Ohio Water Environment Association
Volume 93:2 | Issue 2 2021

Buckeye Bulletin

READ ABOUT MAPPING ANALYSIS DRIVING WATERSHED RESTORATION IMPLEMENTATION

pg. 36-41

One Water is happening!

Get more information on pg. 13-18

www.ohiowea.org

OWEA
OHIO WATER ENVIRONMENT ASSOCIATION

CLOGGED PUMPS?

Tackle wipes and large debris with these solutions from USABlueBook!

FOR SMALLER APPLICATIONS AND LIFT STATIONS

Goulds GFK and GFV Series Sewage Pumps

- Non-clog impellers handle wipes and 2" solids

FlowRake Rag Catchers

- Catch and retain flushables

GOULDS WATER TECHNOLOGY
a xylem brand

USABlueBook EXCLUSIVE

FOR LARGE MUNICIPAL LIFT STATIONS

Deming Demersible Chopper Pumps

- Slice the most troublesome solids into small pieces

StationGuard Manual Bar Screens

- Capture damaging wipes and debris

DEMING®

USABlueBook®
GET THE BEST TREATMENT™

GET PRODUCT DETAILS AT usabluebook.com/NoMoreClogs

800.548.1234 · usabluebook.com

LOOKING FOR A SCREW PUMP UPGRADE?
LAKESIDE REPLACES ALL BRANDS AND TYPES.

Lakeside's screw pumps offer the ideal and cost-effective "drop in" replacements for less reliable designs. Improve pumping performance and reduce maintenance costs with our superior dual upper bearing design and heavy-duty self-aligning lower bearing designs. For decades we've been the go-to source for replacing all screw pump brands. Replacements typically require little or no structural modifications. It's what you expect from Lakeside Equipment—known for nearly a century for efficient and dependable operation in all wastewater, drainage and industrial applications.

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

Cynthia Hengeli
Cynthia@Go-Smith.com

LAKESIDE EQUIPMENT CORPORATION
Water Purification Since 1928

Cleaner Water for a Brighter Future®

Speak to one of our experts at **630.837.5640**, email us at **sales@lakeside-equipment.com** or visit **www.lakeside-equipment.com** for more product information.

Screw Pumps

Open Screw Pumps
Enclosed Screw Pumps

Contact

2020-2021 Executive Committee

President Mike Welke
City of Warren
mwelke@warren.org

President-Elect Jason Tincu
Greene County
jtincu@co.greene.oh.us

Vice President Brandon Fox
City of Columbus
bdfox@columbus.gov

Past President Kim Furry
Alloway
kim.furry@alloway.com

Secretary-Treasurer Dale Kocarek
dalekocarek@gmail.com

WEF Delegate Kathy Richards
City of Akron
KRichards@akronohio.gov

WEF Delegate Fred Smith
CDM Smith, Inc.
smithfj@cdmsmith.com

WEF Delegate Elizabeth Wick
DEZSLL6@gmail.com

NW Delegate Jeff Lamson
City of Fremont
jslamson@fremontohio.org

NE Delegate Mary Ann Driscoll
Burgess & Niple, Inc.
MaryAnn.Driscoll@burgessniple.com

SW Delegate Dave Wilson
BL Anderson
dwilson@blanderson.com

SE Delegate Melodi Clark
City of Columbus
mlclark@columbus.gov

2020-2021 Committee Chairs

Annual Conference Dave Wilson and Pete Kube
dwilson@blanderson.com, Peter.Kube@arcadis.com

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

Awards Fred Smith
smithfj@cdmsmith.com

Certification Kathy Beckett
KMRish@columbus.gov

Charitable Outreach Afaf Musa and Stephanie Johnson
musaab@cdmsmith.com, sjohnson@msconsultants.com

Collection Systems Afaf Musa and Dan Martin
musaab@cdmsmith.com, dmartin@raconsultantsllc.com

Contact Hours Marc Morgan
mmbmorg@frontier.com

Governance Mike Welke
mwelke@warren.org

Government and Regulatory Affairs Elizabeth Toot-Levy
etootlevy@Geosyntec.com

Laboratory Analysts Melodi Clark and Tony Hintze
mlclark@columbus.gov, thintze@fremontohio.org

Membership Ted Baker
kingsnu@aol.com

Nominating Jamie Gellner
jgellner@hazenandsawyer.com

Past Presidents VACANT

Plant Operations Joe Tillison and Walter Ariss
jtillison@cityofdelphos.com, walter.ariss@epa.ohio.gov

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

Public Education Kevin Stilwell
KStilwell@structurepoint.com

Publications Elizabeth Wick
DEZSLL6@gmail.com

Residuals Jamie Gellner
jgellner@hazenandsawyer.com

Safety Mike Welke and Nathan Coey
mwelke@warren.org, ncoey@woosteroh.com

Sponsorship Fred Smith
smithfj@cdmsmith.com

Student Design Muralikrishna Chelupati
muralikrishna.chelupati@stantec.com

Sustainability Paul Fletcher
Pfletcher@jheng.com

Utility Enhancement VACANT

Watershed Anil Tangirala and Bryon Ringley
atangirala@msconsultants.com, bringley@blueheronengineering.com

Young Professionals Kevin Connor
kconnor@cityofdefiance.com

2020-2021 Section Presidents

NW President Todd Saums
tsaums@nwwsd.org

NE President Michael Cook
michael.cook@ads-pipe.com

SW President Kelly Kuhbander
kelly.kuhbander@strand.com

SE President Melodi Clark
mlclark@columbus.gov

Staff

Executive Administrator Dawn Larsen
dawn@ohiowea.org

Association Coordinator Megan Borror
megan@ohiowea.org

Administrative Assistant Chelsea Cameron
chelsea@ohiowea.org

Table of Contents

OWEA ONE WATER WEF TECHNICAL HUMAN INTEREST

Want to reach Ohio's water quality professionals?
Advertise your equipment or services in the **Buckeye Bulletin!**

Distribution 2,300+ - includes members, government officials, and more.

Advertising information and past issues are available at www.ohiowea.org.
Please call (614.488.5800) or email *megan@ohiowea.org* with advertising questions.

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
Dawn Larsen, Executive Administrator
Megan Borror, Association Coordinator
Chelsea Cameron, Administrative Assistant

Photos in this issue provided by:

Cover Photo - Photo courtesy of City of Fremont

Other photos OWEA Section and Committee photographers, article contributors, advertisers, Mike Welke, 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

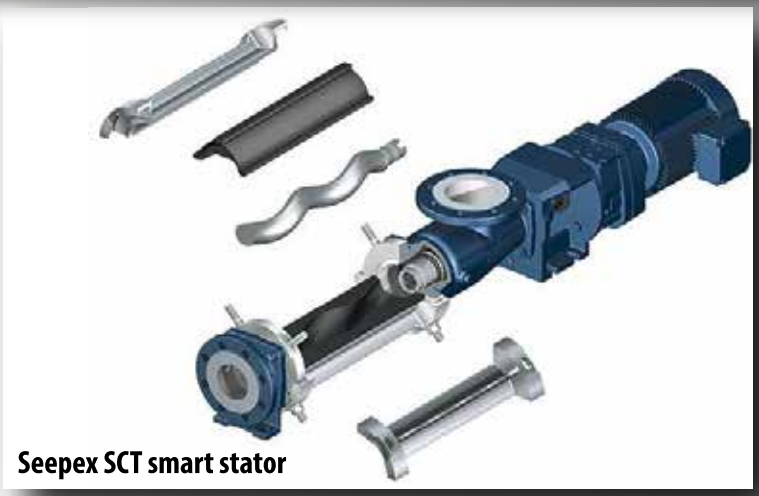
Water Environment Federation
the water quality people

Ceramic & HVOF Tungsten Carbide Coatings
Custom Welding & Fabrication
Installation Services
Repair Services
Machining
Parts

MS Process

Progressing Cavity Pump Specialists

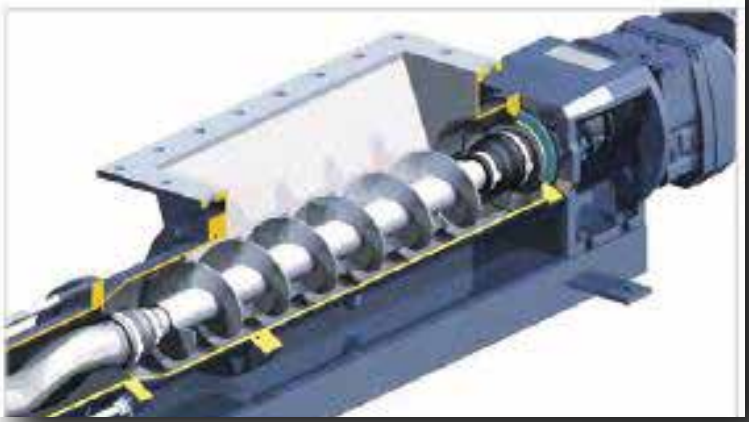
Call or email us for a quote: (216)-952-1529 Sales@msprocess.us



SEEPEX.
ALL THINGS FLOW

Progressing Cavity Pumps: Rugged, Simple, Maintenance Friendly Design • 3 Year Wear Parts Guarantee • SCT Smart Stator • Standard Mechanical Seal • Sludge, Grease, Filtercake, Polymer • Local Manufacturing in Enon Ohio

Seepex hopper feed for high solids



Libery Replacement Parts

Parts for all PC pump brands in stock competitive prices, all parts guaranteed for fit, finish, and quality. Rotors, stators, gear joints, drive shafts, complete pumps.

Guaranteed Fit, Finish and Quality!

SEEPEX.
ALL THINGS FLOW

LIBERTY PROCESS

msprocess.us

Michael Welke
OWEA President

My presidency is starting to come to a close much like it started… in a pandemic. The difference is we can now see a glimmer of light at the end of the tunnel. Unlike early in my Presidency when no one could tell when this Pandemic would end. Like everyone else I am tired of the Pandemic. But now I am confident that it will end soon.

The biggest goal in my presidency was to ensure our organization remained intact and continued to serve our members through a crisis none of us have ever seen or dealt with. I am proud to say that OWEA is intact, and in my opinion, one of WEF's strongest MA's (Member Associations).

We were able to provide contact hours to our members both in-person and virtually. The in-person events looked different with limiting the number of attendees to provide social distancing, requiring masks to be worn, and modified food services. OWEA always followed the guidelines the Governor's office had in place. Those who attended the in-person events said they felt safe and liked how we handled these events. I do prefer in-person events, and I understand that some of you have no interest in the on line events. I am happy to say we were able to still meet your educational needs, while keeping you as safe as possible.

For the people who weren't comfortable or allowed to meet in person, I feel we also served you. We offered a variety of virtual events. From live webinars, to on demand events. In the last half of 2020 we offered a free contact hour per month. This was to help those under a budget crunch. I would like to thank our sponsors who provided these free events. For the hours we did charge for, we worked very hard to keep the price low. We tried some new bulk pricing to try and make things easier administratively and save you some money. One of the upsides to webinars is that we could have presenters from all over the country. While this isn't my preferred way of learning, I did get to hear from some speakers I probably would have never heard from.

I would like to thank our staff who has done a great job at organizing both the in person and virtual events for both the sections and the state. They were able to keep us as safe as possible at the in person events(following the governor's guidelines). I appreciate the staff nudging us to participate in the polls during the virtual events so we could get credit for the contact hours that were offered.

I would like to give a special thanks to our sections. They have been absolutely essential in helping us serve our members. Much like the state office did, they pivoted many of their educational offerings from in person to online. They worked with the state office staff to make sure that when they were in person, the event was as

Upcoming Executive Committee Meeting

July 25th, 2021

Mike is the Superintendent of the City of Warren Wastewater Treatment Plant, where he has worked for the past 32 years. He lives in Warren with his wife Kelly, with whom he has two children and two grandchildren. Mike has served in various capacities for OWEA — from volunteer to Section Committee Chair. He worked his way through the Section Chairs and now serves as the state Safety Co-Chair as well as the OWEA 2020-2021 President.

safe as possible. These volunteers gave of their own time and talent to make sure our members could get the continuing education they needed.

I would also like to thank all the members of the executive board. It's been a year like none other and one I hope none of you ever experience again. I appreciate all of your time and dedication to OWEA. I know without your support we wouldn't have made it through.

Finally, I would like to thank our sponsors and our members. You stuck with us and trusted us. Your flexibility allowed us to try things we didn't know were possible. You showed us that you can role with the punches and I am very grateful for that.

I wanted us to be one of the best MAs (member associations) in WEF and I think we have achieved that. We are in a good position financially and now know we can quickly pivot. We offered more educational offerings to our members than I thought was possible.

In closing, this wasn't the year I planned for, but I am hopeful it will end on a high note with One Water. This joint conference between OWEA and OAWWA is a go for July 26-29 in Cincinnati. It will look a little different than any event that any of us have been to. But it will be fun and safe. I know I probably won't be able to shake hands or hug all of you, but I will definitely be down for an elbow bump! I look forward to networking with all of you in July at One Water. See you there!

Executive Committee Positions Available

Interested in being part of the state executive committee? Nominations are being accepted through July 15, 2021 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, Jamie Gellner at jgellner@hazenandsawyer.com.

Welcome New Members

January 2021 - March 2021

Andrew Arndt
David Bates
Jamie Bradbury
Charles Bradley
Herschel Buchanan
Taylor Campbell
Wesley Carder
Fergus Coffey
Chris Cooper
Christopher Creatura
Joseph DiOrio
Jerry Duber
Doug Dunn
Jesse Enderle
Noor Fahoum
Kevin Frazier
Orjada Gecaj
Melissa Givens
Zachary Held
Bryan Hill
Victoria Houser
Dan Hoying
Thomas Hunter
Jeffrey Johnson
Thomas Keeton
Sam Klassen
Robert Kneip
Mark Koenig
Cheyanne Madden
Alicia Mayhew
Nathaniel Morse
Timothy Norman
Adam O'Brien
Andrea Patterson
Nicolas Sawadogo
Jaya Shirke
Issa Simakha
Ed Sustersic
Ravi Teja Reddy Tippireddy
Shane Vicars
Keith Walker
Patrick Workman

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.

buckeye pumps inc.
DIVISION OF OHIO TRANSMISSION CORPORATION

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

LOU COCCIA
SOUTHERN OHIO

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

1311 Freese Works Place, Galion, Ohio 44833

AMERICAN-MARSH PUMPS
EGGER
FLYGT a xylem brand
PENTAIR MYERS
Roto pumps since 1968
WASTECORP Pumps

Ideas transform communities

We're a proud sponsor and supporter of OWEA.

HDR

Cleveland | Columbus | Cincinnati

hdrinc.com

2021 Sponsors

PLATINUM

Hazen

GOLD

AECOM

bakertilly
MUNICIPAL ADVISORS

buckeye pumps inc.

CDM Smith

Jacobs

SMITH ENVIRONMENTAL

SILVER

AIIMax Software

Alloway
Your Resource for Defensible Data

ARCADIS

BRONZE

AMERICAN STRUCTUREPOINT INC.

The Bergren Associates

BissNuss Inc.
Water and Wastewater Treatment Systems

Brown AND Caldwell

PETERSON CONSTRUCTION COMPANY
An Equal Opportunity Employer

PRIME AE®

RA Consultants, LLC

AND

Stantec

BLACK & VEATCH

BL ANDERSON

your trusted advisor consultants engineers architects planners

HDR

Sullivan
Environmental Technologies

Henry P. Thompson Company Est. 1910

Jones & Henry Engineers

MASI LABORATORIES

STRAND ASSOCIATES®

BURGESS & NIPLE
Engineers ■ Architects ■ Planners

H.R.Gray
an Anser Advisory Company

ms consultants, inc.
engineers, architects, planners

Pace Analytical®

WADE TRIM

WESSLER ENGINEERING

Webinar Dates

6/9/2021	3 PM
7/14/2021	10 AM
8/11/2021	3 PM
9/8/2021	10 AM
10/13/2021	3 PM
11/10/2021	10 AM
12/8/2021	3 PM

OWEA
OHIO WATER ENVIRONMENT ASSOCIATION

Monthly Webinars

- ★ All topics will be OM
- ★ One hour long
- ★ $15 per webinar for members
- ★ Topics will include PFAS, Collections, Financial Stability, Biosolids, Emerging Technologies, & more
- ★ Conveniently the second Wednesday of every month with alternating times to accomodate various schedules

Register at www.ohiowea.org

One Water

July 26-29, 2021

Duke Energy Convention Center **Cincinnati, OH**

Let's get together SAFELY

We can't wait to see you again, safely, and IN-PERSON. We know that this year's One Water might look a bit different and we are planning for that. While we anticipate there will still be some social distancing in place, along with possible other safety precautions, we KNOW that bringing together water and wastewater professionals will be a great time.

who should attend

- Utility professionals
- Engineers
- Young professionals
- Manufacturers
- Retired professionals

topics

- Asset Management
- Collections
- Distribution
- Ethics
- Management
- Treatment

...and much more! The full technical program is available at www.onewaterohio.org

90+ technical sessions

network

education

socials

200+ exhibitors

Don't miss Ohio's LARGEST water conference

stay informed

www.onewaterohio.org

info@onewaterohio.org

@OneWaterOhio

brought to you by:

Ohio Section American Water Works Association

OWEA

THANK YOU One Water SPONSORS!

Sponsors committed as of 5.6.21

Royal

BLACK & VEATCH

Brown AND Caldwell

your trusted advisor consultants engineers architects planners

Hazen

PETERSON CONSTRUCTION COMPANY An Equal Opportunity Employer

SHOOK CONSTRUCTION

US ULLIMAN SCHUTTE

Cobalt

ARCADIS

HDR

Jacobs

Stantec

Sullivan Environmental Technologies

Sapphire

BURGESS & NIPLE Engineers ■ Architects ■ Planners

xylem Let's Solve Water

H.R.Gray an Anser Advisory Company

kokosing INDUSTRIAL

M.E. SIMPSON Co., Inc.

Azure

Alloway

Environmental Design Group The community impact people.

fishbeck Engineers | Architects | Scientists | Constructors

Jones & Henry Engineers

ms consultants, inc. engineers, architects, planners

AM

WADE TRIM

Sky

STRUCTUREPOINT

DHDC Engineering Consulting Services, Inc.

Package	Online until 7/9/21	Onsite
Full Conference		
Member	$445	$495
Nonmember	$570	$620
Retired[1]	$320	$370
Student[2]	$100	$150
Single Day Registration		
Member	$275	$305
Nonmember	$335	$395
Monday Plant Tour		
Member	$50	Not Available
Nonmember	$75	
Monday Research Workshop		
Member	$125	Not Available
Nonmember	$150	
Extra Tickets		
Tuesday Meet & Greet	$100	
Reception/Gala	$50	
Guest Package[3]	$325	
Golf		
Foursome	$500	Not Available
Individual Golfer	$125	
Golf Hole Sponsor	$250	
Exhibition		
Member 10x10 Standard[4] Booth	$1,145	Not Available
Nonmember 10x10 Standard[4] Booth	$1,445	
Member 20x10 Heavy Equipment Booth	$1,945	
Nonmember 20x10 Heavy Equipment Booth	$2,445	
Each Additional Booth Attendee (max of 2 per 10x10 space)	$245	$325
Listing in Exhibitor Passport	$250	Not Available

[1] must not be currently employed and have retired membership status

[2] must have valid university ID

[3] cannot be in the industry

[4] premium booth space available for additional $150

Technical Program

Tuesday Tracks:

Water Treatment
Distribution
Wastewater Treatment
Utility Management
Potpourri

Wednesday Tracks:

Water Treatment
Wastewater Treatment
Collections
Asset Management
Sourcewater
Utility Management
Efficiency/Sustainability
Green Technologies/Stormwater
Potpourri

Thursday Tracks:

Maintenance
Wastewater Treatment
Regulatory
Operations
Ethics
Potpourri

Full technical program can be viewed at www.onewaterohio.org

Schedule

Monday			
7:00 AM	5:00 PM	Attendee Registration	
9:00 AM	4:00 PM	Facility Tours	Sponsored by WADE TRIM
9:00 AM	4:00 PM	Golf Outing	Sponsored by fishbeck
6:00 PM	9:00 PM	Welcome Event	Sponsored by ARCADIS
Tuesday			
6:30 AM	5:00 PM	Attendee Registration	
8:00 AM	10:00 AM	Kickoff Breakfast & Keynote	Sponsored by PETERSON CONSTRUCTION COMPANY
10:00 AM	5:00 PM	OWEA Challenges	Sponsorship still available
10:00 AM	5:00 PM	OAWWA Competitions	Sponsorship still available
10:00 AM	5:00 PM	Exhibits Open	
10:45 AM	5:15 PM	Technical Sessions	
12:30 PM	2:00 PM	OWEA Awards Lunch	Sponsorship still available
12:30 PM	2:00 PM	General Lunch	Sponsored by kokosing INDUSTRIAL
4:00 PM	5:30 PM	Competitions & Challenges Awards	
4:30 PM	6:00 PM	Exhibit Hall Mixer	Sponsored by Jacobs
6:00 PM	7:00 PM	YP Mixer	Sponsored by Stantec
7:00 PM	11:00 PM	Meet & Greet	Sponsored by SHOOK CONSTRUCTION
Wednesday			
7:00 AM	5:00 PM	Attendee Registration	
7:00 AM	8:00 AM	General Breakfast	Sponsored by M.E. SIMPSON Co., Inc.
7:00 AM	8:00 AM	Crystal Crucible Breakfast*	Sponsored by Alloway
7:45 AM	8:30 AM	Early Bird Tech Sessions	
8:45 AM	5:15 PM	Technical Sessions	
10:00 AM	2:00 PM	Exhibits Open	
12:30 PM	2:30 PM	OAWWA Business Lunch & Awards	Sponsorship still available
12:30 PM	2:30 PM	General Lunch	Sponsored by BURGESS & NIPLE Engineers ▪ Architects ▪ Planners
3:30 PM	4:30 PM	OWEA Business Meeting	
4:30 PM	5:30 PM	Women's Networking Event	Sponsored by Stantec
6:30 PM	9:30 PM	Networking Event	Sponsored by BLACK & VEATCH
Thursday			
7:00 AM	5:00 PM	Attendee Registration	
7:00 AM	8:30 AM	General Breakfast	Sponsored by xylem
7:00 AM	8:00 AM	5S Breakfast*	Sponsored by Jones & Henry Engineers
7:00 AM	8:00 AM	OAWWA Past Chair/Awardee Breakfast	Sponsorship still available
8:00 AM	9:45 AM	Regulatory Updates	
10:00 AM	4:00 PM	Technical Sessions	
11:45 AM	1:45 PM	General Lunch	Sponsorship still available

* invitation only

Sponsorships sold as of 5.6.21

Exhibitors

360water, Inc.
ADS Environmental Services
Advance Instruments
Advanced Rehabilitation Technology. LLC
Allied Technical Services Inc.
Allied Technical Services Inc.
Allmax Software, Inc
Alloway
Anser Advisory (formerly H.R. Gray)
Asahi/America, Inc.
ATR Automation
Baker and Associates Ltd.
Baker and Associates Ltd.
Baker Tilly Municipal Advisors
BCR Inc.
BissNuss Inc
BissNuss, Inc
BL Anderson Company
BL Anderson Company
BL Anderson Company
BLD Services, LLC.
Brown Bear Corporation
Buckeye Pumps, Inc.
Buckeye State Pipe & Supply Co., Inc.
Building Crafts, Inc
Burgess & Niple
Burgess & Niple
Chemco Systems LP
Commerce Controls, Inc.
Corporate Equipment Co. A DXP Company
Covalen
CTI Engineers, Inc.
Culy Contracting
CUSI
DIPRA
Dixon Engineering, Inc.
DN Tanks
DRV
Dugan & Meyers LLC
Duke's Root Control, Inc.
EarthTec
EJ
Environmental Management and Development, Inc.
EnviroScience, Inc.
EOSi
Eurofins TestAmerica
Evoqua Water Technologies
Excel Fluid Group
Excel Fluid Group LLC
FER-PAL Construction
Ford Hall Company Inc.
GFS Chemicals
Hach
Hawk Measurement Systems
Hawkins Inc.
HOBAS Pipe USA
hydro controls
hydro controls
Hydro Dynamics Company
Hydro International
J Dwhite Thompson Co
JAGS Environmental
JGM Valve Corporation
JGM Valve Corporation
Jones & Henry Engineers
M. L. Johnson Company
M.E. Simpson Co, Inc.
Masi Environmental Labs
Master Meter, Inc.
McWane Ductile
McWane Plant & Industrial
MSD Environmental Services
Neptune Equipment Company
Ortman Drilling and Water Services
Pace Analytical Services, LLC
Parkson Corporation
Paxxo Inc
Pelton Environmental Products, Inc.
Pelton Environmental Products, Inc.
Pelton Environmental Products, Inc.
Pelton Environmental Products, Inc.
Pelton Environmental Products, Inc.
Peterson Construction Co.
Preload
REXA, Inc.
Rockwell Automation
RoviSys
Rumford Industrial Group, Inc.-Belzona
Shook Construction
Shook Construction
Silversmith, Inc. dba Silversmith Data
Smith Environmental Inc
Software Solutions, Inc.
Source Technologies LLC
spectrashield liner systems
Suez Advanced Solutions
Suez Advanced Solutions
Sullivan Environmental Technologies
Sullivan Environmental Technologies
Sullivan Environmental Technologies
TCI LLC
Technique Roofing Systems LLC
The Bergren Associates, Inc.
The Henry P. Thompson Co.
The Henry P. Thompson Co.
Thompson Pipe Group
Tnemec Company, Inc.
Trumbull Industries
Trumbull MFG
UIS SCADA
Ulliman Schutte
Utility Solutions, Inc.
Utility Technnogies, LLC
Wessler Engineering
WL Plastics
Zesco Inc

exhibitors registered as of 5.6.21

COVID-19 Precautions

We have heard from many of you who are excited to meet again in person and we are also looking forward to seeing you, safely. Our conference will look different. While it is impossible to eliminate all risk associated with COVID-19, we are working hard to ensure as safe an experience as possible. Here is some of what we do in conjunction with our hotel partners:

- One Water staff and hotel staff will be wearing masks and in some cases face shields during the event.
- Due to the executive order signed by Governor Mike DeWine, all attendees who are physically able to will be required to wear a mask when not eating, drinking or speaking to the audience. While we encourage you to bring a mask you are comfortable with, One Water will also provide masks during events. Masks are the best way to keep everyone safe when we are around each other.
- Hand sanitizer will be provided by both the venue and One Water.
- One Water staff practices social distancing in the office and takes their temperatures daily, including before conferences.
- We ask that you take your temperature before heading out to the conference and that you stay at home if you don't feel well or have a temperature.
- We will have signage and explanations of correct social distancing measures.
- Speakers will remain at least 6 ft from attendees.
- Communal meals will look different, with seating more spread out and fewer seats at tables. Social distance will be maintained.
- Food service will look different. Buffets will be served, and with very limited contact with service staff. Most items will be individually packaged.
- There will be markings on the floor to help maintain safe distances between attendees.
- We will be dismissing attendees by row to eliminate a large group during breaks.
- Podiums, microphones and laptops will all be sanitized between speakers.
- We will maintain recommended distances between all attendees, between staff and attendees, and between speakers and attendees.
- We will be communicating with registered attendees multiple times prior to the event to ensure everyone is comfortable and aware of these changes.

Duke Energy Center has made over $1M in capital improvements related to safety during this time, including:

- All Air Handling Units have been upgraded to CDC-recommended MERV-13 filtration or better.
- All units are being operated with outside air ventilation.
    - A minimum two-hour pre-flush of ventilation using outside air is performed before event occupancy. This interval may be increased depending on occupancy levels and areas occupied.
    - A minimum two-hour post-flush of ventilation using outside air is performed after or between events. This interval may be increased depending on occupancy levels and areas occupied.
- Modular steel self-standing hand-sanitization units purchased for use outside event space.

All OWEA and OAWWA staff will be fully vaccinated prior to the event. We know that being vaccinated will protect our staff and others. If you aren't already vaccinated, please consider getting vaccinated prior to attending to help protect yourself and those around you.

HOW TO ENSURE YOU GET PROMPT AND ACCURATE CREDIT FOR CONTACT HOURS AND/OR PDHS.

3 Easy Steps

1. WHEN REGISTERING ONLINE, MAKE SURE THE PERSON REGISTERING YOU KNOWS:

- **YOUR CORE ID** If your Core ID is not listed on your registration, you will not receive credit.
- **YOUR INDIVIDUAL EMAIL ADDRESS**
- **YOUR LEGAL NAME** Your name needs to match your certification in order to ensure proper credit.

2. FILL OUT THE PAPER FORM EVEN IF YOU ARE NOT A CERTIFIED OPERATOR This form works as an attendance verification for Professional Engineers or any other certification. If you do not fill out this form, we will not have attendance verification for you should you ever need it.

3. FILL OUT THE PAPER FORM CORRECTLY AND FULLY See important areas below.

OWEA Ohio Water Environment Association
1890 Northwest Blvd, Suite 210
Columbus, OH 43212

614.488.5800
info@ohiowea.org
www.ohiowea.org

OWEA Training Receipt **Title of Training Event:** _____

Date: ____/____/____ **Location:** _____

Print firmly and legibly to insure proper course credit. Your initials certify your attendance at the presentations listed below.

#1 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#2 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#3 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#4 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#5 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#6 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#7 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#8 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#9 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#10 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#11 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

#12 Presentation: _____ Initial Here
Time: ____/____ am/pm # Hrs:____ *Course Approval #:* _____

By signing below, you certify your attendance at the above training session, and understand the Director of Ohio EPA may suspend or revoke your certification for violating OAC 3745-7-12(A), including submitting misleading, inaccurate or false documents or applications.

Print Name: **Signature:**

Company/Facility Name: Date: Operator Certification or Core ID #

Telephone #: Email Address:

On-site Training Provider verification:

Attendee: Keep yellow bottom copy for your records. Return white copy to Training Provider.

A. INITIAL. If you do not initial after the course, you will not get credit as you have not verified your attendance.

B. WRITE THE APPROVAL NUMBER to ensure credit for the proper course.

C. FILL OUT COMPLETELY and legibly with your legal name. This information is required to ensure your hours are submitted correctly and promptly.

IF YOU HAVE ANY QUESTIONS OR CONCERNS, PLEASE CONTACT THE OWEA OFFICE AT 614.488.5800 OR INFO@OHIOWEA.ORG

City of Columbus Surveillance Lab

by Melodi Clark

The Jackson Pike WWTP was constructed in 1935 and last upgraded in 2010. The average design flow is 68.0 million gallons per day (MGD). In 2010, the plant's wet weather treatment capacity was increased to 150 MGD as part of the City's implementation of its Wet Weather Management Plan. The Southerly wastewater plant was constructed in 1967 and last upgraded in 2010. The average design flow is 114 million gallons per day (MGD). In 2010, the plant's wet weather treatment capacity was increased to 330 MGD as part of the City's implementation of its Wet Weather Management Plan. The Southerly and Jackson Pike treatment plants serve the city of Columbus, neighboring cities, villages and township areas in Franklin, Delaware, Licking and Union counties. The service population projected for 2014 was 1,216,405.

How many analysts/technicians work in the laboratory?

We have 12. A Lab Manager, three Wastewater chemist 2's (two of which are supervisors and one is our QA/QC Supervisor), seven Wastewater 1 Chemists and one Lab Assistant.

Do you accept samples from outside sources?

We currently have a contract with Ohio State University to perform analysis on green infrastructure samples.

What analysis do you perform?

Metals (ICP-MS, GFAA/Flame), Low Level Mercury, Organics (Semi VOC's, VOC's, Pest/PCB), e.coli, Salmonella, CBOD, BOD, TSS, TDS, VS, %S, COD, NH3,NO3NO2, Cyanide, Phenols, Total P, Ortho P, TKN, Hex Chromium, Sulfate, Chloride, Bromide, Alkalinity, Conductivity, Available Ammonia, Oil & Grease, TOC.

Other duties your laboratory is responsible for?

We provide analysis for our pretreatment/ industrial group, our Storm water group, and we also do waste characterization for the City of Columbus to create waste profiles for Hazardous waste disposal.

Lab Profile

Do you use a contract laboratory?

We are a full service lab and do not send samples out unless it is a test that is rare and we don't have the means to do it in house.

Do you have any permitted industries?

We currently have 120 permitted industries that we routinely sample.

Have you assisted with any pilot studies or uncommon testing?

- Blue Print Columbus
- MBI 2020-2021 Scioto Sampling Program
- OSU Column Study
- OSU Green infrastructure Study
- City of Johnstown, Ohio Water Development Authority (OWDA) Grant #: 7879

Is there anything else we should know about your Laboratory?

Our lab was designed to allow for growth and opportunity for expansion. We handle all of the waste water plant special studies involving new equipment or chemicals being added to their process. We also help with the development of our NPDES permits and what tests may or may not be given to us. We are the go to lab for our engineers who are looking at projects and need special analysis done. We added in waste characterization about five years ago to help with our EMS program and ISO certification. We provide tours for our local colleges for students taking waste water classes and we also provide learning space and access to some of our lab equipment to high school students who are working on their science fair projects.

Inspiration from Past Winners

Winners of the 2021 Operator Ingenuity contest will join a prestigious group of past awardees, who since 2012 have used inexpensive materials and sheer resourcefulness to address challenges ranging from pipe blockages to public outreach.

In 2015, for example, skilled-trade technician Vikas Bhaskaran of the Village Creek Water Reclamation Facility (Fort Worth, Texas) developed a new way to cut metal more precisely, enabling operators to custom-fabricate metal pieces required for pipe repairs. His approach, which consisted of a plasma and oxy-acetylene cutting machine fashioned from parts salvaged from old traveling-bridge filters, earned Bhaskaran the Master of the Machines award.

The following year, Cheryl Read from the King County (Washington) Wastewater Treatment Division earned the Danger Dodger award for a simple approach to access valve actuators in her facility's secondary sediment tanks without requiring dangerous confined-space entry. Read realized that by rotating valve handles by 90 degrees, operators could reach the actuators from the outside of the tanks.

For the 2019 competition, judges recognized a solid-steel spear head equipped with collapsible tines created by the City of Meridian's (Idaho) Matt Hagler. The tool, which earned Hagler the "Rag Spear" award, addressed frequently clogged influent screens which led to blockages and build-up in his facility's anaerobic digesters. After attaching the spear to a crane and skewering balls of debris, the tines unfold, hooking rags, wipes, and other materials and breaking up blockages.

Sustainability in Biosolids

by Paul Fletcher, P.E. and Project Engineer, Jones & Henry Engineers
and Mike Maringer, Consultant, NAIAD

Introduction

Biosolids are a nutrient-rich solid organic matter recovered from the wastewater treatment process. During wastewater treatment the solids are separated from the liquid. These solids are then treated physically and chemically to produce a semisolid, nutrient-rich product known as biosolids. The terms 'biosolids' and 'sewage sludge' are often used interchangeably.

According to EPA, more than 16,500 water resource reclamation facilities (WRRFs) in the United States treat over 40 billion gallons of wastewater each day, generating over eight million dry tons of biosolids annually. Biosolids are managed by WRRFs in a number of ways, as shown in Figure 1.

Biosolids treatment alternatives consist of combinations for thickening, stabilization and dewatering/drying. Stabilization is the treatment of solids to reduce both the pathogen content and vector attraction. Dewatering is the removal of water from sludge. Drying is used to evaporate water from biosolids and reduce the moisture content to a level below that achievable by dewatering. Drying systems are used to reduce storage requirements, reduce hauling costs or create a higher quality biosolids product.

Classification of Biosolids

Biosolids that are to be beneficially used must meet federal and state requirements. Examples of beneficial use include land application, incineration, composting, or other forms of surface disposal.

Regulations help ensure that biosolids are processed, handled, and used in a manner that minimizes potential risk to human health. Biosolids are divided into "Class A" and "Class B" designations based on treatment methods. The different classes have specified treatment requirements for pollutants, pathogens and vector attraction reduction,

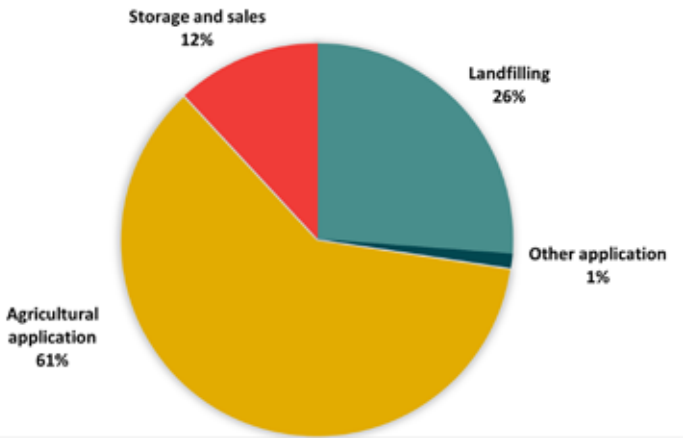


Figure 1 – Distribution of biosolids use and disposal from major WRRFs, 2019.

This is a series of articles on sustainability in our industry. It serves as an introduction to the subject and to a Sustainability Committee formed by OWEA. Subsequent articles in the series will cover each of the individual topics in more detail.

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

as well as general requirements and management practices. Federal Regulations determine that treatment processes for Class A biosolids eliminate pathogens, including viruses. A higher quality than Class B biosolids. Most states require permits to surface apply biosolids and a site evaluation might need to be conducted. In general, Class B requirements are digestion, air drying, and lime stabilization. Class A requirements are heat treatment, irradiation, and lime stabilization and composting.

Class B biosolids can be used as bulk fertilizers in agriculture or forestry and to reclaim barren lands and are prohibited from public access areas. Site permits are required for Class B biosolids use. Where municipalities have access to ample farm land available to apply Class B biosolids and are willing to comply with the regulations and submit relevant paperwork, it would be expensive to invest in improvements to achieve a Class A biosolids with little to no return. However, with the ever-growing competition for land and with the EPA making land application regulations ever tighter, along with restricted availability for landfill space, Class B biosolids are becoming a more and more restrictive option.

Class A or Exceptional Quality (EQ) biosolids can be beneficially reused in a wider range of applications than Class B. Class A biosolids products include composted biosolids, lime pasteurized biosolids, and fertilizer pellets and can be applied not only to agricultural land but also to public access areas, such as private lawns and home gardens.

Before making the decision to invest in a Class A EQ Treatment Process, municipalities need to make sure it makes sense for their community. This means educating potential end users about the material ahead of time to ensure there will be a market for the product and determining how it will be distributed. If this is not done, the product may end up being sent to landfill for disposal, or utilized as a Class B biosolid.

If municipalities plan to make a Class A EQ product and still land apply it as a bulk fertilizer on an agricultural land, Ohio's Biosolids Rules require soil samples, performing agronomic rate calculations and following setback requirements. This is in an effort to ensure the nutrients are being properly managed. Regardless of the source of the fertilizer – manure, commercial fertilizer or biosolids - a nutrient is a nutrient, and must be properly managed. As the requirements to manage nutrients become stricter, the benefits of Class A over Class B for land application become narrower and a municipality may find that having a good Class B treatment system with good dewatering is more cost effective for their community than investing in Class A technology.

Sustainability in Biosolids Management

Sustainability is the ability of a process to endure and remain an economically and environmentally sound means of wastewater solids management. Sustainability is unique to each community, covering a broad range of aspects. Operators of WRRF should consider their role as resource recovery centers, focusing on recycling water, beneficially using biosolids, and conserving/producing energy. There are significant economic, social and environmental benefits for such an approach.

Many sustainability issues will fall in more than one category. The disposal of biosolids represents an operational cost for wastewater treatment plant owners so is an economic factor, but there are also social and environmental concerns.

Economic

In terms of fuel usage and manpower costs, there will be a trade-off at smaller facilities to fully treat or partially treat biosolids versus transportation of untreated solids to a regional site. Overall operating costs can often be viewed as part of a per-capita cost in terms of power, transportation and labor.

Stabilization and drying use large amounts of labor and fuel in comparison with other treatment technologies; however, the value and marketability of the final product

is often more acceptable. Thus, the additional up-front expense of stabilization is acceptable to the municipality because of the economic benefits of transportation and the market flexibility.

Social

Social sustainability, in this sense, refers to both impact on the public and on plant operations.

The impact on the public can take a number of forms but the most obvious is probably public perception and appearance of the process to be installed. If the population had a choice of drying beds with outdoor storage and associated odors, or an incinerator with one quarter the volume of truck traffic but a taller building and a worse historical reputation, the municipality may find it extremely difficult to persuade the public to choose anything except the drying beds.

For plant operations, an example would be installation of a belt filter press or a centrifuge. The centrifuge would have higher utility costs, but would require a smaller building. The advantage for plant operations is although more maintenance is required on a belt filter press, the vast majority can be done by maintenance personnel, and means the equipment is not out of commission while waiting for parts or manufacturer's labor for service.

There are also aspects raised in previous sections that are applicable to social sustainability. The cost per capita raised under Economics can also be applied as a social factor. Likewise, nuisance factors covered in the previous example are also social issues.

Environmental

Environmental issues are often the first thing that come to mind when people think of sustainability, but the economic and social sections here show it should not be considered in isolation.

Low carbon footprint is an ultimate goal for ranking sustainable processes. In addition to power and heat requirements, carbon emissions associated with transportation should be considered. This will assist processes that produce high dry solids products because haulage volumes will be lower. A trade-off between dry solids, power and heat requirements and trucking distance is what should be sought in achieving the best carbon footprint.

For processes that are uncovered or treat raw or thickened sludges, odors can be a nuisance.

Dewatering processes will generate a supernatant or decant stream which will be returned to the WRRF for treatment. This is often high-strength waste and will be dependent on the stabilization process installed. It will require additional process input in the form of blower air or chemicals and should be considered an additional cost of installation of the biosolids process.

Treatment of sludge

Raw sewage

WRRFs with design flow rates equal to or greater than one million gallons per day that either land apply, surface dispose, or incinerate sludge are required to submit an annual report to their permitting authority each year under the Clean Water Act. Larger WRRFs have personnel to manage biosolids which would have traditionally been land-applied or hauled in a different manner. Whereas smaller facilities which thicken and stabilize their biosolids on site, have an option to haul untreated solids to another facility for treatment.

A number of companies have emerged with a network of anaerobic digesters to convert these waste streams into renewable energy and fertilizer products. Their sustainable processes divert material from WRRF, landfills and incinerators while generating renewable energy and capturing greenhouse gases and producing a liquid fertilizer.

Thickening

A number of technologies are available for solids thickening, increasing solids content of sludges from around 1% to around 6%. The most commonly used are dissolved air flotation, gravity thickening tanks and belt thickeners. Thickening usually takes place prior to digestion or dewatering facilities, to reduce the size of the facilities, equipment, and reduce operating costs. Thickening technology choice is usually determined by the process that generates the sludge, the size of the treatment plant and space availability. Typically, thickening results in the range of 2-6 percent dry solids.

Stabilization

There are a number of processes utilized to stabilize solids generated from WRRF. Figure 2 below breaks down the processes for almost 4,900 WRRFs in the United States.

Aerobic digestion

Aerobic digestion is a stabilization process in which aerobic reactions biologically consume degradable organic components of biosolids and convert them to carbon dioxide. Blowers are used to provide air through diffusers to fully mix the contents.

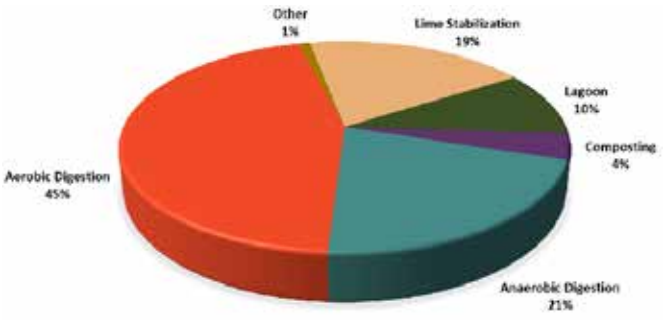


Figure 2 – Sludge Stabilization Technologies at WRRFs in the US, 2015. 85% of biosolids are stabilized using the following three processes.

Anaerobic digestion

Anaerobic digestion is a process in which bacteria convert organic matter into methane and carbon dioxide in the absence of oxygen. The process of anaerobic digestion can be divided into three separate steps. Some facilities have separated the process into multiple stages, by physically separating the stages or controlling the process to separate the stages in time. This approach allows the facilities to optimize the various stages of the anaerobic digestion process to meet their needs. Anaerobic digestion requires temperatures of which can be sustained using a heat exchanger, although innovative technologies are becoming available which can operate at much lower temperatures.

Alkaline Stabilization

In lime stabilization, alkaline materials are mixed with biosolids to raise the pH level to make conditions unfavorable for the growth of pathogens. Materials that may be used for alkaline stabilization include hydrated lime, quicklime and cement kiln dust. The alkaline stabilized product is suitable for land application in many situations, such as landscaping and agriculture.

Treatment of Stabilized Sludge

Dewatering

Dewatering processes exert forces on the biosolids to remove free water. There are a number of dewatering processes on the market. The most commonly installed are covered below.

Belt Filter Press Dewatering

Belt filter presses (BFPs) are capable of achieving cake solids concentrations ranging from 15 to 22 percent dry solids at capture efficiencies greater than 90 percent. Thickened solids and polymer, used to flocculate the sludge, are fed to a porous belt and filtrate drains through the belt, before the belt enters a compression zone where pressure is applied from the belt to force out additional filtrate.

Centrifuge Dewatering

Centrifuges increase biosolids dry solids content by separating solids from liquid using centrifugal force. The centrifuge has two scrolls operating at different speeds using different motors. Solids are carried to one end using a scroll, liquid is discharged to the other end. The scrolls rotate at around 2,000 rpm. Centrifuge cake solids are typically 17 to 25 percent dry solids. Capture efficiencies are usually 95 percent or greater. Centrifuge operations can be optimized by adjusting the feed rate, polymer dose, and the differential scroll speed.

Screw Press Dewatering

Screw presses can take sludge as dilute as 0.1 percent dry solids, directly from a biological process, requiring no pre-thickening, and produce a cake of 15 to 22 percent dry solids. They have a drum consisting of two sets of parallel rings with a center auger. The rings in the inner set move against one another, which presses the biosolids in the spaces between the rings and allows free drainage of water. The pitch of the auger changes along the screw to accommodate required product solids content.

Treatment of Dewatered Sludge

Drying

Drying systems use different methods for heat transfer, including convection, conduction, and radiation. Heat-drying technology is generally very reliable, and few facilities experience significant periods of unscheduled downtime. Spontaneous heating in dry cake storage areas is often a concern. To meet Vector Attraction Reduction requirements the air dried product must exceed 75 percent total solids

Unprocessed biosolids typically contain approximately 8,000 British thermal units per pound (Btu/lb) on a dry weight basis, which is similar to the energy content of low-grade coal. The average daily residential energy use in the U.S. would require the energy equivalent of 13.4 lbs of biosolids. Available and emerging technologies convert this energy to steam, combustion gas or fuel oil and use it as an energy source to generate power.

Direct Dryers.

Systems that primarily use convection for heat transfer are often referred to as "direct" dryers. In direct heat dryers, hot air/gas flows through a process vessel and comes into direct contact with particles of wet solids. An example of direct drying is a rotary drum dryer.

Indirect Dryers.

Systems that primarily use conduction for heat transfer are referred to as "indirect" dryers. With indirect dryers, solid metal walls separate the wet cake from the heat transfer medium. An example of indirect drying is a tray dryer.

Solar Drying

An alternative to energy-intensive thermal technologies for sludge drying is the use of solar energy. Among the various solar dryer types, greenhouse dryers have numerous advantages over others, making them a good process alternative in certain locations for sludge processing. Energy costs are from ventilation systems and an automatic aeration system within the drying enclosure, often referred to as a mole. Solar systems can take dewatered solids and produce a 60-90% dry solids product.

Incineration

Incineration is an environmentally sound and cost effective means of biosolids management at a number of medium and large wastewater treatment facilities. Recent advances in dewatering ash management and air pollution control technologies have increased the efficiency and benefits associated with incineration. Drying consists of raising the temperature of the biosolids to 212°F to drive off liquid. The temperature of the remaining solid material is then raised to the ignition point.

Table 1 – Sustainability Factors of Biosolids Processes (Red entries represent negative factors)

Aerobic digestion	• High energy costs • Low capital cost • Primarily used in plants with flows less than 5 MGD • Requires more tankage	• Low odor	• Susceptible to temperature, tank geometry, and solids concentration • Low effluent BOD, nitrogen and phosphorus • Good fertilizing properties • Simple operation with high reliability • Can achieve Class B, difficult to achieve Class A
Anaerobic digestion	• High capital cost • Net energy-producing process • Net operational cost may be low if enough methane is produced	• Odorous dewatering operations • Net operational cost may be low if enough methane is produced • More skilled labor may be required	• High ammonia content in supernatant • High phosphorus content (increases if enhanced phosphorus removal is used) • Safety concerns with handling methane • Lower retention times than aerobic digestion • Low effluent BOD • Class A or Class B can be produced
Lime Stabilization	• High O&M costs • Product usually able to be sold to multiple markets • Easy to construct with readily available components .	• Odor control required • Potential for odor generation and dust production • Simple technology, easy to operate	• High chemical use (i.e. quicklime, and polymer) • Larger sludge volume produced • Allowable land application rates may be limited by soil condition and crop type • Potential for pathogen regrowth • Properly stabilized product is easy to handle • Flexible: Class A or Class B achievable
Belt Filter Press Dewatering	• Large footprint for multiple units • High water consumption • Less expensive. • Long service life • Lower energy requirement	• Odors, corrosive conditions • Open configuration	• Not as clean as a centrifuge externally and requires more labor for cleanup. • Less amenable to unstaffed operation • Odor control required • Frequent maintenance and cleaning • Maintenance can be done by plant personnel
Centrifuge Dewatering	• Specialized maintenance and high cost spare parts • Higher energy consumption • High usage of polymer • Less frequent preventative maintenance. • Smaller building.	• Largest carbon footprint of stabilization processes. • Centrate often carries residual polymer.	• Hearing protection for larger units. • High noise and vibration level. • Excellent containment of odor
Process	**Economic**	**Social**	**Environmental**

Screw Press Dewatering	• High polymer consumption • Larger footprint • Requires no upstream dewatering equipment • Low power consumption • Low wash water consumption • Most maintenance can be handled by staff.	• Potential struvite buildup on screen • No need for thickeners, sludge storage	• Humid and odorous atmosphere • Difficult to clean blinded filtration surface without shutting down and emptying • Facility easy to keep clean. • .Low noise, low odor • Can run without regular operator attendance
Drying	• Requires a large amount of energy • Requires substantial capital investment • Reduces weight and volume of product to be transported	• Product accepted as Class A or Class B	• Some drying systems require a qualified operating staff • Drying of certain types of solids (undigested primary) can result in a more odorous product • Well-proven technology
	Convective drying • Dried product used in agriculture	• Design allows easy manipulation of operation	• Bad odors • Gaseous emissions
	Conductive drying • Dried product used in industrial applications	• No pollution of the heat carrying medium • Steam and odor confinement	• Sticky solids alter dryer performances • Low VOC concentration
	Solar drying • Large footprint needed • Use of free solar energy	• Depends on climatic conditions • Dried product used in agriculture	• Environmentally friendly solution
Incineration	• Costs of building incinerator and infrastructure are substantial • High temperatures, using large amounts of energy • Low land requirement • Produces stable, inert, odor-free residue • Reduces weight and volume of product to be transported	• Pathogens cannot survive the process • Recent advances in design can destroy PFAS compounds	• Public perception that potentially hazardous air emissions may occur • Ash contains heavy metals

Emerging Trends

A number of emerging trends in biosolids treatment and uses were presented at the 2017 WEF Residuals and Biosolids Conference. These included trends from the US, Canada and Europe in design, construction and operation. Emerging trends for both biosolids processing and biosolids beneficial reuse were presented.

Among the emerging technologies included were pyrolysis and gasification which occur in the absence of oxygen, co-composting biosolids with domestic organic waste, and lime pasteurization of refuse-derived fuel. All of these produce new and novel products such as a charcoal, an oil that can be converted to gasoline and synthetic biogas.

Biosolids Management in Other Countries

In other countries, local and national disposal regulations and factors such as land availability and public perception define which management techniques will be used.

Due to a combination of high energy costs, and renewable energy incentives, the UK water industry has invested heavily in advanced anaerobic digestion. They have the highest number of thermal hydrolysis plants, treating more than a quarter of sludge production. Ultimately 92% of all sewage sludge will be anaerobically digested.

In France, where spreading of biosolids on land is prohibited, a substantial amount of biosolids are mixed with green waste, composted and land applied. A typical example is dewatered biosolids and yard trimmings. The mixture undergoes composting to meet EU requirements and is marketed for local agricultural. Conversely, the most abundant form of biosolids management in Germany is thermal processing. This is due to incinerators being constructed in large population centers with little land available for construction and thus the need for a small footprint. Biosolids are incinerated at mono-incineration plants, coal fired power plants, and waste incineration facilities.

Japan relies heavily on thermal processing for biosolids management again due to the limited land available. The country manages more than 80% through incineration. There are a number of different ways incineration ash is beneficially used, including incorporation in cement, soil improvement, and construction materials such as paving stones and bricks.

Australia applies approximately two-thirds of its biosolids to agricultural land, with the remainder being used for composting, forestry, and land reclamation. A survey completed in 2015, found that 70% of respondents felt positively towards the use of biosolids for land application. Their attitude towards energy generation was the final product would be much the same and energy would be wasted so why do it? The area of available farmland in Australia per capita is much greater than it is in the US, so this makes land application much simpler in terms of regulation.

New Zealand dries and disposes roughly two-thirds of its biosolids to landfill due to low costs, with the remainder being discharged to the ocean or applied to agricultural land. New Zealand has recently developed a number of successful vermicomposting operations and the process yields a highly valued fertilizer and soil conditioner (vermicast) for uses in agriculture, horticulture, nurseries and recreation areas.

Conclusion

The impact to the environment due to humans is found in everything we do. To decrease our carbon footprint we need to find sustainable ways to reduce, reuse and recycle.

Sustainability is playing a larger role in the decision-making process for public agencies and will continue to do so. Decisions made regarding public improvements should be justifiable from a sustainability point of view, which itself should be approached from more than simply an environmental perspective.

There will never be a one-size-fits-all biosolids handling solution, just as this applies to all aspects of every community. Although none of the points made in the table in this article regarding biosolids processes are new, and may already be areas of discussion when choosing a biosolids process, they are compared from perspectives other than simply environmental issues, including economic and societal perspectives. This is the first step in an overall approach to sustainability.

Southerly Wastewater Treatment Plant
Chemically Enhanced Primary Treatment (CEPT)
Columbus, Ohio

Ohio EPA Update

USEPA Compliance Advisory

by Bill Palmer, Ohio EPA Division of Surface Water

Ohio EPA received the Compliance Advisory (pages 33-35) from the USEPA (Clean Water Agencies Increasing Attention to Significant Non-Compliance Dischargers (SNC)) and is distributing it to Ohio's National Pollutant Discharge Elimination System (NPDES) permit holders and/or duly authorized representatives to submit reports. The Compliance Advisory details the National Compliance Initiative (NCI) which focuses on facilities in significant non-compliance (SNC) and the goal to cut the SNC in half and to ensure the most serious SNC violations are timely and appropriately addressed.

EPA COMPLIANCE ADVISORY
OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE

National Compliance Initiative: Reducing Significant Non-Compliance with National Pollutant Discharge Elimination System Permits

EPA Document # 305F20002 September 2020

Clean Water Agencies Increasing Attention to Significant Non-Compliance Dischargers

- To improve surface water quality and reduce potential impacts on drinking water, EPA and states are focusing increased attention on all individually permitted Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit holders in significant non-compliance (SNC)[1].
- EPA and state regulators are undertaking this National Compliance Initiative (NCI) to focus increased compliance and enforcement attention on NPDES-regulated facilities in significant non-compliance, regardless of facility size.
- This advisory is designed to help NPDES permittees achieve or maintain compliance and avoid potential enforcement and penalties.

About the NPDES Permit Program

States, tribes, and the federal government share responsibility for protecting human health and the environment; point sources that discharge pollutants to U.S. waters are one aspect of this responsibility. The NPDES permit program, created in 1972 by the Clean Water Act (CWA), regulates these sources.

If you own or operate a facility with a permit issued under the NPDES program, including a state-issued permit, under the CWA you have an obligation to comply with the effluent limits, reporting requirements, and other requirements in the permit. Non-compliance may subject you to substantial penalties through enforcement actions.

What Is the Purpose of This Initiative?

In FY 2018, over 29 percent of the nation's 46,000 facilities with individually issued NPDES permits were in significant non-compliance with their permits. Violations range from significant exceedances of effluent limits, which can harm human health and the environment, to failure to submit reports, which can mask serious deficiencies.

This NCI is intended to ensure that all NPDES permittees—not just industrial contributors—are complying with their permits. NPDES permittees, regardless of facility size or type, will see an increase by EPA and its state and tribal partners in identifying and addressing SNC violations using enforcement and other compliance tools. **This NCI aims to cut significant non-compliance in half and to ensure that the most serious SNC violations are timely and appropriately addressed.** Increased compliance will improve surface water quality and reduce potential impacts on drinking water.

What Is a National Compliance Initiative?

National Compliance Initiatives (NCIs) focus EPA's enforcement and compliance resources on the most serious environmental violations. The goal of the NCI program is to increase compliance using the full range of compliance assurance tools. Facilities that are regulated in an area addressed by an NCI are subject to increased monitoring, inspections, enforcement actions, and other compliance activities.

[1] Significant non-compliance (SNC) is a designation given by U.S. EPA to NPDES facilities with violations of a more serious nature and cause for concern. These violations will likely warrant an enforcement response by EPA or the authorized state if not promptly resolved by the permittee. For the technical definition of CWA SNC, see https://echo.epa.gov/help/reports/dfr-data-dictionary#cwasnc.

How Can I Prepare for the NCI?

NPDES permittees are encouraged to assess their compliance status in one or both of the following ways:

- Review your discharge monitoring reports (DMRs).
- Use EPA's Enforcement & Compliance History Online (ECHO) tool to look up your facility (see "About ECHO" box).

If your facility has NPDES violations, EPA recommends that you take immediate action to correct them. Smaller facilities have not often been compliance and enforcement priorities for EPA or the NPDES authorized states. However, under this NCI, more attention will be given to facilities approaching or already in significant non-compliance—no matter their size.

EPA and its state and tribal partners will respond to SNC violations in a timely and appropriate manner. These violations are typically resolved either by prompt return to compliance or return to compliance following an enforcement action. Remember, violations are subject to enforcement by either the state or EPA, with potential federal penalties of up to $54,883 per day per violation. A prompt return to compliance is critical to reduce the potential for an enforcement action.

About ECHO

Enforcement & Compliance History Online (https://echo.epa.gov/) allows permittees to check their compliance status. A Detailed Facility Report in ECHO indicates whether a permittee has violations and is in significant non-compliance.

ECHO provides a quarterly breakdown of compliance history that describes instances of significant non-compliance. These can include an enforcement action or permit compliance schedule violation, violations of effluent permit limits, or a failure to submit timely Discharge Monitoring Reports. (Note: In some cases, significant non-compliance may be incorrectly designated due to data entry errors or data transfer problems.)

To view a Detailed Facility Report in ECHO, select the "Facility Name/ID" tab in the "Quick Search" box and search for the facility with facility-specific information. Click the icon "C" under the "Reports" column. Scroll down to the table titled "Compliance Summary Data" and check for a "Yes" or "No" in the "Current SNC/HPV" column. If it is marked "Yes", review the "Three-Year Compliance History by Quarter" table for additional information.

Ensuring Timely and Accurate Compliance Data

Under the CWA, NPDES permittees are required to report their own compliance data. States and EPA rely on timely, accurate, and complete self-reporting by permittees (through DMRs and other reports) to evaluate compliance. Failure to report compliance data in a timely and accurate way is a violation of the permit and the CWA. EPA screens self-reported compliance data for signs of misreporting. It may refer facilities for inspection to verify that the reported information is correct, and for criminal or civil enforcement where fraud or violations are identified.

Reducing Penalties Through Voluntary Disclosure

Regulated entities who voluntarily discover, promptly disclose, expeditiously correct, and take steps to prevent recurrence of potential violations may be eligible for a reduction or elimination of any civil penalties that otherwise might apply. Most violations can be disclosed and processed via EPA's automated online "eDisclosure" system (see https://www.epa.gov/compliance/epas-edisclosure). To learn more about EPA's violation disclosure policies, including conditions for eligibility, please review EPA's Audit Policy website at https://www.epa.gov/compliance/epas-audit-policy. Many states also offer incentives for self-policing; please check with the appropriate state agency for more information.

More Information

The resources below can help you correct violations and achieve compliance.

Be sure to **check your permit or contact your NPDES permitting authority (state or EPA)** for compliance assistance information. For information on your state agency, use: https://www.epa.gov/npdes/contact-us-general-information-about-npdes

Overview of This NCI

- https://www.epa.gov/enforcement/national-compliance-initiative-reducing-significant-non-compliance-national-pollutant

Technical Resources, Assistance and Training

- EPA's NPDES web page: https://www.epa.gov/npdes
- WaterOperator.org is a free resource portal for small systems operators
- The Rural Community Assistance Partnership provides training for water operators, utility board members, financial officers, and community members to help prepare communities to manage their own water systems: www.rcap.org
- The Water Environment Federation is a nonprofit association that provides technical education and training for water quality professionals: https://www.wef.org
- The National Rural Water Association and their State Associations: Provides training and on-site technical assistance to small and rural water and wastewater systems: https://www.nrwa.org

Financial Assistance and Funding Sources

- EPA's Water Infrastructure and Resiliency Finance Center lists technical assistance partners that work with small and rural systems to increase financial capabilities: https://www.epa.gov/waterfinancecenter/financial-technical-assistance-and-tools-water-infrastructure#partners
- EPA's Water Finance Clearinghouse is a database of financial assistance sources available to fund water infrastructure needs: https://www.epa.gov/waterdata/water-finance-clearinghouse

Electronic Submission of Discharge Monitoring Reports

- NetDMR Support Portal: https://netdmr.zendesk.com/hc/en-us

Disclaimer

This Compliance Advisory addresses select provisions of EPA regulatory requirements using plain language. Nothing in this Compliance Advisory is meant to replace or revise any NPDES permit, any EPA regulatory provision, or any other part of the Code of Federal Regulations, the Federal Register, or the Clean Water Act.

Mapping Analysis Driving Watershed Restoration Implementation

by Ryan Pilewski, Watershed Resource Specialist, Franklin Soil and Water Conservation District

Title Graphic: Mapping of Ecological Based Buffers Surrounding Rivers, Streams, Wetlands, and Ponds

In Franklin County, planning efforts are expediting and prioritizing the implementation of high value water quality projects, restoring our watersheds using data gathered within a Geographic Information System (GIS). From the field to map, Franklin Soil and Water Conservation District (the District) has been providing partners with essential information and a visualization of on-the-ground conditions to motivate decision makers to protect and improve our natural resources. Several projects have emerged over the last decade to show that targeted mapping of our ecosystems can aid in better project development, funding, and direct both restoration and protection to at-risk areas.

One of the most beneficial tools the District uses in the management of watersheds and stormwater is that of a GIS. Per the Environmental Systems Research Institute (ESRI), a leading GIS software producer, "GIS is a framework for gathering, managing, and analyzing data. Rooted in the science of geography, GIS can analyze spatial location and organize layers of information into visualization using maps. With this unique capability, GIS reveals deeper insights into data, such as patterns, relationships, and situations – helping the user make smarter decisions."

Starting in 2001, the District initiated a partnership with several communities for the mapping of stormwater infrastructure and surface water resources. These efforts include refinement of surface water flow routes, in-field verification and mapping of outfalls, and connectivity of stormwater lines throughout the Columbus metro, all of which is gathered within a common GIS and associated databases and mapping documents. This unique opportunity to collectively gather and map the components of an urban drainage system has helped shed light on the effects these man-made and often invisible subsurface systems can have on the small tributary watersheds that feed our rivers.

From these efforts' patterns started to emerge over the last decade illustrating just how altered our watersheds had become (Fig. 1). The simple notion that a watershed was defined by topographic boundaries had to be thrown out and the concept of the hybrid subwatershed-sewersheds started to appear to the dismay of many of our partners and watershed advocates. The once small babbling brook in many residents' backyards, now often looks like a whitewater kayaker's dream on a rainy day. This change was due to altered sizing of the watershed from decades of subsurface drainage and impervious surfaces installation, often extending beyond the natural watershed boundary.

The destructive outcomes these changes pose to the hydrology, hydraulics, geomorphology, chemical, and biological components of a watershed ecosystems were now able to be unpacked and analyzed with the use of GIS. This was crucial for the District and partners in moving forward with best approaches to mitigating damages to our streams caused by decades of unchecked development. All of which we could now visualize and quantify on a map and through statistics thanks to GIS.

Stormwater mitigation in an urban environment is a complex issue. An issue the District has been able to provide data and analysis for within central Ohio; laying the groundwork for the development of stormwater mitigation and restoration plans for our hard-hit streams. The foundation of this data and analysis is founded on high-resolution urban subwatershed-sewersheds delineations manually drawn and developed using lidar based data and coupled with comprehensive stormwater infrastructure, impervious surfaces, and a natural resource network collected from partners and created in house by the District. By delineating these complex urban systems and mining pertinent water quality data, the District is helping to narrow down and target priorities for issues such as stream erosion and stormwater volume, combined sewer overflow, and even tree canopy percentage and greenspace protection targets.

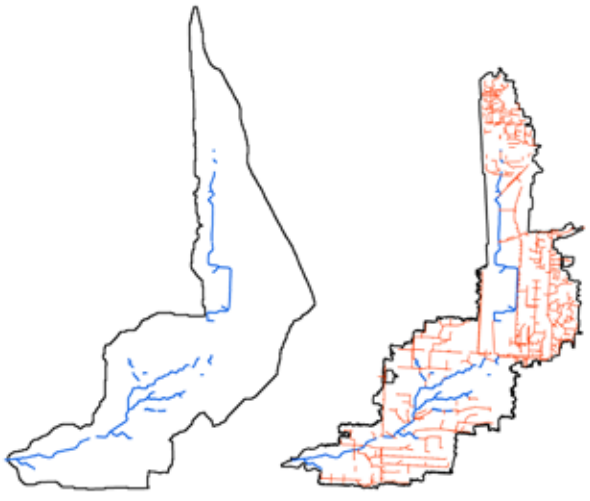


Figure 1. "Natural" Watershed Based on Topography Vs. "Hydromodified" Subwatershed-Sewershed based on Subsurface Drainage, a difference of over 400 acres in size.

A prominent vehicle for restoration is within the Federal, State, local stormwater fees, and Foundation level environmental grant programs. Through these programs, money is made available on a competitive basis to allow for water quality restoration work to get underway. Today more than ever, we find ourselves relying heavily on and struggling to secure these limited funds for restoration. When viewed as such, it becomes more crucial to fund the best planned projects. Through the Districts efforts this data has been used by local municipalities, watershed groups, and even the District itself, to effectively seek funding and implement water quality projects across the County.

Some of the highlights of the Districts use of GIS to the management of watershed ecosystems include:

BluePrint Columbus:

In recent years, the U.S. Environmental Protection Agency encouraged the adoption of an integrated planning approach to address Clean Water Act (CWA) requirements to target stormwater and sewer overflow issues that are seen in many cities across the country. This approach is an option to help municipalities meet CWA obligations by optimizing the benefits of infrastructure improvement investments through the appropriate prioritization and sequencing of work, and strongly promotes the use of green infrastructure to meet these challenges.

The City of Columbus submitted a proposal titled Blueprint Columbus to Ohio EPA as an alternative to the City's 2005 Wet Weather Management Plan in 2015. Soon after the City received an official approval letter from Ohio EPA granting the City to proceed with Blueprint Columbus.

As part of this program the District secured funding for the process of developing and refining urban subwatershed-sewershed delineations across the county as a starting point to processing and tracking the extensive network of stormwater pipes and supporting infrastructure (Fig. 2). Out of this effort the District then refined these subwatersheds, subdividing areas of surface runoff to the curb inlet or catch basin level within defined Blueprint Columbus project areas. Summaries of a variety of statistics, including slope, flow paths, impervious area, etc., for all delineations were then provided for future engineering models (Fig. 2.1 (INSET)). Locations of stormwater related structures and non-stormwater related structures (e.g. telephone poles) were also provided as part of this base mapping to aid the City in siting best management practices. The District also assisted the City in walking the receiving tributary waters across several priority areas, spatially recording erosion issues and allowing the City to look at bank stabilization as a method for reducing total suspended solids as part of the larger integrated plan.

To date the District has completed 1,800+ subwatershed-sewershed delineations (tributaries and/or outlet structures draining to mainstem rivers) and approximately 10,000 inlet delineations. The District also provided 300+ features of concern (e.g. erosion) data by walking 12+ miles of stream bank . Very recently the City has undertaken a massive construction effort following the Districts efforts to provide data to implement. Hundreds of green infrastructure practices have been designed and built within key neighborhoods, and hundreds more are in the planning stages throughout the City.

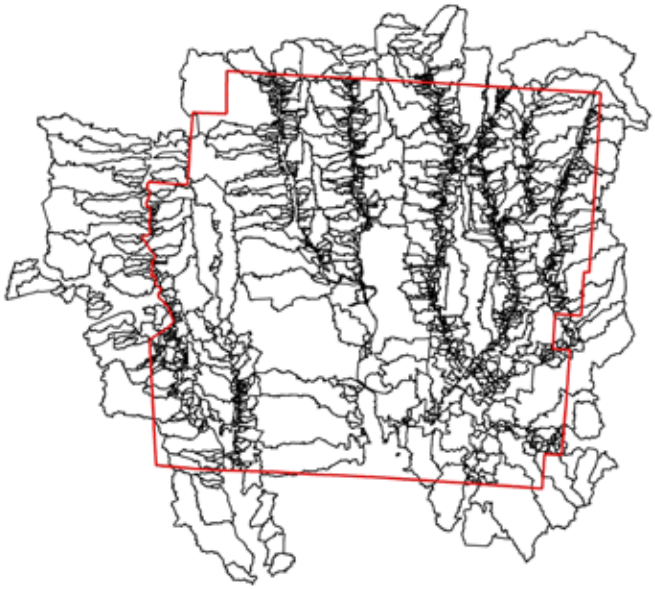


Figure 2. 1,800+ Subwatershed-Sewersheds with Outlets to the Main Stems Rivers of Franklin County were Delineated as part of BluePrint Columbus efforts.

(INSET) Fig. 2.1 Nearly 10,000 Inlets Drainge Areas have been Delineated to aid in Siting Green Infrastructure Practices for Stormwater Control

ReLeaf Linden:

Studies have shown that trees in an urban setting can provide multiple benefits, including energy reduction, pollution removal, carbon storage, and stormwater capture. New York City's 2007 Urban Forest study has shown that for every $1 invested, street trees return $5.60 in benefits.

Out of efforts by the Friends of the Lower Olentangy Watershed (FLOW) and the Lower Olentangy Urban Arboretum (LOUA), the District was able to assist in looking for priority planting areas for trees to maintain and increase canopy cover for the Glen Echo subwatershed of the Olentangy River. Previous to the Districts involvement much of the planting efforts had gone into a neighborhood with a well-established canopy. With an accurate delineation and data mining of the subwatershed-sewersheds and its existing canopy, impervious cover, and lawn area, the District was able to help the groups visualize and quantify where gaps were present in the canopy. Ultimately, the Districts work persuaded the groups to expand planting efforts and partnerships into a neighborhood that has low canopy cover percentages and lack the resources to undertake an effort to better those statistics. In addition, the District provided location information of potential available space that could be utilized for tree planting, assisting the groups in further targeting high need neighborhoods.

Figure 3. Part of the expanded ReLeaf Linden Project Area Based on GIS Findings of Low Canopy Cover

Figure 4. Visualization and Quantification of Potentially Available Tree Planting Area

FLOW was able to secure a grant from the Columbus Foundation in 2014 by showing that an initial investment towards planting trees along the street right-of-way, and at churches, schools, and parks, would yield over 5x the benefit. To date, these groups have planted over 330 - two to three inch caliper trees throughout the targeted neighborhoods, and have expanded its reach to include the State Dept. of Transportation to improve right-of-way conditions for stormwater along a section of I-71 that cuts through the subwatershed-sewershed.

Spring Run Mitigation Planning:

After years of incoming calls to the District from Westerville residents concerning stream erosion and flooding, the District proposed a multistep planning effort to plan implementation of mitigation measures. Through this effort the District produced a physical inventory and analysis of the main stem of the Spring Run tributary, as well as a complete delineation of the watershed as a whole and the delineation of each drainage catchment of every City owned stormwater outfall along the stream.

The District walked the stream to investigate stream erosion, modifications (e.g. riprap), and impacts to the corridor buffers (e.g. mowed banks), each of which were recorded and mapped using GPS dataloggers, providing a comprehensive look at the impacts seen across approximately 12 miles of stream bank. Catchments for 86 outfalls were delineated based on available stormwater line data, and data was mined from each catchment providing stats on impervious and tree cover, as well as available right-of-way and open space (e.g. grassed lawns) space available for potential implementation of best management practices. Pilot areas were assessed both for in-stream restoration priorities and upland flood attenuation.

To date the City has undertaken the development of restoration plans for approximately 2,000+ linear feet of stream to curb both flooding and erosion causing property loss and ecological damage. The City is using an innovative approach utilizing Capital Improvement Funds as a means to protect infrastructure both private and public.

Figure 5. Outlet Based Delineations Targeting High Volume Catchments without Stormwater

Figure 6. Stream Bank Data Collected to Provide A Broad Look at all of Issues Along Spring Run including Stream Erosion. Stream Modification, and Impacted Buffers

Figure 6.1 Recording Erosion Issues with GPS dataloggers to be used in GIS analysis.

In addition, the City is currently working with residents who have previously mowed to the stream edge, to provide plant materials to help establish a buffer system and curb further erosion using root systems as the stabilizer.

Lower Olentangy River Greenspace Plan:

The Friends of the Lower Olentangy River Watershed (FLOW) were able to secure funding through the Columbus Foundation for the District to inventory greenspace within the watershed and target high quality areas for the protection of the Olentangy watershed utilizing GIS. Maintaining a healthy watershed with this development is a challenge that requires careful planning and coordination among several key stakeholders and FLOW's Greenspace Plan was the first step of such coordination, ensuring that partners are protecting and restoring the right places.

Through the Greenspace Plan the District was able to assign scores to 22 variables related to ecological resources and opportunities for restoration and protection (e.g. canopy, stream buffers, wetlands). The scores were a result of weighting each variable and adding the weighted values of all variables that overlap for a particular piece of land. This was completed throughout the entire Lower Olentangy watershed as seen in the maps provided. These weighted scores were then categorized into five Greenspace Tiers, where Tier 1 represents those areas most important for water quality protection, and Tier 5 displaying the least opportunity for water quality protection. However, greenspace could exist in any of these tiers. Protection of these spaces may be more important within Tiers 1 and 2, whereas greenspace may need to be created in Tiers 4 and 5.

According to the Trust for Public Lands, the average greenspace in the 100 largest cities in the U.S. covers 15% of their total area. Currently, the Olentangy only has 9% greenspace, and that is without the development anticipated by 2050. FLOW is currently working with multiple partners and municipalities in hope that they take advantage of this Greenspace effort for future planning around development, preservation, and restoration.

Figure 7. Lower Olentangy Watershed Greenspace Scored Tiers highlighting potential areas in need of protection and restoration.

Figure 8. Lower Olentangy Watershed Greenspace.

Conclusion

The District is the local natural resource agency of Franklin County, Ohio with the mission of promoting conservation and responsible land use for better water quality and natural resource management. For over 70 years the Districts programs have been focused on protecting or improving water quality and natural resources for the benefit of Central Ohio residents. Due to Franklin County's heavily urbanized nature and abundance of water resources, watershed and stormwater management is central to the Districts' work, and the District continually strives to develop and work with new ideas, tools, and approaches to increase the visibility and implementation of management approaches and practices.

With the use of GIS analysis for ecosystem management, the District has shown that there is continued room for planning efforts to give us a clearer understanding of existing conditions and possible solutions using real world datasets. Utilizing GIS in this manner helps the user and partners to visualize the issues and have statistical analysis to aid in the decision-making process, helping us all holistically target the best projects for better water quality across one or multiple watersheds.

BluePrint Columbus Resources

City Project Website: https://www.columbus.gov/utilities/projects/blueprint/

Project Area Map with Green Infrastructure Locations: https://tinyurl.com/4dskknr9

Spring Run Mitigation Working Strategies can be found here: https://www.westerville.org/home/showdocument?id=21248

Restoration Efforts by Friends of the Lower Olentangy Watershed can be found here: https://www.olentangywatershed.org/

Greenspace Plan can be found here: https://www.olentangywatershed.org/wp-content/uploads/2020/11/GreenSpace-Plan-2020-FINAL-6-19.pdf

Greenspace Plan Mapping can be found here: https://green-space-project-olentangy.hub.arcgis.com/

No more FOG, as major crust problem caused by Fats, Oils and Greases is defeated

by Smith Environmental

Throughout Ohio there is a large a number of meat/food processing plants and municipal sites whose wastewater system is plagued by fats, oils, greases (FOG) and debris.

Many of these may already have some sort of pump/mixer - perhaps sold on the basis of it being supposedly 'non-clog' - but staring down at a tank crusted over so badly that you might not be able to see any wastewater, tells you immediately that this isn't the case. Chances are that the odor from the tank/collection system is so bad that even a new visitor to site - blindfolded – could locate it in seconds.

A classic example of this came to light just recently, when a leading meat processor, bogged down by reoccurring costs, foul odors and poor performance of its wastewater treatment system, looked for a cost-effective, long-term solution.

The problem at this particular site was so bad that you could (not that anyone in their right mind would) walk on or jump up and down on the layer of the tank's crust because it was so thick!

To combat the ongoing crust, odor problem and loss of capacity in its 300,000-gallon equalization tank, the meat processor was considering the use of chemicals to tackle the 'wastewater' - and was also trying to get things moving in the tank by hiring a contractor four times a year to blast the crust apart with a basic portable pump. This rather primitive, nasty job not only caused a temporary major increase in odors, but also cost $5000 per visit.

As with all meat/food processors, wash-down of the plant at the end of the work day presents a test for the onsite wastewater treatment system – in this case two DAF (Dissolved Air Floatation) units as they suddenly have to deal with bringing a large volume of particles to the surface. Fat removal is essential for discharge consent, to protect the local water courses en route to the local municipal wastewater treatment facility – and to keep effluent costs as low as possible. At this Ohio plant, removed fat also provides a revenue stream as it is sold for use in other manufacturing industries.

Finally, with the odor-generating permanent presence of fat in the equalization tank and a lack of capacity adversely affecting the whole treatment process, the meat plant's Facilities Manager, who described the situation as 'extremely troublesome; especially the odors', sought help via his chemical vendor.

An inquiry was made to Smith Environmental, initially for a propeller mixer, but upon learning more about the tough application, the Columbus-based wastewater consultancy knew immediately that a far more robust solution would be required.

'Never seen a tank so crusted up'

"Over the years we've seen some very clogged up lift stations", said Smith's Paul Matrka. "Every municipality across America seems to have at least one very labor-intensive sewage lift station that causes major problems, but while all meat processors have the same issue with waste fat to deal with, I have to admit that in this case, in my over 25 years' experience in the industry, I've never seen a tank so crusted up".

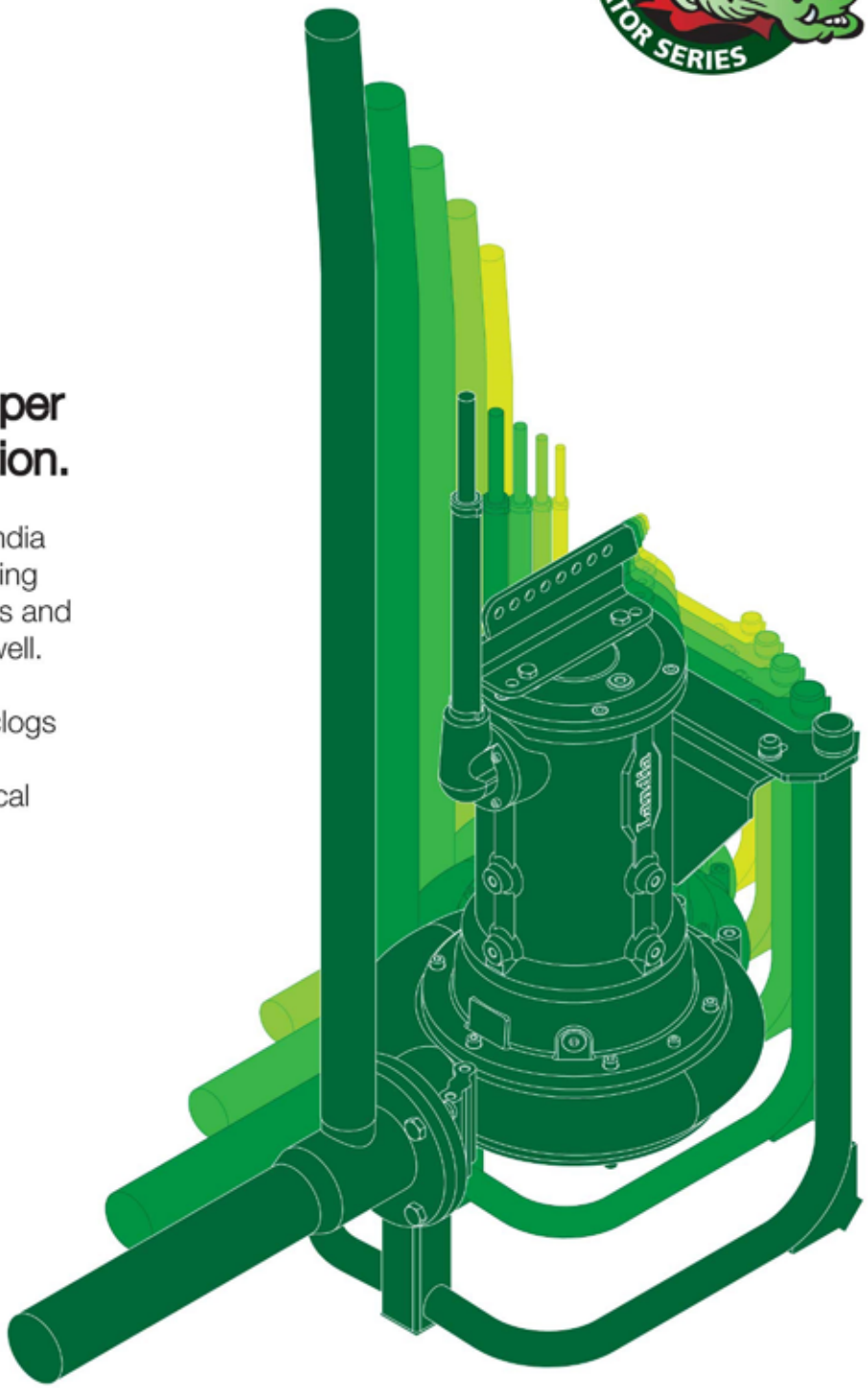
Smith Environmental had experienced very positive outcomes with a chopper pump that not only has an external knife system to prevent solids from entering its casing, but one that when fitted with a venturi nozzle, acts as a very effective mixer to distribute air throughout the tank. Smith Environmental proposed a trial of the AeriGator from Landia to demonstrate its capabilities.

'Bubbles began to emerge and the crust slowly began to break up'

"We were confident", added Paul Matrka, "but with the crust being so thick at the time, we had to try almost 20 times for more than 15 minutes to get the AeriGator in low enough through the thick layer of scum. As bubbles began to emerge and the crust slowly began to break up, we could see that it was working." In order to not overwhelm the DAF units with a long continuous slug of fat, it was determined that it was not advisable to clear the tank's entire crust at once. Some fine-tuning of the operation is still in progress, but now that the crust is no longer present, the meat processor's DAFs receive a far more consistent flow from the now blended equalization tank. This allows discharge consent for final effluent to be met without the previous variations – also caused by the fluctuations of the chemicals that were being added to combat the bad odors.

This project has made a positive difference in the bottom line at the meat processor and will pay for itself in just two years. The AeriGator operates 24/7 and the facility is extremely pleased with the installation, the improved plant operations, decreased maintenance requirements and elimination of their odor problems.

Do you have a problem lift station?



The Landia AeriGator Chopper Pump Is Your Drop-In Solution.

The AeriGator is the combination of a Landia Chopper Pump and a simple Self-Aspirating Venturi System. The AeriGator recirculates and aerates the contents of a lift station wet well.

- Chops up Wipes and Debris reducing clogs
- Aerates reducing H_2S odors
- Breaks up heavy scum layers with vertical mixing and keeps them from forming

Check out the AeriGator in action!

COMPLETE LIFT SOLUTION

DROP-IN LIFT SOLUTION

Contact Paul Matrka to learn more about the AeriGator and Landia's Trial-To-Buy Program. It allows owners to see the AeriGator work in their application before purchasing.

SMITH ENVIRONMENTAL

CONTACT PAUL MATRKA

- PAUL@GO-SMITH.COM
- (614) 507-4884

HR (and Employment Law) in Times of COVID

By Pamela S. Krivda, Esq., Partner and Chief Human Resources Officer, Taft/

Employers: Requiring a COVID Vaccine

Employers may, legally, require employees to be vaccinated. The Occupational Safety and Health Administration's (OSHA) General Duty Clause requires all employers to provide a safe workplace free from recognized hazards. There is no other, more specific COVID requirement for the workplace. Certainly, we can say that COVID is a recognized hazard. And vaccination can be a part of an overall strategy (with masks and social distancing) of maintaining a safe and healthy work environment. Even the Equal Employment Opportunity Commission (EEOC) has said that employers may require vaccines. As with almost everything related to employment law, however, this "permission" is not without caveats. You must consider – and work through – certain exemptions.

Religious objection exemption

Under Title VII of the Civil Rights Act of 1964 and Ohio's civil rights law, religion is a protected class (along the same lines as race, color, sex, disability, etc.) An employer must accommodate an employee's sincerely held religious belief, practice or observance that prevents the employee's being vaccinated. The employer must make this accommodation ***unless*** providing the accommodation would pose undue hardship to the employer. "Undue hardship" requires more than a slight, or minimal, expense or burden on the employer.

Generally, you may not require an employee to prove the sincerity of his/her belief ***unless*** you have an objective basis for questioning the religious nature or sincerity of the belief, practice or observance. As you might imagine, proving your objective basis for questioning religious sincerity could be fraught with peril and wind up being expensive for the company. As an example, some courts have even found veganism to be a recognized, protected religion in the vaccination context.[1]

Disability accommodation exemption

Even in times of COVID, or especially in times of COVID, the Americans with Disabilities Act and the Ohio Fair Employment Practices Act both prohibit employers from making disability-related inquiries or conducting medical examinations ***unless*** (there's that word again!) the inquiries or medical examinations are job related and consistent with business necessity.

"Medical examinations" include procedures or tests, usually given by health care professionals, seeking information about an employee's physical or mental health impairments. The EEOC has confirmed that COVID-19 vaccination itself is **not** a medical examination. However, pre-screening vaccination questions or inquiries may be disability-related inquiries. Thus, any such questions must be job-related and consistent with business necessity. If the employee has a disability that prevents him/her from receiving the vaccine, the employer may not require vaccination. An employer must make reasonable accommodation for that employee's disability. Employers may ask for receipt of vaccination: that is not considered a disability-related inquiry.

[1] Albeit not in the COVID vaccine context, but in the context of other employer-required vaccinations.

If an employee cannot be vaccinated – and there is no reasonable accommodation to keep the employee away from other employees or areas where other employees will be – an employer may apply the direct threat test. That means finding that an individual poses a significant risk of substantial harm to the health or safety of him/herself or others that cannot be eliminated by reasonable accommodation. Again, the EEOC has an opinion on this: an individual with COVID-19 meets the "direct threat standard". But, the EEOC directs employers to undergo an individualized assessment of its workplace to determine whether a direct threat would actually exist. At the risk of conjuring a vision of the fox guarding the henhouse door, I urge you to check with employment counsel before applying these standards. Among other things, the employer must enter into the interactive process to try to determine if a reasonable accommodation exists that is not an undue hardship on the employer. Bear in mind that "undue hardship" is not necessarily as simple as it sounds.

Where there is a union

A mandatory vaccination policy constitutes terms and conditions of employment. That makes such a policy, likely, a mandatory subject of bargaining with the union. Further, there may already be language in your collective bargaining agreement that limits such a mandatory policy.

Wage considerations with a mandatory vaccination policy

Will the time spent obtaining the vaccine be compensable? The Fair Labor Standards Act (FLSA) (I know….who knew there could be so many laws involved in requiring a vaccination?) requires that employers pay for time spent by an employee waiting for – or receiving – medical attention under these conditions: (1) on the employer's premises; or (2) during the employee's regular work hours; (3) on days when the employee is normally working; or (4) at the direction of the employer. In view of this, if vaccination is mandatory, you should pay employees for this time.

Even if you do not mandate vaccination, it may be in your best interests to pay for the time employees spend obtaining the shot(s). It may encourage employees to get vaccinated if they don't have to worry about being docked for the time.

Ohio's COVID-19 Shield Law

There is some protection for employers for their efforts to stem the spread of COVID-19. Ohio businesses have state-law immunity from:

- Civil actions
- Brought by customer, employees, or others
- For damages for injury, death or loss
- Related to exposure to, or transmission or contraction of COVID-19
- UNLESS the employer engaged in reckless or intentional conduct or willful or wanton misconduct.

The law extends to all Ohio entities, both for-profit and not-for-profit. The law was retroactive to March 9, 2020 and will expire on September 30, 2021.

Staffing Arrangements During COVID

Generally, an employer may require whatever staffing arrangements are necessary for the business or useful to the employer. During COVID staffing, you may find that other-than-regular shifts or working assignments are necessary and useful.

Employers must, of course, follow the Fair Labor Standards Act.[2] That means that employers must pay time

[2] Ohio follows the FLSA and does not have a separate wage/hour law for the state.

and one-half for any work in excess of 40 hours in a single work week. When arranging schedules, it may be helpful to know:

Waiting time:	Employees who are engaged to wait are on compensable time. Employees who are waiting to be engaged are not on compensable time.
On-call time:	If employee is required to remain on call at employer's premises, it is working (compensable) time If required to remain on call at home (or who can be reached), it is not compensable time.
Meal times:	Rest periods of 20 minutes less is compensable time Rest periods of more than 20 minutes are not compensable time.
Sleeping time:	If 24 or more hours on duty, the employee and employer may agree to exclude sleeping periods of not more than 8 hours from working time ***provided that:*** Employer furnishes adequate sleeping facilities AND Employee can usually have uninterrupted night's sleep

If there's a union, this is a mandatory subject of bargaining.

It is essential that the employer keep meticulous records of all split-shift activity. This includes:

- Start times
- Stop times
- Meal breaks
- Start/end of split shifts
- Total daily hours worked

Shift differentials are a matter of agreement between the employer and the employee or the union. The FLSA does not require it.

The Families First Coronavirus Relief Act (FFCRA)

The FFCRA initially included requirements for providing emergency paid sick leave and emergency Family and Medical Leave Act leave. These provisions expired on December 31, 2020 and have **not** been extended. However, employers may voluntarily provide either of these benefits. Tax credits (at the time of this writing) have been extended to March 31, 2021. The tax credits do not apply to public employers.

Private employers of fewer than 500 employees can claim a fully refundable tax credit for 100% of FFCRA leave wages paid to employees. These credits are subject to maximum per diems; total caps on leave pay, and certain costs of maintaining health insurance benefits while the employee was on either of these leaves. The employer must maintain certain documents for 4 years.

2021 Plant Operations & Lab Workshop

June 2 & 3

Wednesday & Thursday

Nationwide Hotel & Conference Center - Lewis Center

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

Some Topics of Interest:

"PFAS research outcomes from OSU"

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

"Plant profiles from across the state"

"Social media and how it can affect your plant"

"Shift transition process control communication"

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

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

11.75 **Contact Hours**

Registration Online at ohiowea.org

PETERSON
CONSTRUCTION COMPANY
An Equal Opportunity Employer

Are you tired of "conventional" Design/Bid/Build where:

- You have no control over who your contractor is and have to use the low bidder
- Your contractor continually tells you what should have been included in the design and how much it would have saved
- There are too many change orders and your project does not get finished on time
- You are on the edge of your seat on bid day hoping that the cost of your project comes in within your budget

Are you aware that you have other options?

- Construction Management at Risk (CMAR) lets you select a contractor during the design phase
- Ohio Revised Code (ORC) approved procurement method since 2010
- The CMAR process and Peterson Construction can do the following for your project:
  - Save significant costs and ensure that construction dollars are spent efficiently
  - Provide accurate pricing that can be used to make better design decisions
  - Allow for a more collaborative process between all parties and a much smoother running project
  - Encourage more involvement and project "buy in" from plant staff
  - Embedded contingency eliminates change orders

Call Peterson Construction Company today to discuss your next project!

rknapke@petersonconstructionco.com · 419-941-2233 · 18817 State Route 501 North, Wapakoneta, OH 45895

WWW.PETERSONCONSTRUCTIONCO.COM

wef membership

the power of We

ENHANCE YOUR INDUSTRY SKILLS
Stay on top of advances, trends, and proven solutions through WEF's highly regarded technical education and training opportunities.

FACILITATE LIFELONG LEARNING
Choose your training and earn CEUs and PDHs through WEF's educational programs, including: WEFTEC®, WEF Specialty Conferences, hot topic seminars, workshops, and webcasts.

CHAMPION PRODUCTIVE RELATIONSHIPS
Within WEF and Member Associations (MAs), members work to help each other develop and grow professionally, while building valuable relationships with industry partners and prospects.

ENRICH YOUR LEADERSHIP POTENTIAL
Gain leadership skills that can be applied to your career by volunteering your service to WEF and a WEF MA committee.

INCREASE AWARENESS AND RECOGNITION IN YOUR FIELD
Each year, WEF presents awards for outstanding contribution to the water environment profession.

MASTER YOUR CAREER GOALS
Tap into the leading career network for the water community, WEF's Job Bank, where dozens of new jobs are posted each month.

Join WEF's membership community of more than 35,000 water professionals, and experience the power of "we", through leadership, passion, collaboration, scholarship and service.

Water Environment Federation®
the water quality people®

www.wef.org/JoinWEF

Cleveland Water Alliance Calls for Global Water Innovators to Participate in its 2021 Open Innovation Challenge

by Bryan Stubbs, President and Executive Director, Cleveland Water Alliance

Cover Photo: Micro Buoy and Extreme Comms (1st and 2nd place Erie Hack 2017) install their innovative water quality sensors and telemetry at a water quality monitoring buoy near Cedar Point (Sandusky) as part of the Internet of H2O challenge

Amidst a global pandemic when many major industries are struggling, the water industry has proven to be one of the few sectors of economic growth in Ohio. Water stress is on the rise all over the world and innovation is needed now more than ever: clean, fresh water is critical to navigating our future with COVID-19 and beyond.

Cleveland Water Alliance (CWA) is one of the most effective freshwater innovation clusters in North America. Driven by community-recognized problem identification, CWA fosters acceleration programs for new and emerging technologies in solving our local, national, and international water quality challenges, and brings the economic impact back to Ohio.

Ed Verhamme (Limnotech) installs soil moisture sensors at Old Woman Creek (OWC)

CWA is a non-profit economic development organization with a focus on coordinating, facilitating, and fostering economic development through a freshwater innovation cluster while elevating the conversation about the value of water to our region.

The organization was built on a simple hypothesis, since borne true through data, that a commitment to clean water and water innovation will drive improved outcomes to equitable public health while increasing gross regional product: job creation.

CWA and its partners are directly linked to more than 300 net new jobs annually within Cuyahoga County alone, as well as 16,000 jobs and over 300 water-expertise companies across Northeast Ohio.

In today's world, a critical gap within the innovation cycle is the ability to test-run innovative technologies directly with customers. That's where CWA comes in. One of the country's leading "blue" water economies, CWA works throughout Ohio and is focused on continuing to grow the region's water economy by providing global innovators the opportunity to conceive of, test, scale up, and demonstrate innovative water technology directly with customers.

How, you ask? Two major ways:

1. Developing Accelerator Testbeds within four environments (watershed, utility, consumer, and industrial water-use)

2. Expanding Open-Innovation Challenge

LimnoTech and OWC staff install a water quality sensor at OWC

programming to convene customers and entrepreneurs across the Lake Erie Basin around key challenges and opportunities in the freshwater sector.

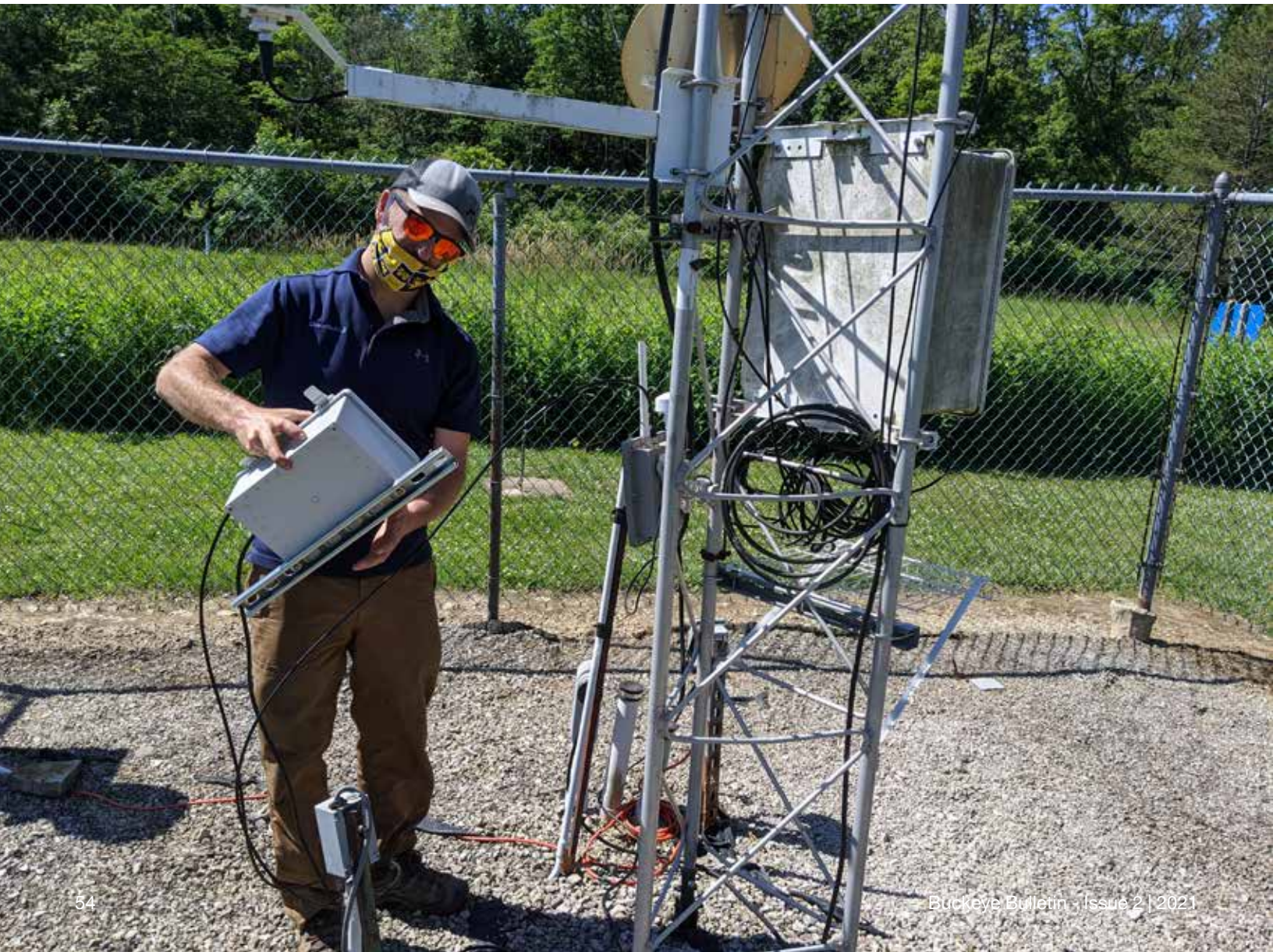
In September 2020, CWA was one of 52 organizations nationwide that received funding from the U.S. Economic Development Administration (EDA) to support entrepreneurship and continue to grow the blue economy. CWA was awarded a $600,000 Open Innovation Industry Challenge Grant and has since hit the ground running.

On March 15, 2021, CWA announced the launch of its flagship Open Innovation Challenge to engage global water innovators to help solve real-world challenges within the water industry, in real-time.

The 2021 season opened with two Request for Technologies (RFTs) from innovators to solve two distinct challenges:

1. **Automated Detection of Water Contaminants for Use Inside of the Home:** In partnership with global consumer-products leader Moen, this challenge seeks innovations that can detect lead, chromium, and other contaminants at the residential Point of Use (PoU).

Ed Verhamme (LimnoTech) installs network gateway at OWC



2. **Lead Service Line Detection without Breaking Ground:** Supported through a partnership with six Ohio utilities, including Cleveland Water, the City of Akron, City of Conneaut, Greater Cincinnati Water Works, Aqua Ohio, and the City of Sandusky, this challenge reflects new federal rules driving a need faced by utilities across the country to be able to physically detect lead service lines without breaking ground.

CWA's Challenge season includes opportunities for testing devices with Challenge partner(s), prize-money rewards, media exposure, and potential longer-term opportunities to engage more deeply with a broad range of industry partners over time.

The support from CWA partnering organizations and utility companies sets the entire Challenge apart from past initiatives. With the reach to these major organizations, CWA has positioned itself as a top-of-mind blue powerhouse for any innovators seeking an impactful collaboration.

And it doesn't stop there. CWA's Open Innovation Challenge programming is just one of several exciting new initiatives made possible by a grant from the EDA. CWA was one of only seven organizations selected by the EDA nationwide, and the only freshwater-focused organization to receive EDA Blue Economy funding. This grant, along with matching funds raised from regional partners, provides CWA with approximately $1.2 million to expand market-driven innovation programming and develop two of CWA's planned testbeds that will enable innovators to test and demonstrate devices under real-world conditions to help validate technology performance and increase visibility to potential buyers.

CWA's Open Innovation Challenge programming provides innovators with one of CWA's first offerings to provide innovators with a direct link between market-driven innovation and "testbed" access with exposure directly with industry partners.

"We are excited to put this funding and support into action to elevate Cleveland and Lake Erie as an international water innovation destination," said Bryan Stubbs, Cleveland Water Alliance President and Executive Director. "CWA's new Open Innovation program has the unique ability to trial emerging technologies from around the world to solve immediate market needs, and complements the water technology testbeds we are currently designing."

You don't have to be a water expert to understand the importance and urgency behind these initiatives. CWA wants to remind us that one thing is indeed certain during these most uncertain of times: fresh water is critical to a healthy and equitable society.

In addition to CWA's Open Innovation Challenge, the organization has also partnered with Ohio EPA's H2Ohio Technology Assessment Program (TAP) to identify technologies that may help address harmful algal blooms in Lake Erie. Stubbs serves on the TAP Advisory Council, which evaluates and validates technology proposals and facilitates demonstration projects to determine their effectiveness at addressing harmful algal blooms.

Working with the Community

CWA is engaging with its local community to get involved and understand the value of clean water. CWA is working to make Lake Erie the first "Smart and Connected Great Lake" that can be the model for innovation and help protect one of the world's most precious and vital fresh water supplies.

The Smart Lake initiative leverages the urgency surrounding harmful algal blooms to build the first "Smart Lake," a new breed of smart and connected

LimnoTech staff checks weather station installed at OWC

infrastructure that enables intelligent community water management. The health of the lake is vital to the health of its surrounding communities and economies. Not only do 11 million people depend on Lake Erie for drinking water, but in the eight Ohio counties that border Lake Erie alone, the lake has a $15.1 billion tourism-related economic impact.

Lake Erie communities impacted by the potential of toxic drinking water need an integrated solution to effectively quantify and manage this regional ecological crisis and the nutrient pollution that drives it to prevent economic harm and damage to public health.

In partnership with a coalition of shoreline communities around Lake Erie, last summer CWA launched a three-year project that empowers residents with low-cost technology to monitor water quality and contribute to the health of their watersheds.

Bringing together partners from Ohio, Michigan, and New York, this Initiative harnesses the work of volunteer monitoring programs across the Lake Erie Basin to build a regional movement that increases the quality of community water data and links it to research and policy. The data collection devices are accessible and simple to use, empowering people of all ages, from kids to adults, to participate in learning about and monitoring our valuable freshwater resource.

The Smart Citizen Science Initiative will position Lake Erie and its communities as a trailblazer in community-led solutions for water monitoring through the use of new technology, data and scaled up grassroots participation that is trusted and transparent. Initially, this effort will focus on nutrient loading and harmful algae to add more might to the fight against harmful algal blooms that can make our drinking water undrinkable.

Beyond the technical components however, participating partners are working to innovate at an organizational level. By increasing coordination between local programs, engaging marginalized communities, and collectively identifying future opportunities, this collaborative is charting a bold new path for the future of Lake Erie's water resources.

Zoning In

Based in a key Opportunity Zone within Cleveland's midtown tech corridor, CWA is located within blocks of select industry and funding partners, together ideally located to engage manufacturing, municipal and underserved-residential community profiles within and beyond the Zone's boundary.

The work of CWA is designed to enable innovation impact on four key stakeholder profiles critical to both regional and global problems and economies: 1) the natural environment; 2) utility and municipality water and wastewater service operations; 3) residential and commercial interests including in home water quality; and 4) industrial and energy water use and management.

Each of these community profiles are beneficiaries of improved water quality and access as a result of work of CWA. To this end, anchor partners for the work include the City of Cleveland Division of Water and Cleveland-based Northeast Ohio Regional Sewer District (NEORSD) which both serve Cuyahoga County with operating facilities throughout the area, and which both have stewardship of interests within the natural-environment as well as residential, commercial and industrial water-use profiles.

The Cleveland Port Authority and Cleveland Metroparks – steward to the region's "Emerald Necklace" of protected state parks with lakefront, river, stream and groundwater access to the region's watershed – also play critical roles in evaluating innovative technologies.

City of Wadsworth Wastewater Treatment Plant

by Kristi Babcock, Superintendent

The City of Wadsworth is a community approximately 40 miles south of Cleveland. It has a population of 23,426 (2019 Census). It is mainly a residential community with only 2% of the average daily flow being industrial. It is the home of the old Blue Tip Match Factory that is still celebrated today with its traditional Blue Tip Parade and Festival. The City takes pride in the hometown services it provides which include Wastewater, Water, Sanitation, Electric, Cable and Internet.

The Wastewater Treatment plant was originally constructed in 1953 and consisted of Primary Settling, Aeration and Final Settling Tanks along with two digesters. The next major upgrade was in 1976 which increased the size of the plant and added two additional digesters and chlorine disinfection. Beginning in 2006 a major renovation of the plant was started. Construction took two years but concluded with what we have today. The plant consists of fine screens, two Primary Clarifiers, four aeration trains, two Final Clarifiers, three Tertiary Filters and UV Disinfection. Solids handling consists of two Primary Anaerobic Digesters, two Secondary Digesters, Gravity Belt Thickener and a Belt Press. One more smaller upgrade in 2015 included a retrofit of a portion of the aeration tanks to biological nutrient removal and a turbo blower.

The plant's average daily design flow is 5 MGD with a peak daily flow capacity of 10 MGD and peak hourly flow of 15 MGD. It is a Class IV facility with very low ammonia discharge limits. The average daily flow in 2020 was 3.78 MGD. The staff includes the Superintendent, Chief Operator, one Plant Operator 1, four Plant Operator 2, one lab technician and one maintenance mechanic. All of the operators hold Professional Operators license of varying levels. This staff has over 130 years of combined service to the wastewater field.

Preliminary Treatment

110 miles of gravity sewers directs the wastewater flow to the plant via four main trunk lines. Once flow arrives at the plant, it travels through an Andritz mechanical screen with 3/8" punch plate holes. Debris is then compacted and discharged into a hopper where it is later discarded at an approved landfill. Approximately 70 tons of debris and grit is removed annually. Four Chicago pumps

controlled by VFD's pump the wastewater from the raw wet well to a grit removal system.

The Smith & Loveless grit removal system consists of a 16' diameter vortex tank, vacuum pump and conveyor. This grit is also collected in a hopper and properly disposed of in an approved landfill.

Primary Treatment

After grit removal, flows enter the Envirodyne Primary Clarifiers. Each clarifier is 70' in diameter and has a design removal rate of 50% TSS and 35% CBOD. Detention time is approximately 2 hours with one tank in service and 4 hours with two tanks in service during average daily flows.

BNR system at the front end of the aeration tank.

Sludge that settles to the bottom of the tank is drawn off by two Moyno grinder pumps twice every day. It is pumped directly into a primary digester. The grease and debris that floats to the top is removed by a skimmer arm to the scum pits. It is then pumped to the primary digester by Flygt submersible grinder pumps.

Secondary Treatment

After the wastewater takes some time to settle, flows will then enter a splitter box where it is mixed with Return Activated Sludge (RAS) and Sodium Aluminate (as needed). Any flows over 10 MGD are diverted around the Aeration Tanks and into the Final Clarifiers.

The aeration tanks consist of 12 tanks that create four trains (3 tanks in one train). The front ends of the first four aeration tanks were retrofitted in 2015 to install a Biological Nutrient Removal (BNR) system to create an anoxic zone. The Enviromix system was designed to remove 4 mg/l of Phosphorus under an average daily flow of 4 MGD. Although this system works most of the time, sodium aluminate is still needed as a supplement for phosphorus removal.

The extended aeration portion of the tanks consists of Sanitaire fine bubble diffusers. In 2015 a Neuros Turbo blower replaced one of the old turbine blowers. This blower is controlled by DO probes and the SCADA system. The plant maintains a MLSS of 3,000-4,000 in the aeration tanks depending on the season.

After the flows are all mixed up again and received physical, chemical and biological treatment, it will then settle again in the Final Clarifiers. Each Envirodyne clarifier is 84' in diameter with a detention time of 6.5

hours at average daily flows. Sludge that settles to the bottom of the tanks is either returned (RAS) or wasted (WAS). Approximately 35% of the flow is returned to the splitter box for mixing with the Primary effluent and reprocessed in the aeration tanks. Approximately 20,000 gallons/day of sludge is wasted into tanks that will be processed later.

Tertiary Treatment

Wastewater then flows into holding tanks where Flygt pumps pump it into Tertiary Filters. These filters are US Filter/Davco traveling bridge units. The media consists of sand and anthracite.

The design effluent is <5 mg/l TSS, <5 mg/l CBOD and <0.5 mg/l of Ammonia. Our permit limits are well above the design and we make it 99% of the time. Unfortunately, just like every plant, we do have mishaps and high flows that do not allow us to make limit. But we recover quickly and are back in compliance in a very short amount of time.

Disinfection

One final step for the treatment process is disinfection.

Effluent flowing into River Styx.

The plant has a Wedeco UV system that is operational from May 1st through October 31st every year. There are a total of 120 low pressure, high intensity bulbs that get the job done.

After all this, the treated wastewater is discharged to River Styx.

Solids Handling

As discussed before, the sludge that was collected along the way is now processed. Sludge in the Waste Holding Tanks that was removed from the Final Clarifiers is processed through an Ashbrook Gravity Belt Thickener (GBT). The addition of polymer helps with the dewatering

An up-close look at biosolids!

process. The thickened sludge is then put into another holding tank where is it stored until it is pumped to the Primary Anaerobic Digester. The sludge is thickened from 2% to about 7% solids content.

There are four Anaerobic Digesters, two primary and two secondary. Only one primary and one secondary digester are currently in use. The Primary Digester is 60' in diameter and has a capacity of 451,000 gallons and the Secondary Digester is 45' in diameter with a capacity of 255,000 gallons. The primary digester is a mesophilic anaerobic digester. It creates methane gas that is used to run the boiler/heat exchanger to ensure the sludge maintains a steady temperature of 95°-104°.

After processing and stabilizing in the digesters for approximately 15 days, the biosolids (previously known as sludge) are pressed to approximately 18% solids content. Polymer is added to the sludge once again to aid in the dewatering process on an Ashbrook Belt Press. These biosolids are then transferred to a holding barn where they will remain until ready to be applied to farm fields as fertilizer. 400 dry tons of biosolids were applied to EPA approved fields in 2020.

Lab

The City maintains a full time Lab Technician. The lab is responsible for all EPA required testing and analysis which includes CBOD, Total Suspended Solids, Total Phosphorus, Ammonia, and E. Coli. The lab is also responsible for collection and preservation of all samples that must be sent to a contract lab for analysis. This includes metals, priority pollutant sampling and toxicity sampling. Not only does the City test the wastewater at the plant but also industrial and residential sampling for the pretreatment program.

WESSLER is:

THANKFUL for the work we get to do

HUMBLE within our industry

KIND to the people we get to work with

DEVOTED to a family of professionals

EXCELLENT in applying our expertise

Based in Bluffton, Wessler Engineering's Ohio team operates across the Buckeye State. We strive for engineering excellence to make Ohio communities' water infrastructure **safe + managed + future-proof**.

The Wessler team is a collaborative group who specialize in many areas of municipal utility projects. Our teamwork with clients, engineering partners and each other drives our success and makes Wessler a great place to work.

Interested in joining our team? Contact Ryan Brauen
RyanB@wesslerengineering.com | (419) 358-0521
www.wesslerengineering.com

invent environmental technologies

HYPERCLASSIC® MIXER EVO 7

The **INVENT HYPERCLASSIC®** – Mixer is a vertical shaft mixer with a hyperboloid-shaped mixer-body installed close to the bottom and a dry-mounted drive. In contrast to other products, it was developed and optimized especially for applications in the area of water and wastewater treatment. It presents the following outstanding advantages over conventional mixing systems:

- Fluid mechanically optimized
- Excellent suspension and homogenizing characteristics
- Low energy consumption
- Robust construction
- Low maintenance
- Low operational costs

We are your competent partner for all questions on water and wastewater treatment. Find out more at: www.invent-et.com

represented by PELTON ENVIRONMENTAL PRODUCTS

www.peltonenv.com

Lucky Seven Steps to Innovation & The Road to Transformation

by George S. Hawkins, Moonshot Missions

The question is how to drive a transformation of an enterprise – whether it be an agency, division, department, or team. We are not focusing on what is the substance of the change, but the approach to encourage and foster a culture of change.

First – do your homework. Get to know the organization you are seeking to change. What is an organization's history, key accomplishments and challenges, strengths and weaknesses, important people, and milestones? This preparation, which will shine during discussions, will show you respect the organization.

Second – listen first. Unless there is an emergency, DO NOT START WITH YOUR AGENDA! Conduct listening sessions with the staff first if possible, but certainly in parallel with key management. Learn the personal histories, language, and cadence of the organization. Do this regularly ("Inward in August" every year). Identify leaders in the organization, which is often less about their title and more about the respect they have and radiate.

Third – start measuring. To have good stories to tell to encourage the culture, start measuring the existing state of what you are doing – so you can also measure improvements as they come. Publish these measures if possible and use a colorful report-card like approach. It is important to focus on outcome measures that matter to constituents, particularly as informed by the second step. Innovation or change is never for its own sake, but always to achieve important outcomes that are broadly supported.

Fourth – start inside. If possible, start a change

The People Place

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

agenda with quick internal wins focusing on issues that staff raised during the listening sessions. Staff needs to see that change starts with steps that improve their working conditions, and even better, if the change reflects ideas that have come from them. This is change with and for the team and its work, not being done to them. I started with small steps and a round of safety improvements.

Five – start the system. With the first three steps as a foundation, start building an innovation scheme based on outcomes. Integrate language and customs from the past with some new themes and ideas. If possible, start highlighting members of the team as your innovation chiefs. I hired one of the first full-time innovation chiefs in water. He was to encourage; identify and select which ideas we were going to embrace.

Six – celebrate people, not technology. At every step and as often as possible, shine a light on key personnel adopting change. Everyone is valued, everyone has a role. Examples: greeting each new employee and asking them to be ready to suggest change as soon as they are engaged with the jobs. Example: Video at DC Water on innovation was of an older employee who invented a new sewer pick (lifts manhole covers). Change is not just about software or digital services and the like – change relates to everything we do, everywhere, and all the time. Every activity of the organization is worth changing for the better, driven by ideas from people who know those activities the best.

Seven – market your case, building on measures that are important to your staff and constituents, tell the story based on outcomes and start building stakeholder support. Perhaps select a branding approach, and then start the cycle again. My suggestion – do not rebrand until after this process is in motion and there are good stories to tell. Rebranding absent change will seem hollow at best. Rebranding that is reflecting change that is happening can become a rallying cry. Example: DC WASA to DC Water and our new tag line: "Water is Life." At every Board meeting, we highlighted an employee or team who had driven change in the organization, how we measured the improvement, and why it mattered. This culture caught on quickly and became a highlight each month, which was featured in the monthly newsletter and electronic video boards at each entrance. Always highlighting people, always spotlighting how our customers benefited, always encouraging more!

Keep going, start again, engage in all seven steps in parallel by constantly refreshing your homework on your enterprise, regularly meeting with your teams, listening for the needs and ideas of the staff, measuring your outcomes, highlighting new ideas and staff success, and presenting your success to the people you serve. In this manner not only will you transform the enterprise, but you will also transform how everyone – employees, potential employees, board members, stakeholders, advocates, media, academics — sees and appreciates the enterprise and its people.

One you have a culture of change, and a wellspring of support, then extraordinary achievements become possible.

SHOOK CONSTRUCTION

A REGIONAL LEADER IN WATER RESOURCES CONSTRUCTION & ALTERNATIVE DELIVERY

DRAMATICALLY IMPROVING THE COMMUNITIES WE SERVE

CLEVELAND | COLUMBUS | DAYTON | INDIANAPOLIS | RALEIGH | RICHMOND

LEARN MORE ABOUT HOW WE COLLABORATE AT
SHOOKCONSTRUCTION.COM

Screen design and fabrication is an art.

From the engineering of our equipment
and their electrical components,
to their manufacturing and testing,

dozens of hands work to craft the
most durable and reliable screening
and headworks equipment

under one roof in Missouri Valley, Iowa.

Vulcan
THE PROVEN SCREEN CHOICE

vulcanindustries.com

Represented locally by

Sullivan
Environmental Technologies

Wendell Smitley, PE
614.395.7379
wendell@sullivanenvtec.com

Jameson King
502.718.6404
jameson@sullivanenvtec.com

WEF Utility Partnership Program

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

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

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

Ohio UPP Members

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

Office Offerings

It's Kinda Like Christmas Morning…

It's a bit odd to be talking about Christmas in May, I admit. This article isn't really about Christmas though, it's about COVID-19, like almost everything else I have written about for the past year. So, what do the two have in common? EVERYTHING!

Remember Christmas morning when you were young? The anticipation, the excitement, the slight fear that you might not get THE ONE THING YOU HAD TO HAVE? For me, that's how I was about the COVID-19 vaccine. I was excited, nervous and couldn't sleep the night before.

For more than a year now, COVID-19 has turned our personal and professional lives upside down. We haven't been able to hug or shake hands. We have limited outings. We have changed almost everything we were used to. COVID-19 changed US.

Now as the vaccine role out continues, we are starting to see some light at the end of the tunnel. Yes, we still have to be careful and wear masks as appropriate, but we can gather with other vaccinated people again. Vaccinated grandparents can hug their grandkids again, without fear. We are on the road back. The more people that choose to be vaccinated, the faster we will get down that road. So many things have been out of our control this past year and this is the one thing that you can completely control. You can choose to take your life back!

I know the vaccine issue can be a touchy subject. I understand that change is scary. We were asked to change so much the past year, and now again. It's hard. Let's take a look at the FACTS about the COVID-19 vaccines.

Some important things to know about the COVID-19 vaccines:

- **COVID-19 vaccines are safe and effective.**
- **COVID-19 vaccine development and clinical trials were thorough, and thanks to a strategic scientific effort to streamline processes, could be developed more efficiently.**
- **COVID-19 vaccines will not alter your DNA.**
- **COVID-19 vaccines will not give you COVID-19.**
- **The severity of COVID-19 symptoms varies widely, and getting vaccinated can help prevent infection with COVID-19.**
- **Vaccine injections do not contain tracking microchips.**
- **Side effects from the vaccines are minor and a sign that the body is building immunity.**

So did Santa bring exactly what I wanted? YES. The gifts I received were gratitude, amazement and relief. SCIENCE IS SO COOL LIKE THAT! I am proud to say I chose to be vaccinated as soon as it was my turn and the minimal side effects

were completely offset by being able to have dinner with my parents again, in the same room, unmasked and not worrying that my actions could land them in the hospital.

I will continue to follow CDC guidelines and wear my mask. I know we aren't out of the woods yet. If you haven't already been vaccinated, please consider doing so. If you won't do it for yourself, do it for those around you, that due to various health reasons, can't be vaccinated. It's our fastest way to regain what we have lost. It's fast, easy and SO WORTH IT!

DAWN LARSEN, CAE,
EXECUTIVE ADMINISTRATOR

Advice When Traveling: Leave Valuables at Home

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

Over the last year, travel in the United States has slowed considerably, but it is starting to resume. Airports are busier and rush hours more congested. No one knows if future travel will be the same as pre-covid, but most likely there will be some changes.

For those of us that prefer to look ahead, the year 2020 gave us no choice but to look in the past where our lives were not impacted every minute before the pandemic. But in looking back, I have had to smile at good memories I formed.

Recently, I was in an office where the occupant is a fan of Disney World. She featured a family photo with Mickey Mouse, the iconic creation of Walt Disney (1901-1966). From this, I was reminded of my trip to Japan in August 2002 with Ted Baker, and impromptu evening jaunt to Disneyland, to see and learn about the Kubota Flat Plate Membrane Bioreactor (MBR). I traveled with Ted and a small contingent of wastewater professionals to review this equipment before it was common in the United States.

On August 29, 2002, Ted wanted to see Disneyland at Tokyo. We spent all day looking at MBR installations during a hot sweltering period. It was after 7 PM when Ted decided that he wanted to go to Disneyland at Tokyo to say he had been there. We spent an hour on the train to be dropped off near the entrance.

We did not go into the park per se, but spent time in the gift shop. I recall the hour or so we were in the gift shop. The music was Benny Goodman music from the 1930s. I recall purchasing a cross pen with Mickey Mouse on it. It became a cherished possession I took with me frequently as a good luck charm. It always reminded me of my travels to a far off land.

Years later at WEFTEC, I lost the pen somewhere. I remember thinking to myself: why did I bring this cherished pen with me. After all, WEFTEC is constant movement across miles and many acres. It is impossible to retrace ones steps from the day.

I mourned the loss of my pen. This experience served as a lesson for me to not travel with things I cannot afford to lose. Now, I carry disposable pens, which are cheap and write poorly. When we travel, we have much to remember: cell phone, wallet, purse, glasses, money, keys, luggage, and tickets, it is easy to misplace something. Worse yet, as we move through airplane and train terminals and get into and out of taxi and shuttles, it is easy to leave something behind or have something slip out of your pocket. It is hard enough to remember essentials, let alone a pen.

I do not know when I will travel again. It may be awhile. I used to travel by airplane two or three times per year, and last year I did not travel at all. I miss movement and travel. Now with things on a gentle slope to normalcy, I expect things will resume their usual pattern in the third quarter of 2021 or the start of 2022. I would like to think things will get back to near normal sooner, but with a fourth wave of the virus, I doubt they will.

Elegant and Simple Pens

I expect to take the vaccine in the next couple of months when it is more readily available.

Kocarek Korner

Presently, my time is very limited, and I can wear the mask a while longer. For those of you who did receive the vaccine, I applaud your tenacity to deal with the process. Despite misgivings of some on the safety of the vaccine, the medical community believes vaccination is the only certain way to stay ahead of the possible virus mutations and resume our normal lives. I view this as part of the public health field of which we are members.

I was pleased to give the opening remarks for the OWEA Government and Regulatory Affairs Workshop, one of our true hallmark events, and happy to see an in person event. While attendance was light, I view this workshop as the first crocus of spring- a beautiful and welcome sight and promise of better things to come.

Stay well! My best to you in the months ahead.

YSI
a xylem brand

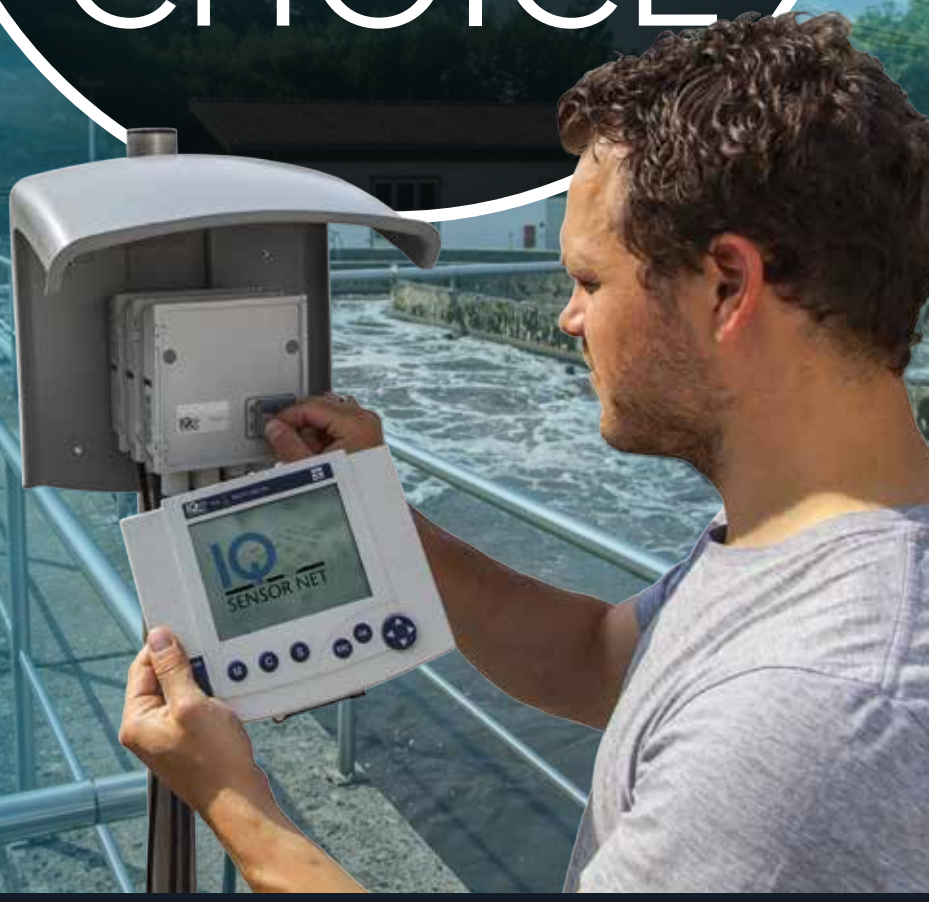
YOU ALWAYS HAVE A CHOICE

▲ YSI 2020 3G Controller

You have a choice in process monitoring.

YSI has been developing and manufacturing water quality monitoring instrumentation in the U.S. for over 70 years.

It's time to partner with YSI.



YSI.com/IQSN

FULL SENSOR OFFERING
Flexible options with two, four, or twenty sensor networks.

ULTRACLEAN™
Built-in ultrasonic cleaning reduces sensor maintenance.

RELIABLE ISE SENSORS
Long-lasting ISE design provides actionable data.

YSI, a Xylem brand
1725 Brannum Lane
Yellow Springs, OH 45387

+1.937.767.7241
info@ysi.com
YSI.com

xylem
Let's Solve Water

NESOWEA

Michael Cook, President

It's been a wonderful spring season in 2021 and we are looking forward to better times ahead as the year moves on. This industry continues to move forward and we are entering another busy design, operations, and construction season. Our NESOWEA Executive Committee continues to meet virtually every two weeks in continuing our business operations and event planning.

The 2021 Student Design Competition was held in April and will have been completed by the time this column is published. We've been encouraged by the additional interest and energy in this event by the local Northeast Ohio participating universities and student teams. The student design teams presented their studies and conclusions virtually and were judged by a local team of professionals, some from our local NESOWEA Section and OWEA. Look for one or more of these student teams at the One Water Conference in July.

I am pleased to announce that the Northeast Section is holding an in-person May Business Meeting (with our typical technical sessions) on May 27th. This event will be a half-day format at the Holiday Inn Conference Center in Independence. We look forward to seeing those that are able to attend.

Once again, our annual charity Biomass-ters Golf Outing will be held on July 16th at Grantwood Golf Course in Solon.

I'd like to say thank you to the following: our OWEA Administrative Staff, our OWEA Executive Committee, our Northeast Section Executive Committee, and committee chairs for their leadership and perseverance in working through these difficult times this past year. Thank you to everyone, as members of this organization, for being patient with us as we start to reintroduce in-person events. I've enjoyed my time serving you during this term, and most especially the friends that I have made along the way. Our organization continues to be the best in the business. If you are interested in becoming more actively involved in our section, please reach out to me for details. See you soon.

Michael J. Cook
NESOWEA President
michael.cook@ads-pipe.com

NWOWEA

Todd Saums, President

Greetings from the Northwest Section! I cannot believe this is my last section President's message. It was not quite the typical term I had anticipated, but none the less a grateful learning experience. I have had the opportunity to work with such a great group of professionals, I could not have done it without them. I leave you all in good hands with our incoming President, Tony Hintze of Fremont. He will do an amazing job.

Spring is upon us, and I am sure you are all getting excited for warmer weather. We have been rather active in the Northwest section attempting to get back to some normalcy, whatever that may mean. In February, the executive committee met in person. Our in person meetings have been gaining attendance and we also add a Zoom invite. Please feel free to contact an EC member or myself if you would like to become involved. I want to thank Mark Lehnert from Defiance for stepping up and volunteering to chair the Safety Committee. This chair has been vacant for some time and it is such an important aspect of our work. Thanks Mark!

The section met in Carey on March 24 for an in person section meeting. We had a great turn out with fantastic presentations. I want to thank everyone involved that helped put it together. We are also planning a section meeting for the end of May/first of June. Be on the lookout for more information. Weather permitting this will include our golf outing and section awards presentations. I want to remind everyone that registration is open for One Water Technical Conference, please be sure to check it out.

As of now, the traditional Ohio EPA paper and pencil exams are yet to be offered, however the ABC exams are being administered regionally so please continue supporting those exams. Stayed tuned for the 2021 Family and Friends day. Group events are still very fluid but I am optimistic by summer and fall we will be able to get together for such an event.

I want to thank you all again for having me as your 2020-2021 NW Section President. It has been a true honor. Whether you are entry level staff or senior leadership, I encourage you to get involved with OWEA. I have met such an amazing group of people through the organization. That professional network is invaluable. I cannot speak highly enough of those folks! As always, we are looking for presenters and host facilities for the remainder of 2021. If you would like to present or host a section meeting please contact myself or an executive committee member.

Todd Saums
tsaums@nwwsd.org

SEOWEA

Melodi Clark, President

Hello from the Southeast Section. Welcome spring and warmer weather! As I write the message I can't believe that this is my final president's message as your SE President. I didn't want to believe when everyone said that your time as President will fly by but it did!

Webinars- Achieve Nutrient Removal and Reduce Operating Costs with Advanced Aeration Control

I want to thank Rob Smith & Eric Redmond from Black & Veatch and Josh Holton from Southwest Licking Community Water & Sewer District on presenting at our Webinar on March 23rd. We are currently still planning on holding more webinars throughout this year so if you would like to present please reach out and we can get you on our schedule.

Spring Event- Plant Ops Section Meeting Plant tours

We are holding our first in person event in June! We are super excited about this and can't wait to see everyone. This event will be 3 to 4 plant tours of New Concord, Cambridge & Byesville WWTPs, and no presentations. This will offer 3 to 4 operator maintenance contact hours. We will have lunch at this event but it will be outside and at a park. Our plan is to also make this our awards meeting to give out our 2021 section awards. Below is the list of awards we are hoping to get nominations for 2021.

- J.W. Elms
- F. H. Waring
- W.D. Sheets
- PWO
- Lifetime Engineering
- Tom Hagerty
- Engineering Excellence
- Public Service Award
- Laboratory Analyst
- Collections
- Facility Image
- Young Professional Award
- SE Member of the Year Award

Social Event- Bogey Inn Happy Hour

We are planning a Happy Hour event at the Bogey Inn located in Dublin, Ohio. The date will be sometime in early June. It will be held in their outdoor facility. We will adhere to all safety guidelines to ensure everyone is safe and comfortable. We can't wait to get together with everyone and see each other again. This will be a great way to kick off the summer and get us ready for the One Water Conference at the end of July.

In closing I want to thank our Executive Committee for their support this past year. It has been a crazy year to be President but your help has made it a lot easier to handle. I want to thank our section. It has been a wonderful experience to be your President. I am sad that we did not have in person meetings so I could see you all and chat and catch up but I am very proud with how our section handled this past year and the great webinars and contact hours we provided. I also want to thank the Executive Committee for having faith in me and having me represent our section as the SE delegate to our state OWEA. I want to welcome Tiffany Magg as your incoming president for 2021-2022 and wish her all the best. Our section is in great hands! I am very proud of our executive committee on how they handled this past year with all of the great ideas they had and how they executed them this past year. For that I am grateful. They made me a better president and our section is in excellent hands moving forward with the people we have representing us.

Thank you and I hope to see you all soon and hope everyone stays safe and healthy.

Melodi Clark
SEOWEA President
mlclark@columbus.gov
614-645-1239

THE BRAINS BEHIND THE OPERATION.

GORMAN-RUPP PUMPS
The Pump People®

Integrinex® Advanced controls with FloSmart® technology are smart enough to detect a pump obstruction...and clear it.

Gorman-Rupp's Integrinex® Advanced controls with new FloSmart® technology are the brains behind the management of your ReliaSource® lift station. FloSmart technology, featuring integrated architecture, is capable of recognizing when a pump is clogging and initiating a cleaning cycle without interfering with the operation of your pump station. For more information, call us at 419.755.1011 or visit GRpumps.com.

DISTRIBUTED BY:

For Northern & Central Ohio Contact:

The Craun Liebing Company
24551 DETROIT RD. | WESTLAKE, OH 44145
216.228.7900 | WWW.CRAUNLIEBING.COM

For Southern Ohio Contact:

PELTON ENVIRONMENTAL PRODUCTS
8638 COTTER ST. | LEWIS CENTER, OH 43035
440.838.1221 | WWW.PELTONENV.COM

INTEGRINEX® ADVANCED
WITH FloSmart® TECHNOLOGY

OHIO WATER ENVIRONMENT ASSOCIATION

STUDENT MEMBERSHIP

HURRY, DON'T MISS OUT!

50 ANNUAL MEMBERSHIPS AVAILABLE

INTERFACE WITH WATER QUALITY PROFESSIONALS ACROSS THE STATE!

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

CONTACT

OHIO WATER ENVIRONMENT ASSOCIATION

614.488.5800 | info@ohiowea.org | www.ohiowea.org

2021 Student Design Competition

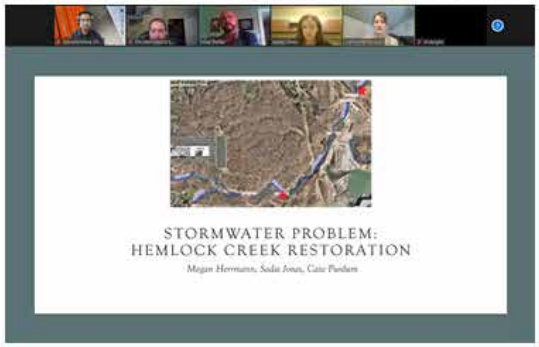
by Krishna Chelupati

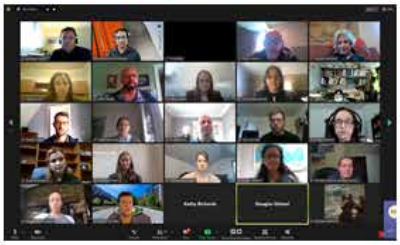
Congratulations to Abby Slates, Andi Chakraborty and Sofie Iwamasa from Case School of Engineering at Case Western Reserve University for winning the Ohio Water Environment Association 2021 Student Design Competition. Audrey Atzel, Emily Brown and Michael Marefka from Levin College of Urban Affairs at Cleveland State University received an honorable mention. A list of students who participated in the 2021 Student Design Competition is shown below.

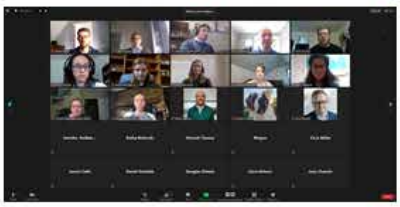
This year's competition was held virtually on Friday, April 23rd, where five teams presented their innovative ideas to a panel of judges from OWEA. Thanks to Mike Welke, Mike Cook, George Remias and Christen Wood for volunteering their time as judges for the competition. In addition, we would like to thank Douglas Dietzel from City of Lorain, Derek Vogel and Nicholas Merchant-Wells from NEORSD for providing problem statements and guidance to the students for the competition. Many thanks to Bill Zawiski, David Gleason, Jim Shamrock, Joe Leson and Tom Zocolo for providing guidance to the teams.

The winning team and the honorable mention teams will receive an all-expense paid trip from NESOWEA to attend the 2021 One Water Conference in Cincinnati. The winning team will represent Ohio at the WEF Student Design Competition at WEFTEC in Chicago. Thanks to OWEA for sponsoring the student's travel and stay. If you're attending WEFTEC this year, please show your support for the Ohio team by attending their presentation.

We would like to thank Dr. Jennifer Kadlowec from Baldwin Wallace University, Dr. Sanda Kaufman from Cleveland State University, Dr. Kurt Rhoads from Case







Western Reserve University and Dr. Christopher Miller from University of Akron for promoting the Student Design Competition at their Universities. Competitions such as the Student Design Competition offers students opportunities to work on real world projects and apply the skills learned through the coursework, improve presentation and public speaking skills, experience working in a team environment, network with industry professionals and peers from other universities.

Thank you, Meredith Cariglio from Stantec, Paul Solanics from City of Solon, Dawn Larsen from OWEA and NESOWEA Executive Committee for your ongoing commitment and support for the competition!

The student design competition committee is looking for wastewater and stormwater problem statements for the 2022 competition. In addition, we are looking for volunteers for mentors and/or advisor roles. If you're interested, contact Krishna Chelupati at *Muralikrishna.Chelupati@stantec.com*.

Special thanks to 2021 Student Design Sponsor!

buckeye pumps inc.

Student	School
Clare Helmer	Baldwin Wallace University
Hannah Timony	Baldwin Wallace University
Joseph Chamot	Baldwin Wallace University
Abby Slates	Case Western Reserve University
Andi Chakraborty	Case Western Reserve University
Sofie Iwamasa	Case Western Reserve University
Audrey Atzel	Cleveland State University
Catherine Purdum	Cleveland State University
Emily Brown	Cleveland State University
Megan Herrmann	Cleveland State University
Michael Marefka	Cleveland State University
Sadie Jones	Cleveland State University
Anna Soehnlen	University of Akron
Daniel Schullek	University of Akron
McCallah Ferry	University of Akron
Noor Fahoum	University of Akron

Exciting Plans and Important Topics for Newly Formed Utility Management Committee

by Doug Baldessari, Chair Utility Management Committee

Baker Tilly Municipal Advisors, LLC

I am excited to chair the newly formed Utility Management Committee for OWEA. There are many important topics facing utility management today including aging infrastructure, unfunded mandates, ever increasing utility rates and workforce development, to name few. This committee will provide training seminars and forums for knowledge sharing related to effective and successful utility management focusing on areas such as utility infrastructure finance for project funding, utility rates and charges, capital planning, succession planning and other topics. Collaboration with other associations will be important such as those focused on innovation and the resulting benefits for utilities. I look forward to working with other dedicated OWEA volunteers on these very important topics. Do not miss the OWEA Utility Management Committee related presentation on July 27th at the One Water Conference, where we will be speaking with the Ohio Water Development Authority to discuss current trends in utility financing for capital improvement projects.

In recent years I was the chair of the Utility Management Committee for the Indiana Water Environment Association (IWEA) prior to becoming president of the board last year. My experience includes assisting utilities with municipal advisory services and rates in the Midwest. Combining these experiences where I worked collaboratively with other associations to bring informational seminars and a Utility Management track of presentations to the annual conference should help pay dividends for this committee.

I look forward to a great year working with management and the members of the newly formed Utility Management Committee. Please reach out to me at doug.baldessari@bakertilly.com or OWEA staff if you are interested in joining this committee. The more committee members and ideas we have, the more benefit we can provide for our members and the utilities where they work.

Laboratory Analysis Update

by Melodi Clark and Tony Hintze

Greetings from your state lab co-chairs Tony and Melodi. Spring has finally sprung! We have started a new format for the Buckeye Bulletin doing lab profiles. If you would like to have your lab profile put in the Buckeye Bulletin please reach out to Tony or myself to get it published. One Water is around the corner and we hope to see you there. We are hoping to have a lab track for contact hours. If you are planning on attending the conference and would like to help please reach out to our OWEA main office. The remainder of this year we will be trying to host webinars instead of doing in person meetings. If you have a presentation you would like to give or have attended a presentation that you think would make a great webinar please let me know. Please don't forget about nominating your lab personnel for the lab awards and the crystal crucible for this past year. We hope to see you all soon.

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.

Laboratory Analysts Committee

Co-State Chair & SE Chair
Melodi Clark
MLClark@columbus.gov

Co-State Chair & NW Co-Chair
Anthony Hintze
tjhintze@gmail.com

SW Co-Chair
Jim Davis
DavisJi@mcohio.org

SW Co-Chair
Lori Kyle
lkyle@co.greene.oh.us

NW Co-Chair
Terri Brenner
tbrenner@ci.perrysburg.oh.us

NE Co-Chair
Nicole Erkkila
nerkkila@lakecountyohio.gov

NE Co-Chair
Tom Zocolo
tzocolo@akronohio.gov

AquaStorm™
CLOTH MEDIA FILTRATION SYSTEM

AN EFFECTIVE SOLUTION FOR HIGH-RATE CSO TREATMENT

The **AquaStorm**™ 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.

AquaStorm is ideal for CSO, SSO and stormwater applications due to its proven removal efficiencies and high quality effluent, even under varying influent conditions.

- Low level TSS and BOD effluent
- Dual use flexibility for tertiary and wet weather applications
- Simple start-up/shut-down with unattended operation for remote locations
- Automatic procedure for cleaning and draining unit for offline storage

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

www.aqua-aerobic.com | 815-654-2501

Proudly Represented By:

HYDRODYNAMICS

Michael Voshefski (Northern Ohio)
p 513.678.9395 I michael@hydrodynamicscompany.com
www.hydrodynamicscompany.com

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

Marc Nusser (Southern Ohio)
p 513.800.9009 I marc@jdtco.com
www.jdtco.com

Ad Index

Ann Arbor Michigan WWTP

Sandusky, Ohio WWTP

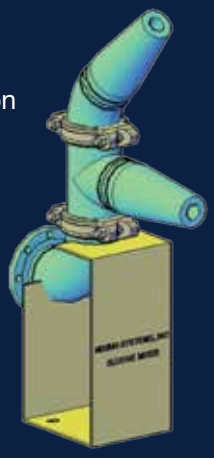
It's a lot to digest.

Let us help you break it down.

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

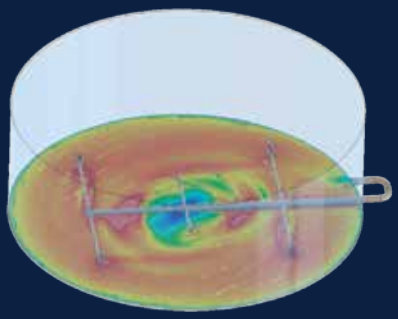
KEY BENEFITS:

- Prevents Sludge Buildup
- Even and Complete Blend
- Solid Suspension and foam suppression
- Energy efficient operation
- Abrasion resistant nozzles
- No mechanical or rotating equipment inside the digesters
- Minimal operation and maintenance
- Can be used with various pump configuration
- Very Effective in Large and Deep Storage Tanks
- Ideal when liquid level fluctuates
- Minimizes temperature stratification



APPLICATIONS:

- Anaerobic Digesters
- Sludge storage/holding Tanks
- Equalization tanks
- Anoxic Zones
- Water Storage Tanks
- ATAD digester tanks
- CSO Retention Basins
- Crude Oil Storage Tanks
- Biogas Tanks



In-house CFD Modeling & Simulation

MIXING SYSTEMS, INC.

7058 Corporate Way, Dayton, OH 45459, USA

Phone: 937-435-7227 • Email: mixing@mixing.com

www.mixing.com

1890 Northwest Blvd, Suite 210
Columbus, OH 43212

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

WATER'S WORTH IT