whether the state's waters are meeting the following water quality use designations.

- Human Health Use
- Recreation Use
- Aquatic Life Use
- Public Drinking Water Supply Use

The first three uses have specific associated surface water quality standards which guide the assessments. In the case of Public Drinking Water Supply Use, the algae indicator is based on a numeric state drinking water threshold value.

The 2016 IR includes several maps summarizing the results for each assessment unit. Overall, the large river scores declined and the watershed scores improved.

There was a slight decline in human health impairments. PCB contamination, primarily a result of historic industrial sources and old landfill discharges, is the cause of most of the human health use impairments. Mercury is the second leading cause of human health impairments.

Under the recreational use designation, 10 percent of the inland streams monitored fully supported water quality standards. Increased bacteria levels were documented during periods of higher stream flows associated with heavy rains.

Under the aquatic life use, Ohio's large rivers reflected a small decline in percent of monitored miles in full attainment compared to the 2014 IR. Based on monitoring through 2014, 87.4 percent of Ohio's large river assessment units were in full attainment. Conditions in the watersheds showed improvements over 2014. The top reasons for aquatic life impairment continue to be sediment, nutrients, habitat modification, hydromodification and organic enrichment.

Monitoring for the public water supply use designation showed more nitrate impairments, mostly in Northwest Ohio, and more incidents of harmful algae blooms impacting Ohio public drinking water supplies.

The full report can be found on Ohio EPA's webpage at: epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx.

Ohio EPA's 2018-19 Biennial Budget

The state legislature is considering two Division of Surface Water highlights as part of Ohio EPA's 2018-19 biennial budget. The first is the consolidation of the NPDES application and issuance fees. This change would end the multiple billing requirements in the permit process and create a combined fee due at the time of application. Combining application and issuance fees will result in no net fee increase to applicants; it simply makes the billing process easier, less confusing and provides a cost savings of check processing to the agency.

In response to the Ohio Supreme Court's decision in Fairfield County Board of Commissioners versus Nally, 2015, the second proposed highlight includes an amendment that reestablishes the legal validity of TMDLs approved by U.S. EPA prior to March 15, 2015. It also exempts TMDLs from formal rulemaking in favor of more robust public involvement opportunities and due process requirements for those affected TMDLs. The amendment provides a process to outline, review and approve current and future TMDLs.

Senate Bill 2

Senate Bill 2 includes provisions to strengthen Ohio's 401 Certified Water Quality Professional program. It also clarifies the director's ability to waive, transfer, revoke or, at the request of the certification holder, to modify 401 water quality certifications. Currently, the state statute only authorizes the director to approve or deny water quality certifications. This bill also includes language allowing the director, in lieu of U.S. EPA, to issue a permit to an entity discharging into a privately owned treatment works.

Lake Erie Collaborative Framework

Ohio, Michigan and Indiana are working together on the Lake Erie Collaborative Framework. This agreement is the

precursor to the Great Lakes Water Quality Agreement Domestic Action Plan required by the International Joint Commission. The goal of the plan is to achieve a 40 percent reduction for total and dissolved reactive phosphorus entering Lake Erie by 2025. On February 8, 2017, the state of Ohio released the framework. It can be found on Ohio EPA's webpage at: epa.ohio.gov/Portals/33/documents/WLEBCollaborative.pdf.

The Collaborative focuses on implementation of the following action items:

- Prioritizing and assessing watersheds within the western Lake Erie basin.
- Furthering the use of nutrient best management practices in agriculture and at point source discharges.
- Identifying and fixing failing home septic systems.
- Improving the coordination of programs and funds being spent in the basin.

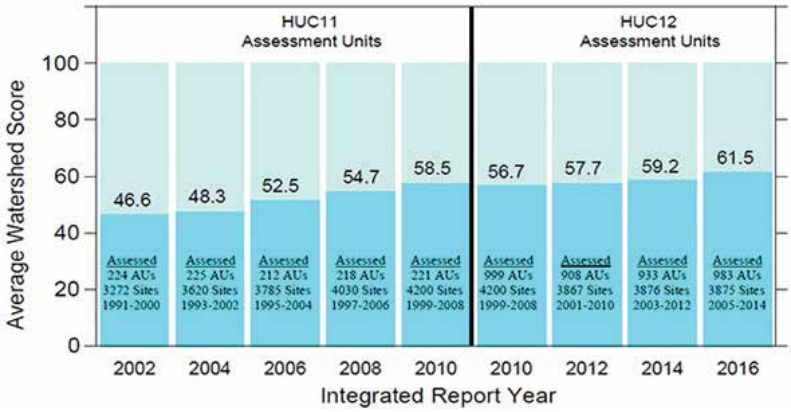
Since 2011, more than $2 billion has been invested in Ohio's portion of the Lake Erie basin on both point and nonpoint source nutrient reductions and drinking water treatment.

STREAMS – Surface Water Tracking, Reporting Electronic Application Management System

Ohio EPA recently released STREAMS in the eBusiness Center. Applicants can now electronically submit permit applications to Ohio EPA. Electronic submission will save substantial time for both the applicant and Ohio EPA staff. Paper copies are not required if forms are submitted electronically via STREAMS. In addition to submitting applications, facilities are encouraged to electronically submit NPDES non-compliance reports, SSO annual reports, pretreatment annual reports, pretreatment industrial user periodic compliance reports, biosolids annual reports and many other types of reports through STREAMS. Fees can also be paid online. For STREAMS guidance, see Ohio EPA's webpage at: *epa.ohio.gov/dsw/ebs.aspx.*

Improvements to the eBusiness Center processes include a new PIN application process that can issue a PIN within two minutes instead of 7-10 days using an online identity verification process. Once the identity is verified, the PIN can be used immediately across all services.

The Division of Surface Water continues to strive to protect Ohio's waters and help them remain fishable, swimmable and drinkable. If you have any questions about this update, please contact your district office representative or one of the authors. The status of Ohio EPA rules can be found at: *epa.ohio.gov/dsw/dswrules.aspx.*



SIMPLE. EFFICIENT. INTELLIGENT.

Generate Revenue with Raptor® Septage Acceptance Plants

Grow your business with a Raptor Septage Acceptance Plant.

REPRESENTED LOCALLY BY:

SMITH ENVIRONMENTAL, INC.

1211 Chesapeake Ave.
Columbus, Ohio 43212
P (614) 224-7670
F (614) 224-7660
go-smith.com

Paul Matrka
Paul@Go-Smith.com

Jim Grunenwald
JimG@Go-Smith.com

NOT YOUR ORDINARY RECEIVING SYSTEM

Raptor Septage Acceptance Plant

Removes debris and inorganic solids from municipal, industrial and septic tank sludges. This heavy-duty machine incorporates the *Raptor* Fine Screen for screening, dewatering and compaction. Accessories include security access and automated accounting systems.

Raptor Septage Complete Plant

With the addition of aerated grit removal, the Septage Acceptance Plant is offered as the *Raptor* Septage Complete Plant.

LAKESIDE EQUIPMENT CORPORATION
Water Purification Since 1918

Cleaner Water for a Brighter Future®

Speak to one of our experts at [illegible] or email us at sales@lakeside-equipment.com for more product information.

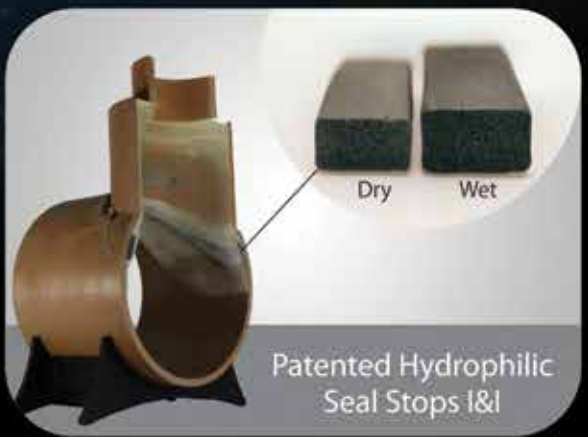
30
YEARS

Of

Trenchless Innovation and Service

Across North America

Totally Trenchless
Lateral & Mainline Lining



Patented Hydrophilic
Seal Stops I&I

LiquiForce

GRAVITY

The **proven** trenchless sewer **program** cities trust.

Learn more at www.liquiforce.com

Grande

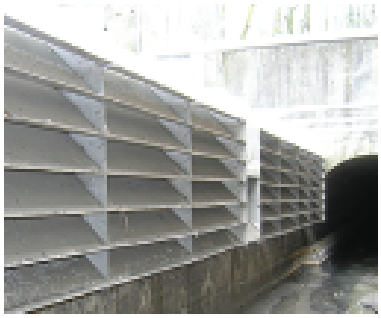
www.grandeinc.com

THE CLEAR SOLUTION FOR YOUR COMBINED SEWER NEEDS.

Keep your tanks and sewers clean without confined space entry.
Maximize in-system storage.







Look for us at Stormwater Conference May 11 - 12, Booth 316 and at the OWEA State Conference June 27 - 29, Booth 5

SMITH ENVIRONMENTAL
www.go-smith.com

Paul@Go-Smith.com
(614) 607-4884
JimG@Go-Smith.com
(614) 617-8291

PROJECTS?
RETROFITS?
PARTS?
SERVICE?

WE'RE HERE.
JUST ASK.

SOUTHERN SALES COMPANY
A DIVISION OF TENCARVA MACHINERY

Since 1923, municipalities have relied on Southern Sales for top-quality process equipment, expertise and support. From sales, to engineering solutions, to parts and service. You can trust our track record of over ninety years of serving more than 700 municipalities.
Call us today and let us help you.

KELLI JAMISON (614) 424-9599 | KJAMISON@SOUTHERNSALESINC.COM

OFFICE - 800.843.5523 OR VISIT SOUTHERNSALESINC.COM/OHIO

TENCARVA MUNICIPAL

abs SULZER · ANUE · G&R CORMAN-RUPP PUMPS · JOHN MEUNIER · JPS · PRIME · SHELTER WORKS · SMARTCOVER SYSTEMS · suez · USCP U.S. Composite Pipe Inc.

Take Flygt with BL ANDERSON and XYLEM

WE TARGET ALL PUMP STATION AND PROCESS DESIGN APPLICATIONS WITH HIGH SPEED RESPONSES AND PRECISION ACCURACY WITH MULTIPLE BASES SERVING INDIANA, OHIO AND KENTUCKY.

CORPORATE OFFICE:
4801 TAZER DRIVE
LAFAYETTE, IN 47905
PHONE: 765-463-1518
FAX: 765-446-8390

BL ANDERSON

EASTERN SALES OFFICE:
8877 EAGLE RIDGE COURT
WEST CHESTER, OH 45069
PHONE: (513) 889-4746
FAX: 513-889-5333

FLYGT · LEOPOLD · SANITAIRE · WEDECO · YSI

xylem
Let's Solve Water

TotalCare services

For secure, optimal operations

Xylem TotalCare is a comprehensive, integrated portfolio of services that ensures your business keeps running at its best. Our portfolio comes backed by deep systems knowledge and expertise in water and wastewater applications. Which gives you the operational security and more time to focus on your core business.

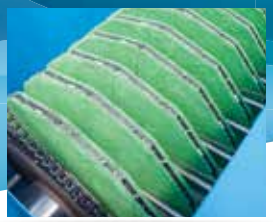
What can Xylem do for you?
Call 513-889-4746 or visit
www.xylemTotalCare.com

Contact your local Flygt representative:
BL Anderson
West Chester, OH
blanderson.com

FLYGT

AquaPrime™

CLOTH MEDIA FILTRATION SYSTEM



AN EFFECTIVE SOLUTION FOR CSO WET WEATHER TREATMENT

The new **AquaPrime™** filtration system utilizes OptiFiber PF-14™ pile cloth media in a disk configuration with three zones of solids removal to effectively filter wet weather flows without the use of chemicals. The system is designed to handle a wide range of flows in a fraction of space compared to other treatment methods. AquaPrime is ideal for CSO, SSO and stormwater applications due to its proven removal efficiencies and high quality effluent, even under varying influent conditions.

- Economical solution for excess flow issues
- Simple startup/shut-down with unattended operation for remote locations
- Dual use flexibility for tertiary and wet weather applications
- Designed with floatable and settled solids removal zones

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

www.aquaprimefiltration.com | 815-654-2501

HYDRODYNAMICS

Michael Voshefski (Northern Ohio)
p 513.899.9992 | michael@hydrodynamicscompany.com
www.hydrodynamicscompany.com

J. DWIGHT THOMPSON COMPANY
Water & Wastewater Manufacturer's Representative

Marc Nusser (Southern Ohio)
p 513.871.9970 | marc@jdtco.com
www.jdtco.com

Are you forced to do more with less? So, when do you find time for pump servicing?

PVP Pumps save Time and Money. Here's how.

PVP Double Disc Pumps™ operate up to 10 times longer and cost up to 70% less to maintain. When you factor in the total life cycle expense (labor costs, maintenance and repair), you will find PVP's Double Disc Pumps are a better value. Our pumps offer...

- PVP pumps operate at lower speeds with no sacrifice in performance: Lower wear rate = Longer life.
- Our *Maintain-in-Place* design reduces downtime and lowers maintenance costs.
- Seal-less, gland-less, oil-less design lowers operating costs.
- PVP pumps can run dry indefinitely without damage.
- Fewer moving parts means less need for repairs or maintenance.

PVP® Penn Valley Pump

Water Environment Federation Innovative Technology Award Solids Handling/Disposal

DOUBLE DISC PUMP™

Toll Free: 800-311-3311 • PennValleyPump.com

The PVP Life Cycle Cost Advantage

Are you operating rotary lobe or progressive cavity pumps? Then you are familiar with their repair and maintenance costs.

Learn the facts. Contact us today and discover how PVP's positive displacement pumps are your most cost-effective, long-term value.

Represented by:

Providing Clean Water Solutions for over 100 Years

HT Henry P. Thompson Company

1-800-597-5099

www.hpthompson.com

101 Main Street, Suite 300 • Milford, OH 45150

7965 North High St
Suite 340
Columbus, OH
43235
614-885-1700

your trusted advisor
CT consultants
engineers
architects
planners

www.ctconsultants.com

developing practical wastewater solutions that meet today's stringent environmental requirements

akron | cincinnati | cleveland | columbus | dayton | mentor | toledo | youngstown

buckeye pumps

Buckeye Pumps was established in 1983. We believe that the customers we serve have a need for superior pumping equipment and services applied to their specific process with ingenuity and experience to obtain a cost effective result in their business. We provide repair services as a way of offering our customers a value added benefit. Your area Buckeye Pumps sales engineer and our certified service technicians will guide you to the most cost effective solution for your particular set of circumstances.

Call

Ryan Hoepf — Northeast Ohio
Ryan Hoffman — Application Engineer
John Miller — Municipal Manager
Ken Miracle — Northwest Ohio

at **866-900-7867**
or visit **www.buckeyepumps.com**

1311 Freese Works Place, Galion, Ohio 44833

multitrode a xylem brand | SINGER VALVE | VERDER

Allied Underwater Services

Allied Underwater Services provides:

- Specialized ADCI Certified diving teams
- The latest technology
- State of the art equipment
- Worldwide diving services

Some of the services we provide include:

- Intakes, outfalls, cleaning
- Repair, inspection, new installation
- Traveling water screens
- Underwater closed circuit televising
- Underwater burning and welding
- Potable water storage tanks inspection and cleaning

An affiliate of Allied Pump Rentals

Call Us Toll Free:

877-987-8677

or visit us at www.alliedpumprentals.com

Providing creative solutions for all your underwater problems

Demystifying Toxicity Reduction Evaluations (TREs)

by Marty A. Hilovsky, Chief Executive Officer, EnviroScience

Introduction

For operators, engineers, and analysts who have whole effluent toxicity (WET) requirements in their NPDES permit, what goes on in a contract toxicity laboratory is often not well understood. Essentially, a sample is sent off, small fish and tiny water 'bugs' are tested in the effluent, and a number is reported that indicates whether a facility is in compliance or not. Unlike analytical testing, which produces a measure of one or more chemical parameters, toxicity testing produces a result with no information about the parameters that may be responsible for the observed result.

WET testing became a common requirement in Ohio industrial and municipal NPDES permits starting in the 1980s for numerous reasons related to the limitations of chemical-specific testing. These limitations include uncertainty about what pollutants may be present in a discharge, possible synergistic effects between pollutants, and too little information regarding what level of a given pollutant is 'safe' for biological communities in the receiving water. While disregarding the specific chemical pollutants in a discharge, WET testing provides a real-world indication of the effect that a permitted discharge will have on the fish and macroinvertebrates in the receiving stream.

Over the past thirty years as considerable information was generated and analyzed by Ohio EPA, some facilities saw their WET testing requirements increase and some decrease. Usually this occurred as a result of toxicity being either observed in the discharge or not. Many facilities with suspected or confirmed toxicity will have permit conditions that require the facility to conduct, or at least plan for, a toxicity reduction evaluation (TRE) designed to identify the source(s) of toxicity in a discharge and reduce or eliminate them within a specified time frame.

Mass Cultures.

TRE Triggers

Industries for which USEPA has issued effluent guidelines (categorical industries), as well as municipalities defined as 'majors' having significant industrial contributions and a defined pretreatment program, are among those permittees likely to have requirements for both WET testing and a TRE should toxicity be measured above a certain threshold. At a minimum, these conditions require a facility to submit a preliminary plan for conducting a TRE, which would require implementation if triggered by exceedance of WET limits anytime during the term of the permit.

Where significant toxicity has been well documented, the permit may contain more detailed conditions to initiate, conduct, and complete the TRE within a defined schedule. The schedule will include specified milestones and reporting requirements so that Ohio EPA can monitor the facility's progress. Although schedules for completing the TRE and eliminating the toxicity can seem generous (up to 48 months), the schedule usually includes the time required to prepare detailed plans and for construction of any needed treatment modifications.

The most common and problematic situation triggering TREs that our laboratory has seen over the past twenty years is low-level and intermittent chronic toxicity. This type of effluent toxicity is problematic to deal with because of the expense, uncertainty regarding whether a given sample will be toxic, and in most cases, a lack of sufficient historical information. Because WET testing is expensive, the required frequency in most permits is seldom more than quarterly, and often less. This means that over the course of a five-year permit, rarely more than 20 data points occur from which to discern patterns in the toxicity.

It Pays to Be Proactive

Since schedule milestones often pass quickly, being proactive and starting the initial stages of the TRE before the requirement shows up in your permit is beneficial. If it appears that a TRE may be required in the future, all facilities should at a minimum:

- Keep detailed records such as maintenance activities, outages, changes in production or treatment chemical usage, and unusual events.
- Ensure that sampling and analysis for chemical parameters are done at the same time and from the same sample used for WET testing.
- When sampling for toxicity, always collect as much sample as possible and ask the laboratory to retain the extra under refrigeration for at least two weeks. If toxicity is identified, the retained sample will allow for more specific analytical testing to be performed.

Proactively beginning a TRE is particularly helpful

in the case of low-level, intermittent toxicity since the compliance schedule is invariably too short due to the sporadic nature of the toxicity.

TRE Objectives

The fundamental purpose of a TRE is to identify the source(s) of toxicity in a discharge and provide information necessary to reduce or eliminate it. A well designed and executed TRE should accomplish the following major tasks:

1. Determine whether toxicity is consistently present, and if so, determine a baseline and degree of variability.

2. Evaluate in-plant practices, processes, and chemical usage to identify factors influencing toxicity in the discharge.

3. For municipal dischargers, evaluate existing pretreatment information and reports to identify significant industrial users and their potential to negatively impact toxicity of the final effluent.

4. Identify general class(es) of toxicants present and then proceed to identify specific toxicants present and source(s).

5. Provide information, as needed, to support any necessary treatment or process changes.

TRE Components

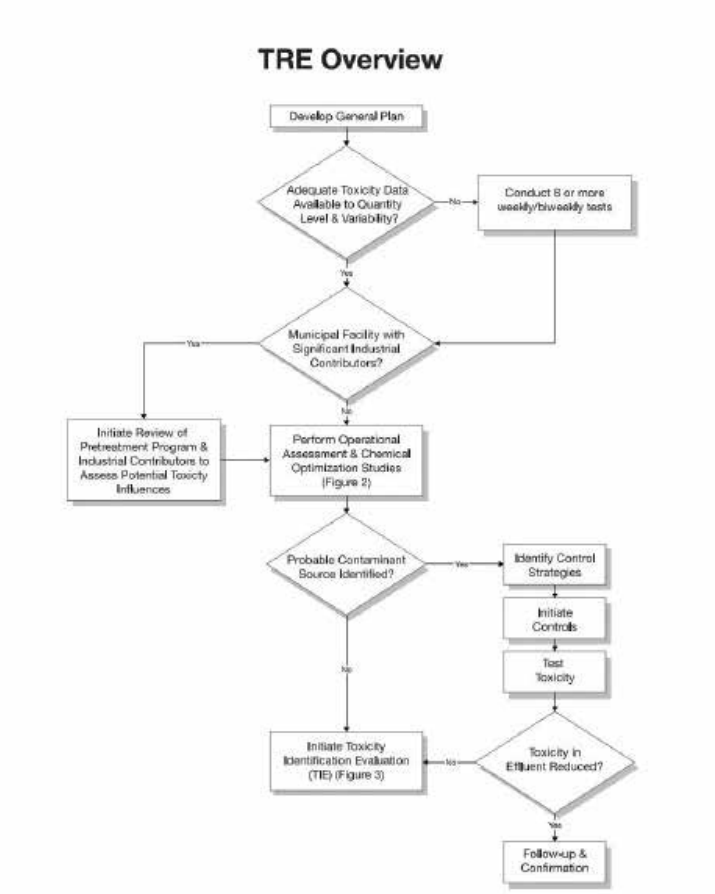


Figure 1

By nature, TREs must be highly individualized and proceed in an iterative fashion, and in all cases knowledge of the facility and its processes should guide the steps taken in the TRE process towards the elimination of toxicants. Information obtained in each step is used to determine which remaining TRE components will most likely result in rapid identification and reduction of the effluent toxicity. However, predicting the necessary steps and their order is often difficult. Therefore, if required to develop and submit to Ohio EPA a plan to conduct a TRE, it is advisable for the facility not to commit to extensive laboratory work that may not be required. Instead, the TRE plan should focus on the rationale and decision making that will be used throughout the process.

With this understanding, the following steps provide a brief outline of actions taken in most TREs, and an overview of the process is provided in Figure 1. Detailed guidance for conducting municipal TREs can be found in Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants (EPA/833B-99/002, August 1999). Most of the information in this federal guidance will also apply to industrial facilities and is generally the same whether evaluating chronic or acute toxicity.

Step 1: Establish Baseline Toxicity, Variability, and Persistence of the Effluent- Since most facilities will have relatively few and widely separated toxicity data points, establishing the baseline toxicity level is helpful at the start of the project. Information on the variability of the toxicity is also important, offering possible clues as to the source of the toxicity, which may minimize the likelihood of performing expensive laboratory work on samples having little or no toxicity. Information on the persistence of toxicity can indicate the nature of the toxicant. Additionally, a single large sample can be used to conduct effluent manipulations, thereby reducing the confounding influence of multiple samples being collected over a week (chronic tests).

One way that variability can be assessed is by conducting a series of six or eight weekly or bi-weekly toxicity tests. Assuming at least one of the tests exhibits toxicity, persistence can be determined by comparing the original result to the results from a retained split of the original sample that is retested after a seven-day holding period.

Step 2: Operational Assessment and Chemical Optimization Programs- Although this program may go by a variety of different names, it is normally initiated to evaluate processes, practices, and chemicals used by the facility during routine operations. Figure 2 provides a simplified flow chart of a Chemical Optimization study. The goal of this program is to identify potential problem areas and corrective measures. The activities associated with the program can be conducted regardless of the outcome of the baseline testing, and if successful in reducing the toxicity to acceptable levels, the TRE process can end here without further laboratory testing.

Major factors to evaluate and tasks to perform as part of the Operational Assessment program include:

♦ Compiling engineering drawings, past two years of Monthly Operating Reports, lists of chemicals used in the facility including treatment additives, raw materials (industrial facilities) water usage reports, and the most recent NPDES renewal application to generate a priority list of suspected toxicants.

♦ Reviewing plant housekeeping procedures and treatment plant operations, including a review of existing BMPs, waste and material storage areas, facility spill prevention and control procedures, waste and material handling, run on/runoff control and documents such as Storm Water Pollution Prevention (SWPP) plans.

♦ For municipal plants, conducting a thorough evaluation of non-residential inputs, including evaluation of the City's pretreatment program and review of recent monitoring data from significant industrial users to the extent needed to adequately characterize the industrial inputs to the system.

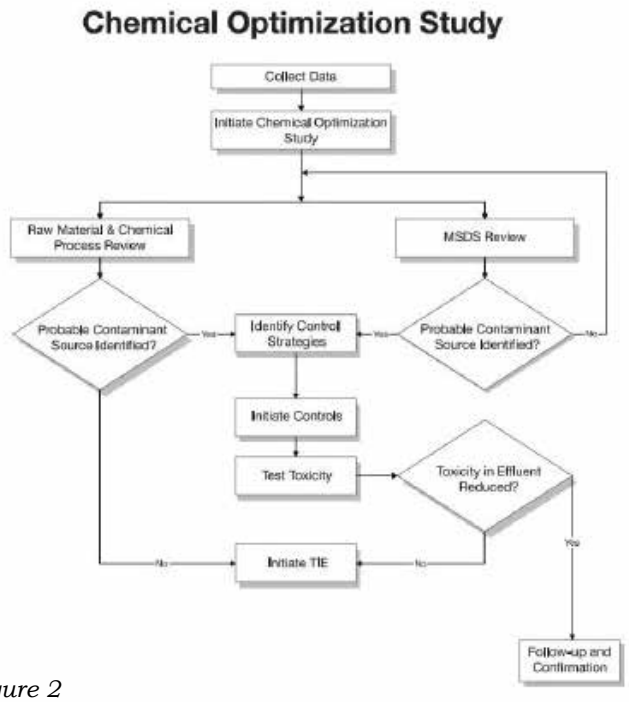


Figure 2

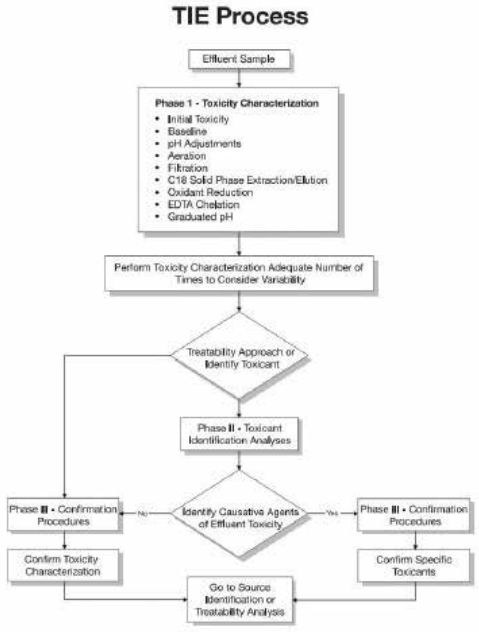


Figure 3

For industrial facilities, the chemical optimization portion of the evaluation attempts to identify probable contaminant sources by focusing on process chemicals used in the facility. MSDS information and available aquatic toxicity information on these materials will be one of the primary information sources used in this evaluation. Figure 2 graphically illustrates the logic that will be used in this study.

As indicated in Figure 2, the Chemical Optimization Program is expected to result in the identification of a probable contaminant source and appropriate control strategies or in a decision to proceed with a Toxicity Identification Evaluation (TIE). Even if the Operational Assessment outlined above does not result in the direct identification of probable contaminant source(s), the information gained will help prioritize future TRE stages, if they prove necessary.

Step 3: Toxicity Identification Evaluation (TIE)- If the Operational Assessment and Chemical Optimization Programs are not entirely successful in identifying and eliminating the toxicity, it will likely be necessary to proceed with a Phase I TIE (Figure 3). The initial stages of the TIE involve a series of effluent manipulations designed to generally characterize the toxicity. In contrast to the practice of most commercial laboratories that perform TIE studies, these manipulations do not need to be bundled or performed in order. Rather, laboratory efforts should be prioritized and tests selected based on information gained in earlier TRE steps.

In accordance with established USEPA guidance (EPA/6000/6-91/003, 1991 and EPA/600/6-91/005F, 1992), the TIE process is subdivided into three general phases (Figure 3). Phase I involves a series of effluent manipulations whose objective is to characterize the toxicants according to broad chemical classes. Phase II uses Phase I information to determine specific chemical analyses that will help identify the toxicant. Phase III procedures involve a series of tests and/or manipulations designed to confirm the identified toxicant prior to proceeding with treatability analyses.

Phase I TIE Methods

A variety of effluent manipulations can be used to broadly characterize potential toxicants. In all cases, an untreated baseline test should be done concurrently to provide a control and ensure testing is being performed on a sample having measurable toxicity. Common effluent manipulations include:

♦ Aeration— volatile or sublatable compounds may be removed from solution by gentle aeration prior to initiation of a standard acute or chronic test.

♦ EDTA Addition— EDTA chelation removes a variety

of cationic heavy metals from suspension and produces relatively non-toxic complexes. These metals include aluminum, barium, cadmium, copper, iron, lead, manganese, nickel, strontium, and zinc. EDTA does not complex well with arsenic, chromium, mercury, or selenium.

- Sodium Thiosulfate— addition of sodium thiosulfate reduces oxidants such as chlorine and removes some metals not removed by EDTA. These include cationic forms of common metals such as cadmium, copper, mercury, selenium, and silver.
- Filtration— filtration with glass fiber filters may reduce toxicity associated with suspended solids or particulate-bound toxicant.
- Post-Solid Phase Extraction (SPE) Column— passing wastewater through a C-18 SPE column will remove many non-polar organics, some metals and some surfactants.
- Methanol Eluate— methanol can be used to extract non-polar organic compounds that are absorbed in a SPE column.
- Graduated pH— this manipulation can be done independently or in conjunction with several of the above manipulations. It involves adjusting wastewater pH both up and down to determine whether toxicity can be attributed to compounds whose toxicity is pH dependent. Examples include ammonia and some metals.

As indicated, further testing including chemical-specific analyses may be required to confirm the results of the effluent manipulation tests, identify specific toxicants, and support treatability studies needed to guide treatment modifications.

Summary

Within the larger scope of investigations into the source(s) of toxicity in an effluent discharge, the laboratory portion of most TREs is but one part. The most effective way to reduce lab costs is to efficiently use existing knowledge of the facility, its processes, and contributors to identify and prioritize potential toxicants and develop strategies to eliminate them. Although the engineers and operators responsible for the plant have the most knowledge about the plant, it's operation and potential sources of toxicity, having outside support from individuals knowledgeable about wastewater treatment who are experienced in all phases of TREs and can draw on the experience of many different facilities can be invaluable.

References:

USEPA. 1991. Methods for Aquatic Toxicity Identification Evaluations. Phase I Toxicity Characterization Procedures, Second Edition. EPA/600/-91/003. Environmental Research Laboratory, Duluth, MN

USEPA. 1992. Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluent, Phase I. EPA/600/6-91/005F. Environmental Research Laboratory, Duluth, MN

USEPA. 1999, Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants. EPA/883B-99/002. Office of Wastewater Management, Washington, D.C.

www.ohiowea.org

Dapnia sp.

Adult Fathead Minnow (P. promelas)

EnviroScience Bioassay Lab

Septage Acceptance with Lakeside's SAP in Newark

by Christopher French, Lakeside Equipment

With over twenty five years service at the City of Newark's Wastewater Treatment Plant in Ohio, Superintendent Darin Wise knows his site inside out. The pride taken in the running of this busy and very well kept facility is plain to see, with a team that includes five members of staff with even more years under their belt than Darin: Phil Tudor (Operation's Technician), Nancy Taylor (Chemist), Jon Moulton (Operator), Randy McDaniel (Industrial Waste Inspector) - all with 25-years-plus at Newark, and, take a bow sir, Operator Stan Vinning, with over 41 years to his name.

Including in-house, on-line and off-site, Newark Wastewater Treatment plant's staff take in around 300 hours worth of training per year – and whilst 25-years-plus service is a laudable achievement, it'd be wrong not to mention a team that also includes Jeff Krauskopf (Instrumentation Technician) with 25 years, Bryan Curry (Asst. Plant Superintendent) with 23 years, Clint White (Operator) with 15 years, Jay Fisher (Maintenance Supervisor) on 14 years, and last but not least, Angela Reischman (Laboratory Technician) with 12 years.

Built in 1948, the wastewater treatment plant is one of the largest investments owned by the City of Newark, handling 2.86 billion gallons of wastewater annually. The enduring facilities and equipment are a testament to its team's continual preventative maintenance.

Faced with more stringent EPA treatment requirements laid down in 1984, the City successfully met its July 1, 1988 deadline for facility improvements. In doing so, it also significantly improved the water quality in the Licking River, enhancing its recreational potential as well as the aquatic habitat.

1997 saw the installation of a new UV Disinfection System, which disinfects the treatment plant's effluent and has eliminated the need to add tons of chemicals to the water during the summer season.

Newark Plant Superintendent Darin Wise

Two major capital improvement projects completed in 1999 & 2000 included construction of a new Influent Screen Building for fine process screenings for final disposal – and a new SCADA system with real time data for greater accuracy and efficiency.

A decade ago, electrical switchgear and substation/ septic receiving projects were completed, resulting in the introduction of a new piece of equipment that according to Newark's eagle-eyed maintenance team is still, ten years on, the best performing and most trouble-free piece of equipment on site.

Plant Superintendent Darin Wise said, "Until we were able to invest in a new septic acceptance facility, we had a pump station with a grinder that couldn't best cope with rags and hair. Debris such as plastics were also getting into our digesters and adversely affecting the quality of our biosolids".

After various trial demonstrations, and with space at a premium at the Newark site, a self-contained, fully automatic Raptor Septage Acceptance Plant (SAP) made by Lakeside Equipment Corporation was chosen. The purchase of the Lakeside SAP was managed by Columbus-based, equipment representation firm, Smith Environmental.

Designed with a heavy-duty 3-plane fine screen, it benefits from a rotating rake that passes through the full depth of the basket bars to remove debris from the screening area. The rotating rake deposits collected screenings into a central screw conveyor hopper that leads to a transport tube. Screenings are spray-washed in two stages to return organic materials to the liquid stream. The first wash is over the screen basket and the second takes place in the transport tube – just before the compaction zone – to wash organics into the flow stream. The all stainless steel shafted screw conveyor transports washed screenings to a discharge chute – and when debris drops to the storage container, the total solids content is typically over 40 percent - passing the EPA paint filter test.

"Lakeside gave us plenty of very good references", added Darin Wise, "and the fact that their unit was four-feet smaller than other manufacturers made everything easier - and as a bonus, more economic. Also, with other systems there was a need to remove the brushes, so it all made sense".

Around 2.75 million gallons of septic waste from all over Licking County is treated at Newark every year, delivered (depending on the season) from 6-10 trucks per day, up to 25 in the summer.

An operator control panel located on the outside of the building allows haulers to initiate the off-loading cycle and an automated truck scale that uses a swipe card system allows drivers to weigh in and out, usually in just five to ten minutes. All of this goes on without the need for employee

interaction. A waste report is automatically generated into the billing software.

"When we began using the Lakeside SAP", added Darin Wise, "we were using a rock trap, but it filled up too quickly, sometimes from just one load, so it wasn't best serving our needs. This is probably because of the gravel that's used in this part of the world to make septic tanks, which tends to deteriorate, so therefore gets sucked out during emptying. Working closely along Lakeside, we modified it to a 6-inch outlet on the bottom on the tank and since then suck the rocks out every fortnight as part of our plant's continual preventative maintenance program".

"We thought that the rocks would bend the rake and the comb on the Septage Acceptance Plant", continued Darin Wise, "but we've come to learn that they don't hurt it. We've only had to straighten things out twice, but we've had no real problems, which is very good going for ten years. Lakeside's Raptor has been an extremely reliable piece of equipment that has also given us the option of sending the treated wastewater to the head of the plant or directly to our digesters.

"I fully expect our stainless steel Lakeside Septage Acceptance Plant to give us a good, 20-years-plus of dependable duty. At Newark we're very proud of our long service records, and this enduring piece of Lakeside equipment is totally in keeping with the high standards we strive to achieve".

Lakeside's Raptor Septage Acceptance Plant at Newark.

The Septage Building that houses the Lakeside SAP at Newark.

Breaking down flushables OR Keeping the matter of flushables moving

Manufacturers release new labelling guidelines; international wastewater groups take a stand

by Brianne Nakamura

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

Products all along grocery store aisles carry such warnings as “Toxic! Do not consume!” “Keep out of reach of children”, or even “Dangerous for environment.”

But flushable wipes — both for household cleaning and for hygiene — carry very few, if any, warnings about the harm that they can cause when flushed down the toilet — which never should be treated as a trashcan.

A new and ‘improved’ labelling guideline

INDA, the Association of the Nonwoven Fabrics Industry (Cary, N.C.) in February 2017 released the newest edition of their Code of Practice. The new code outlines stricter labeling guidelines for “non-flushable” wipes and hygiene products. The sidebar on p. 91 lists some of the improvements.

The code was first released in 2013 as a set of voluntary guidelines to help manufacturers better communicate the appropriate disposal pathways for such nonwoven products as baby wipes and flushable wipes. The code encouraged manufacturers to better label their products, but the “Do Not Flush” symbol and disposal instructions often were hidden behind flaps, on the bottoms of packaging, or presented so small and subtly that they easily could go unnoticed.

Although voluntary, manufacturers are encouraged to comply with the new code within 18-months of the release.

By encouraging a more prominent and uniform positioning of the “Do Not Flush” warning, the code enables consumers to better recognize and identify what NOT to flush.

The “Do Not Flush” warning should be clearly visible on all hygiene products, including baby wipes. Photo credit: Association of the Nonwoven Fabrics Industry (INDA)

Water sector input

This new version of the code was developed with the input from wastewater professionals. The process included representatives from Water Environment Federation (WEF; Alexandria, Va.), the National Associations of Clean Water Agencies (NACWA; Washington, D.C.), the American Public Works Association (APWA; Kansas City, Mo.), and the Canadian Water & Wastewater Association (CWWA; Ottawa, Ontario, Canada).

An international problem that can’t be wiped away

Recently, wipes also have been getting an influx of international attention with media stories on fatbergs and attention from the “The Weekly” — think of an Australian version of “The Daily Show.”

In response to the wipes problem internationally, the International Standards Organization (ISO) launched a Work Group in 2015 to begin establishing an internationally flushability standard. The group consisted of 15 countries including the U.S., Canada, United Kingdom, Japan, Australia, Israel, and several others. U.S. representatives included members of WEF, NACWA, and APWA.

Initially progress on the ISO standard appeared to be moving faster than the U.S. wastewater collaboration with INDA on the 4th Edition Flushability Guidelines (GD4). However, in September 2016, the International Standard was halted indefinitely due to a complaint from the ISO Toilet Paper Working Group.

In response to the halted progress, the international wastewater groups working through the ISO process issued a joint position statement. Titled, "International Water Industry Position Statement on Non-flushable and Flushable Labelled Products," the document can be downloaded at:

http://www.wef.org/advocacy/policy-and-position-papers.

The position statement addresses the following:

- Key requirements for flushability include that a product must break into small pieces quickly, must be buoyant, and must not contain plastic or regenerated cellulose.
- All “flushable” labelled wipes should NOT be flushed until there is a standard that the water and wastewater industry agrees upon.
- All wipes and personal hygiene products should be clearly labeled as “Do Not Flush” and disposed of in a trashcan.
- Manufacturers should provide consumers with clear information on appropriate product disposal.
- And, most importantly, the wastewater industry only supports the flushing of the 3Ps – Pee, Poop, and (toilet) Paper.

Since its release in September, the international position statement has been signed by 25 countries, including 244 wastewater companies/authorities and 69 partner organizations.

States and cities take their stance

Back in the U.S., several states and cities have started their own initiatives against wipes. Recently, the Council for the District of Columbia (Washington, D.C.) unanimously approved the Nonwoven Disposable Products Act of 2016. This is the first legislation in the U.S. to address the problems cause by flushable and non-flushable wipes. DC Water, which servers the D.C. area and is a leader in the wastewater sector, heavily supported the bill.

The bill prohibits the advertisement, packaging, or labeling of any nonwoven disposable product as flushable, sewer-safe, or septic-safe unless the claim is substantiated by standards set by the District Department of Energy & the Environment (DOEE). Included in the bill is a definition of "flushability;" the definition was taken directly from the aforementioned international water industry position statement.

While D.C. is the first city to make legislation, other jurisdictions also are on the path, notably New York City.

WEF continues to encourage its members to support local initiatives. This can take the form of writing letters of support and educating local representatives on the harm that these products are causing on wastewater systems.

The International water industry position statement on non-flushable and "flushable" labelled products was released in September 2016. More than 300 water companies and organizations, representing 25 countries, signed the statement. Photo Credit: Water Environment Federation

The work doesn't stop with a guideline

As cities and states continue their fight against flushable wipes, WEF intends to do the same. After the success of the Code of Practice, WEF was optimistic about joint initiatives with INDA and wipes manufacturers. However, collaboration on the 4th Edition Flushability Guidelines (GD4), came to a standstill after heavy disagreements between the wipes manufacturers and wastewater sector experts.

As of February 2017, the wastewater associations involved in the GD4 development process (WEF, NACWA, APWA, and CWWA) have withdrawn from continuing the joint development of the flushability guidelines.

Even with the withdrawal from the GD4 process, WEF hopes to continue working on the development of future flushability guidelines to protect wastewater infrastructure. WEF will continue to work with its Flushable Task Force, Member Associations, and other volunteers to communicate the following:

- Only flush the 3Ps.
- Toilets are not trashcans.
- Communities need to know that flushing wipes and other products can harm infrastructure.

Improvements to the 2nd edition Code of Practice

Clearer decision tree of what should have a "Do Not Flush" warning

Any product that can be used in a bathroom setting is encouraged to be labelled with the DNF warning. Products that can be contaminated by feces, menses, or urine are required to have the DNF symbol.

A bigger and clearer "Do Not Flush" warning

The DNF warning must be in high contrast to the product packaging and is sized based on a ratio to the packaging.

More prominent display of the "Do Not Flush" warning

The DNF warning must be prominently and permanently displayed on the product packaging near the point of dispensing as well as visible on the on-shelf packaging. This allows consumers to see the symbol both when purchasing and when using.

Brianne Nakamura, PE, ENVSP is the manager of Collection Systems and Sustainability in the Water Science & Engineering Center at the Water Environment Federation (Alexandria, Va.). She is the staff liaison for both the Collection System Committee and the Flushables Task Force. She can be contacted at bnakamura@wef.org.

2016 Legislative Year in Review

Great accomplishments — with more changes in 2017

by Steve Dye, Legislative Director at the Water Environment Federation

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

The Water Environment Federation (WEF; Alexandria, Va.) Government Affairs Department spent a very busy 2016 advancing the WEF agenda before Congress and building a robust grassroots program for the future. Thank you to all WEF members who contributed to our fruitful efforts in 2016. We look forward to your continued participation in 2017.

Here are highlights of the many critical events and policy changes from the past year.

New President, new direction

The year ended with one of the most monumental (and unexpected) political events in the history of the U.S. with the election of Donald J. Trump as President. While what the future of a Trump presidency will mean for our nation is unclear, there are some early, clear indications of how his agenda may affect the water sector.

Mr. Trump spoke on the campaign trail about a massive infrastructure investment package, reforms to the tax code, and curtailing the reach of federal agencies on matters of regulation and oversight. In early December 2016, WEF wrote a letter to the then-President-Elect detailing WEF's priorities and recommendations for our nation's water policies. The key points in the letter were

- advancing smart regulations and policies by using sound science and technical merit,
- accelerating and expanding water infrastructure investment,
- bolstering research and development to find solutions to pressing challenges in water,
- developing high-skill construction and water sector jobs, and
- ensuring local water systems are affordable and robust.

WEF also pledged to provide reliable and expert input to the next administration to help solve the nation's water challenges. The full letter is available at http://bit.ly/wef-letter-to-trump.

WEF testifies before Congress on infrastructure funding bill

Despite admirable bipartisan efforts by some key members of Congress, for the last decade Congress has struggled to advance major legislation to expand funding resources for water infrastructure investments. While no far-reaching legislation was passed last year, several significant policies advanced deep into the legislative process, only to be cut from final bills. This set the table for 2017, which is expected to see a sizable infrastructure package. WEF contributed to these efforts on several levels.

In April 2016, WEF testified at a Senate Environment and Public Works (EPW) Committee hearing. Rudolph Chow, Baltimore Public Works Director and the new WEF Government Affairs Committee Chair, testified on behalf of WEF (an archived hearing webcast and a transcript of Chow's testimony can be accessed at *http://bit.ly/chow-testifies-to-senate*). The Senate Committee heard the results of an analysis that the committee had requested WEF and the WateReuse Association (Alexandria, Va.) conduct. The results show the full economic benefits to the economy, job creation, and federal tax revenues from funding the Clean Water and Drinking Water State Revolving Fund (SRF) programs.

The data show that

- every dollar of SRF spending results in $0.93 of federal tax revenue;
- each million dollars in SRF spending produces 16.5 jobs with an average salary of $60,000/year; and
- every million dollars of SRF spending results in $2.95 million dollars in output for the U.S. economy.

Following the hearing, the Senate EPW Committee introduced its version of the 2016 Water Resources Development Act (WRDA), which cited the WEF/WateReuse report and called on Congress to increase SRF funding significantly. The final WRDA bill included a version of the Senate provision (further detailed below).

Congress finishes 2016 with new funding for water infrastructure

As the 2016 calendar year drew to a close, Congress took several actions benefitting water infrastructure investments. A Continuing Resolution that will fund the federal government through late April includes $20 million to start the Water Infrastructure Financing and Innovation Act (WIFIA). WIFIA is a new loan and loan guarantee program that WEF helped create. EPA estimates that the $20 million may provide more than $1 billion in credit assistance and may potentially finance more than $2 billion in new water infrastructure investments.

Organizations interested in applying for low-interest loans and loan guarantees had until April 10, 2017, to submit a Letter of Interest (LOI) to EPA, which issued a Notice of Funding Availability (NOFA) in the Federal Register on Jan. 10, 2017. Further details about WIFIA and the NOFA are available at www.epa.gov/wifia.

In addition, Congress passed and President Obama signed into law the Water Infrastructure Improvements

Act for the Nation (WIIN) Act, which includes the Water Resources Development Act (WRDA). The bill authorizes port, waterway, flood protection projects, and drinking water and wastewater provisions.

While the WRDA authorizes mostly U.S. Corps of Engineer projects and programs, the WIIN Act also features WEF-supported provisions, including a Sense of Congress urging robust funding for the Clean Water and Drinking Water State Revolving Fund (SRF) programs. This provision is a result of the Senate version of the WRDA bill previously mentioned.

The WIIN Act contains provisions to assist the city of Flint, Mich., including authorization to allocate $170 million through the Drinking Water SRF program and grants to reduce lead in drinking water. The bill also includes a Sense of Congress to provide $20 million to Flint through the WIFIA program.

Sixty million dollars per year also are provided until FY 2021 to help small and disadvantaged communities reduce lead in drinking water at a cost share of 45%. In addition, the bill permits WIFIA loan applicants to finance fees for the loan application process. The bill also changes the WIFIA program to allow applicants to receive credit for any costs and in-kind contributions they incur prior to the loan award.

EPA advances CSO public notification in Great Lakes

In late December, EPA Administrator Gina McCarthy signed a notice of proposed rulemaking (NPRM) implementing Section 425 of the Consolidated Appropriations Act of 2016. This section requires EPA to work with the Great Lakes to establish public notification requirements for combined sewer overflow (CSO) discharges.

"This NPRM addresses signage, notification of local public health departments and other potentially affected public entities, notification to the public entities, notification to the public, and annual notice provisions for National Pollutant Discharge Elimination System (NPDES) permittees authorized to discharge from a CSO to the Great Lakes Basin," EPA states on its website.

The rule affects NPDES permits within the Great Lakes watershed that include a CSO. The public comment period was open until March 14 (www.regulations.gov at Docket ID No. EPA-HQ-OW-2016-0376).

Water Advocates gain a new home

WEF launched a new online grassroots advocacy website last year to support the Water Advocates program. WEF members and water sector professionals can access the website at http://cqrcengage.com/wef/home for important legislative and regulatory matters and calls-to-action on issues affecting the water sector.

A number of grassroots tools on the site help WEF members engage with their elected officials. It's easier than ever to become a WEF Water Advocate and receive notifications about legislative and regulatory issues and calls-to-action — visit http://cqrcengage.com/wef/wateradvocates.

A recent successful Water Advocates campaign led to nearly 200 emails and letters sent to Congress during final negotiations over the WRDA bill and Continuing Resolution.

Steve Dye, Legislative Director at the Water Environment Federation

With a newly elected President and the start of the 115th Congress, 2017 is shaping up to be a monumental year for the water sector. WEF will continue to push policies, regulations, and support that reflect the interests of its members. Your input and involvement is greatly appreciated as we work to advance the interests of water professionals before policymakers and the public.

Are You an Instructor?

Do You Work with College Interns?

Employ College Students?

Know a Student Interested in a Water Quality Career?

Eligible Students can join

OWEA/WEF Free for One Year!

Designed for the specific needs of students - offering a solid foundation on which to build careers and gain credibility with water quality leaders.

The Ohio Water Environment Association is offering a year long OWEA/WEF membership to students with an interest in the water quality/wastewater field. This is a dual membership with OWEA (as the state member association) and WEF.

Students must be enrolled in a minimum of 6 credit hours in an accredited college or university.

Encourage students to apply for a free year long OWEA/WEF membership at:

http://www.ohiowea.org/memberships.php

Help us encourage students to consider a career in the water quality field. OWEA members can offer mentoring, career guidance, tales of experience, internships, access to job opportunities, and more. Contact OWEA if you would like to learn more.

info@ohiowea.org, 614.488.5800

AeratorSolutions
For the World's Wastewater™
11765 Main Street Roscoe, IL 61073
Phone: 815 623-5111 Fax: 815 623-7111
aeratorsolutions.com

What was old is new again.

Better Than New™ Program for Aerators and Mixers.

Maybe a brand new aerator or mixer isn't in the budget. Not to worry. Aerator Solutions can make what was old seem new again with our Better Than New™ Program.

Save with Better than New™ Equipment

Aerator Solutions can recondition your aerator or mixer by using your discharge cone (diffusion head) or motor mount. We will recondition the cone or motor mount, add a new motor, wearable parts, and propeller to make a Better than New motor module.

This service also offers cleaning, vibration testing and dynamically balancing the module before returning it to your facility.

In addition to our EcoJet™ line of aerators and mixers, we refurbish and provide spare parts for equipment made by the following manufacturers:

- Aerators, Inc.
- Aqua-Aerobics
- Aqua-Jet®
- Aqua-Lator®
- Evoqua
- Siemens
- U.S. Filter
- Welles Products/ Peabody Welles

Represented By:

PELTON ENVIRONMENTAL PRODUCTS

www.peltonenv.com
Phone: 440 838-1221

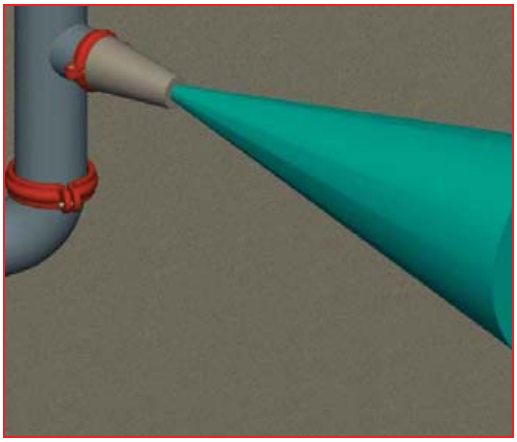
Advertiser Index

JET MIXERS ♦ HYDRAULIC SLUDGE MIXERS ♦
SEQUENCING BATCH REACTORS ♦ JET AERATORS

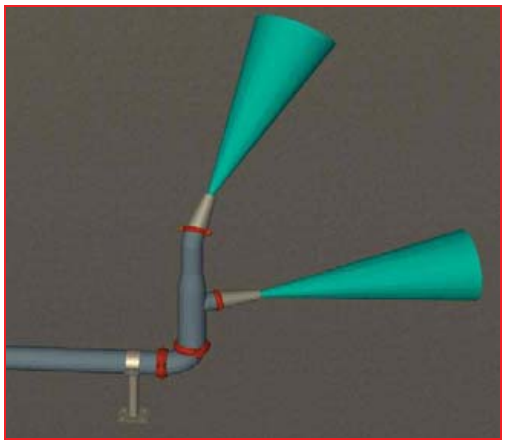
DIGESTER SLUDGE MIXING BY MIXING SYSTEMS, INC.

JET MIXING IN EQUALIZATION TANKS

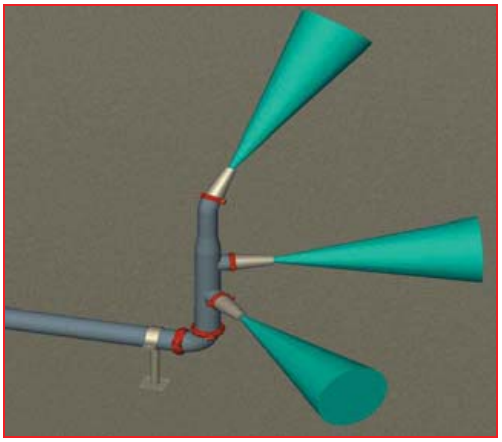
MIXING AND AERATION IN pH CONTROL TANK



SINGLE ZONE MIXING FOR SHALLOW TANKS



DOUBLE ZONE MIXING FOR DEEP TANKS



TRIPLE ZONE MIXING FOR VERY DEEP TANKS

HYDRAULIC SLUDGE MIXING APPLICATIONS

- Digester mixing
- Mixing anaerobic digesters
- Sludge holding tanks
- Aerobic Digester Mixing
- Equalization tanks
- Variable liquid level tanks

HYDRAULIC SLUDGE MIXING BENEFITS

- Energy efficient
- Stainless steel nozzles
- Nozzles hardened to a Brinell hardness of 450+
- Chopper pumps
- CFD mixing analysis

MIXING SYSTEMS, INC.

- Prefered provider of submerged jet aeration and jet mixing systems
- Single, double and triple zone mixing
- No rotating equipment in digesters

MIXING SYSTEMS, INC.

7058 Corporate Way, Dayton, OH 45459-4243
Phone: 937-435-7227 ♦ Fax: 937-435-9200
Web site: www.mixing.com
E-mail: *mixing@mixing.com*

Ohio Water Environment Association
Preserving & Enhancing Ohio's Water Environment
1890 Northwest Blvd, Suite 210
Columbus, OH 43212

Non-profit Org.
U. S. POSTAGE
Paid
Columbus, OH
Permit No. 7390

WATER'S WORTH IT