

Buckeye Bulletin



City of London

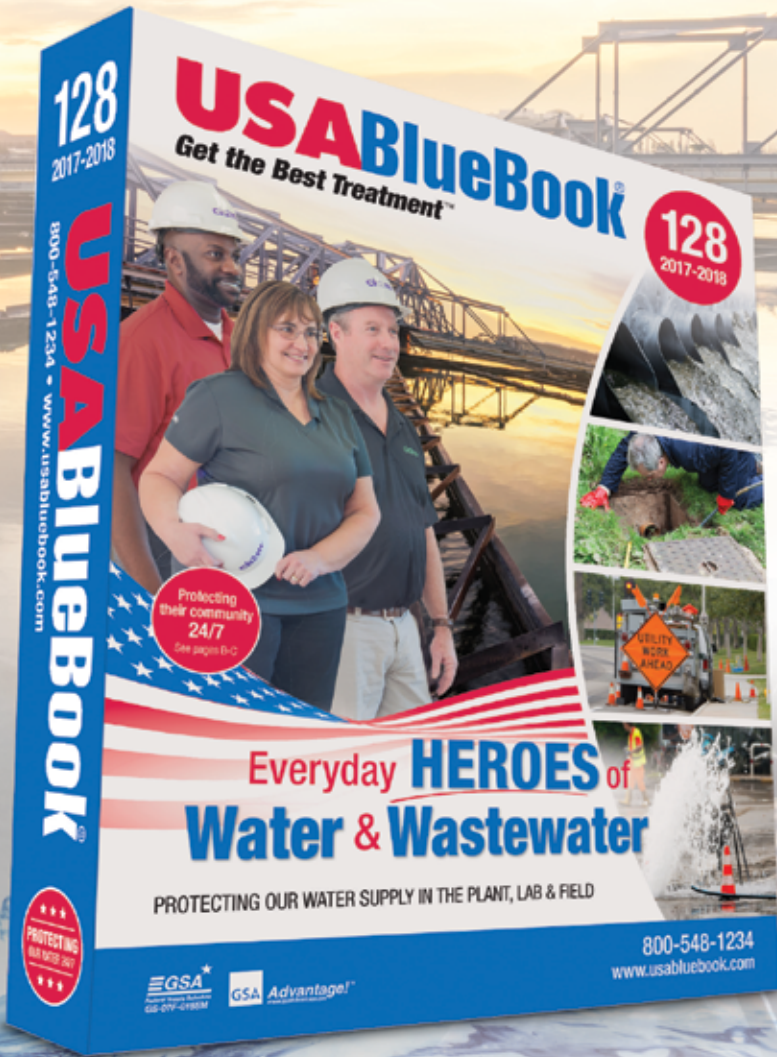
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The ideas, opinions, concepts, and procedures expressed in this publication are those of the individual authors and not necessarily those of the Ohio Water Environment Association, its officers, general membership, or staff.

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Get Involved - Join a Committee Today

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

OWEA NEWS

OWEA is currently seeking a new Executive Administrator. Please see ohiowea.org for more information. Applications will be accepted until December 1, 2017.

OWEA Calendar

November

28 OWEA Ethics & Rules Mini Workshop

December

7 OWEA Biosolids Workshop

13 OWEA Executive Committee Meeting

Welcome New Members

July 2017-September 2017

Darla Hilbert
Cathy Bernardino-Bailey
Michael Erkkila
Julianne Amenta
Paul Fannin
John Rubadue
Darryl Gibson
Daniel Berner
Guy Riefler
Michael McCloud
Jeff Keener
Robert Smith
Antony Seppi
Ella Guyo
Georgia Fuerst
Michael Melnyk
Joseph Abel
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Ashton Cofer
Conner Mullins
Jeff Proctor
Julie Bray
Katelyn Niehaus
Victoria Jacobs
William Gulker
Rahul Bawa
Eric Rees
Robert O'Connor
Kevin Rollins
Nathan Cromer
Amy West
Dustin Doherty
LaRhonda McCoy
Thomas Jasinski
David Suplicki
James MacAdam
Jacob Mix

Brandon Fink
Jyothi Pisipati
Calcino Rozario
Michael Stewart
Alexander Wheat
Cissy Van Dam
Tom Mirante
Tyler Brennan
Christopher Nicak
Adam Blandford
Jim Toto
Mike Starkey
Randall Holman
Rita McNeil Danish
Atie Amirgol
Jim Altonen
Josh Riddlebarger
Brandon Valley

**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.**

Visit <http://www.ohiowea.org/memberships.php> for OWEA membership information

I'm sure this Buckeye Bulletin finds everyone gearing up for the busy holiday season. This is also the time where many of you are planning / finalizing your budgets and rushing to get all of those remaining action items done before the end of the year. As you reflect on the year, I'm sure it's also that constant reminder of how quickly time passes...This is now my second Buckeye Bulletin and I'm also realizing that my time as president is quickly ticking away.

We started out the year focusing on **SERVICE**. My focus then was (and still is now) to make our administrative functions / service to you and the sections of OWEA a shadow function... one that is not thought about... one that's automatic, constant, and unfailingly reliable, almost robotic... (any engineer loves those words – ha!), but also personal.

As most of you know, we've had a few setbacks on this front over the last few months. Please accept my sincerest thanks for your patience and your confidence in OWEA as we worked through the contact hour issues. As of this Buckeye Bulletin, all of the operators who have attended courses provided by OWEA and the sections should have access to all of their hours on e-biz for license renewal. We do know there are some small issues that have been addressed by staff, so please don't hesitate to continue to contact us if you have any remaining issues.

Parallel with addressing contact hours, the EC has been reviewing our financial records and revising our reporting



Jamie Gellner
OWEA President

to allow for enhanced review / monitoring as we move forward. We are also modifying our policies and procedures for quicker closeout of workshops, quicker invoicing for workshops, and quicker payments of our outstanding invoices. OWEA continues to be financially healthy and we'll maintain that healthy financial status over the next year and beyond.

We're also searching for a new Executive Administrator. We have advertised for this position on several job boards and have received numerous resumes. We'll

be working through the interviewing and hiring process in the next month or so, with the hope of bringing that person on board by early next year. We'll keep you posted on that effort.

A special thanks to Megan Borrer and Chelsea Cameron. Over these past few months, Chelsea and Megan have consistently focused on continuing our operations. I'm sure anyone who has called the office or interacted with them know how dedicated they are to OWEA and how well they perform. Thanks Megan and Chelsea!

I'm sure many of you have noticed our new logo (see right). The new logo was selected last year through a logo contest / voting by membership under Ted Baker's presidency and announced at the Annual Conference. The original idea for this logo was developed by Jim Cooper (thanks Jim!). We've made a few refinements in color and font, but I think Jim's original idea was largely preserved through those refinements.

Many might be wondering about symbolism of the colors, layout, etc... I recall a time before my wife and I were married when we went to the Detroit Institute of Art. I specifically remember a painting that was literally an orange block with a black strip on the top and bottom. I recall seeing this painting and then seeing a description alongside the painting that was several paragraphs long. That was over 20 years ago and I still remember thinking, "How can they find that much meaning in this?" What's my point in all this? Our new logo is simply a clean, updated, and very professional representation

Jamie is a Vice President with Hazen and Sawyer, based in Cincinnati (and Cleveland). Jamie is a registered PE in Ohio and specializes in wastewater treatment plant planning and design. He has a Bachelors degree in Civil Engineering from West Virginia University and a Masters degree in Environmental Engineering from Michigan State University. He and wife Lili have five children, ranging in age from 5 to 14. In his "free" time, he enjoys family camping trips and fitness.

2017 - 2018

Executive Committee Meeting Dates

December 13, 2017
February 14, 2018
April 11, 2018

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of our membership (largely from Ohio), our Sections, and our strong ties to WEF. I hope that all of you will be proud to wear it and proud to see it at our workshops and conferences.

A note about the painting I mentioned above... I looked it up as part of this writing – it was painted in 1963 by Mark Rothko and is titled 'Orange Brown,.'. It's estimated to be worth \$70 million (huh?). Jim, our cash prize of \$250 was obviously not enough!

As always, don't hesitate to contact me if you have any thoughts / questions / comments at: jgellner@hazenandsawyer.com.



Jim Cooper, Arcadis, of the Northeast Section was the Logo Design winner.

OWEA is pleased to announce our new logo!
This logo was officially released on November 1st, 2017



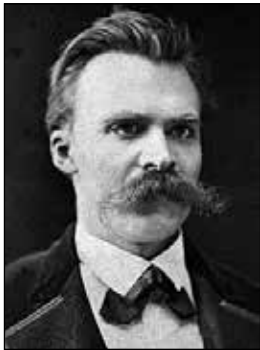
That Which Does Not Kill Us Makes Us Stronger

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

Background

This is a story about crisis, problem solving, teamwork and – in the end – becoming more resilient as individuals and as an organization.

In using this title – That Which Does Not Kill Us Makes Us Stronger – I am borrowing material from the writings of Friedrich Nietzsche (1844-1900). He was a German philosopher, poet and author of the 19th Century. Much of his work in philosophy shaped the thinking of modern Europe prior to the First World War and beyond.



Frederick Nietzsche

In American culture, this saying is used a lot. While I believe this statement borders on hyperbole, it implies one's abilities to persevere, adapt, and be resilient. For this reason, the saying has good meaning. In this time of severe hurricanes and mass shootings, we need these characteristics (and more) in our daily lives.

A Story of Teamwork

Another iconic quote that has become famous in America is associated with Apollo 13 and what was termed as a “successful failure” of the mission is “Houston, we have a problem.” For those that do not remember, Apollo 13 was to be the second official landed mission to the Moon in April 1970. Early in the mission, a problem occurred, which aborted the mission of landing on the Moon. From that moment, the sole objective of Mission Control in Houston was to bring the three astronauts back from outer space.

This story is popularized by the movie produced by and starred Tom Hanks called *Apollo 13*. Hanks starred as the mission commander Jim Lovell (1928-). The movie story began when the team was preparing for the fateful



Movie "Apollo 13" Flight Director Gene Krantz Discussing Corrective Action Plan.

mission to the Moon and ended when they landed safely in the Pacific Ocean. The operation was viewed as a miracle.

For those of us that work as engineers, Apollo 13 is a story of engineering, which includes an integrated team of highly trained professionals dealing with a failure, and problem solving under pressure. The movie showed the team as human beings under fatigue and occasionally a bit short tempered. What I like about the story is that the engineering team members are the heroes. The movie does a superb job in capturing the teamwork of many talented professions, much like our own organization. The catch phrase coined by Flight Director Gene Krantz (1933 -) was “Failure is not an option.” This mission statement was adopted by every member of the team.

Our Problem

On Thursday September 17, 2017, the OWEA Board learned that we had a problem to address and remediate as quickly as possible. While this problem did not involve life or death like Apollo 13, it was serious and had the potential to impact many in our organization. The Ohio EPA notified us that we were in violation of their reporting requirements for Contact Hours for operator training. We learned that a number of courses in 2016 and 2017 were not properly logged into the Ohio EPA system. In addition, lists of attendees were not uploaded for the classes. We had what appeared to be phantom courses and no attendees. Of course, this was not true, as we are diligent about maintaining a good paper record of the courses.

Our Response

President Gellner and the rest of the board took quick decisive action the next day. We set into motion the beginnings of a Corrective Action Plan to address this problem and prevent it from happening again. During the ensuing weeks, I was pleased to see the actions taken by the members of our Board to assess and quantify the situation, work with Ohio EPA and begin to repair the damage caused. While our crisis is not yet over, I believe that the outcome, thanks to the help of the Ohio EPA, will be favorable for our members.

Resiliency

One of the themes of WEFTEC is “resiliency,” which means how we overcome failure to minimize loss of service during and immediately after the emergency and to learn lessons to make us stronger in the future. Climate change has risen water levels in our oceans and swells from normal tides, in some places overtop protective walls, which would have had previously been sufficient.



*Flooded WWTP In Houston Texas Due to Hurricane Harvey
Source: Texas A&M Transportation Authority*

As our nation endured hurricane induced floods due to Harvey, Irma and Maria, we have had to learn how to respond to emergencies now and apply lessons learned to the future. The figure above of a flooded WWTP due to Hurricane Harvey is self-explanatory. While the plant is out of service, one can observe that the concrete walls in this photo have not been overtopped.

In the spirit of resiliency, there are several lessons to be learned here. Several include better monitoring and oversight by our board of office staff. Others include better Policies and Procedures on critical functions.

We must always be alert and not complacent. Our organization is not unique in facing challenges of this type.

Reader Feedback

In my previous article, I posed several questions about the OWEA Annual Conference in Cincinnati. From the perspective of an attendee, I think that our conference was fun, educational and created a spirit of unity.



Networking at the 2017 OWEA Annual Conference in Cincinnati prior to the Annual Banquet.

What do we do well?

- ◆ Meet & Greet (what could top the Winery trip in Aurora?)
- ◆ Awards Breakfast
- ◆ Operator's Challenge
- ◆ Technical Sessions
- ◆ Annual Business Meeting
- ◆ 5S Induction Ceremony before Banquet
- ◆ The 5S Breakfast
- ◆ The Exhibit Areas and free lunch and any other free get togethers or hours in the area
- ◆ The OEPA sessions on the last morning.
- ◆ Hospitality rooms after Executive Committee Meeting

What do our members enjoy?

- ◆ Seeing long-time friends from other sections
- ◆ A good party with free food and drinks
- ◆ A good laugh at the 5S

Other Comments on the Conference:

- ◆ While many appear to skip the banquet, it should be kept with the complete ticket. A better plan is to understand the number that will attend.
- ◆ The Aurora Bertram Inn was a good venue for Northeast Ohio.
- ◆ Bring back a full morning session of Government Affairs and consider having congressional representatives present. We must be engaged and not complacent.

Team Work

While a large part of this article has discussed our challenges and problems, I want to close on a positive note. Much of our resiliency is that our organization can be viewed as a three-legged stool. While our State Conferences appear to be well done, that is only one part of the total picture of OWEA. Much of the value is with our sections and committees in what they bring to the table as part of the complete member experience.

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Tom Fishbaugh



Dale Kocarek



Ted Baker

WEF's Mission and Vision Statements

WEFTEC is a world class event for more than 20,000 participants worldwide. Since 1928 the Water Environment Federation (WEF) and its members have protected public health and the environment.

As a global water sector leader, WEF's mission is to:

- ◆ Connect water professionals
- ◆ Enrich the experience of water professionals
- ◆ Increase the awareness of the impact and value of water
- ◆ Provide a platform for water sector innovation

WEF's vision is a community of empowered professionals creating a healthy global water environment.

One thing about WEFTEC is clear.

If one is ever able to attend WEFTEC, the Water Environment Federation (WEF) is the leader in our industry. No other organizations have an important purpose and significant role in operator training in states and at a local level. It is clear that WEF is the premier organization.

Primer to Understanding the WEF House of Delegates and Board of Trustees

While detailed description of the function and purpose of these two bodies requires a separate article, it is important for the reader to understand that the primary governance of WEF involves two main bodies: The House of Delegates, and the Board of Trustees (Board). The

Board is similar in function to our OWEA Board, which is to lead WEF. The House of Delegates (HOD) is the policy and research arm of WEF. The HOD is the conduit by which Member Associations (MAs) such as OWEA work with WEF. In turn, the Speaker of the HOD works very closely with the Board.

WEF Staff is managed by the Board. The Executive Director of WEF continues to be Dr. Eileen O'Neill. She has served in this role for the past five years. Her contract was recently renewed by the Board to continue her service to the organization.

A New WEF Year Starts

WEFTEC is a highly charged and electric event of water professionals from around the world. The passion of WEF leaders, staff, presenters, Op Challenge teams, and exhibitors is "white hot." At over 20,000 attendees and 1,000 exhibitors at the Chicago McCormick Center over a five-day period (Starting with the House of Delegates Open Meeting on Saturday) it is so large that it can hardly be described.

We have just returned from WEFTEC 2017 in Chicago, which is the beginning of WEF's program year for 2017-2018. Just like it happens for OWEA in June, WEF changes officers and members of the Board of Trustees (BOT) and House of Delegates (HOD) at WEFTEC. It is both a happy and sad time of transition as we see some of our fellow "WEF Friends" roll off their rotation and new ones join. The rotation is such that only a percentage of members leave each year. As is similar to our own OWEA Board, the composition of the board



WEF 2017-18 Board of Trustees (from left to right): Treasurer Jamie Eichenberger, Denver, Colo.; Ifetayo Venner, Tampa, Fla.; Vice-President Jackie Jerrell, Charlotte, N.C.; Peter Vanrolleghem, Quebec City, Canada; President Jenny Hartfelder, Denver, Colo.; Mark Poling, Portland, Ore.; President-Elect Tom Kunez, Chicago, Ill.; Lynn Broaddus, Minneapolis, Mn.; Joan Hawley, Muskego, Wis.; Past President Rick Warner, Reno, Nev.; Secretary and Executive Director Eileen O'Neill, Alexandria, Va.; and Claus Homann, Aarhus, Denmark.

changes gradually much like a moving average in the measuring of Mean Cell Retention Time (MCRT).

While change is an important ingredient in progress, I believe that it is WEF's hope to see the passionate and engaged HOD and BOT members stay active in WEF, either through a standing committee, or a role in the CLC (Committee Leadership Council). Nonetheless, being active in both one's Member Association (MA) and WEF is time consuming and can be exhausting. For those active in committees and on the HOD or BOT, WEFTEC is "go-go-go" for five straight days.

Ohio has had its own transition this year. Tom Angelo, who served as President in 2012-13 and as Delegate from 2014-2017, rolled off his three-year term. Tom was replaced by Ted Baker, the immediate Past President of OWEA.

We congratulate Tom for his long time steadfast and passionate service to the NESOWEA, OWEA and WEF. Tom is a memorable person that never does anything half way. Highly energetic and rarely neutral in opinion and belief, Tom created much of the spark that ignited the passion of OWEA in the last decade. He proved himself a capable leader and a good friend. His observations and call to action will be missed.

Ted Baker requires no long introduction. The immediate OWEA Past President, Ted has been a strong visible presence in OWEA since joining the Board in 2010 and before that the Northeast Section where he went through the chairs. The President of Baker and Associates and the son of the renowned Harry Baker, Ted is truly excited to begin his WEF journey. He has already made many WEF friends at all levels in the organization, will serve on the Budget Committee, and is the Chair of the HOD Membership Work Group. Ted is one of the few people that I have met that at this time in his journey has expressed interest in becoming a WEF President.

A summary of OWEA's Delegates is as follow:

- ◆ Tom Fishbaugh: 3rd Year of

second nonconsecutive term, ending 2018

- ◆ Dale Kocarek: 2nd Year of second consecutive term, ending 2019
- ◆ Ted Baker: 1st Year of first term ending 2020

For those wishing to join the HOD, there will be an opportunity in the future to do so. Positions will become available in each of the next three years.

WEF has a new president this year: Jenny Hartfelder of the Rocky Mountain WEA. Jenny lives in the Denver area with her husband Ted and works for Stantec. She takes the reigns from Rick Warner. Jenny works as a consulting engineer and has held many positions at MWH Global and Stantec with increasing levels of responsibility.



WEF President Jenny Hartfelder

Operations Challenge

OWEA sponsored three teams (Cincinnati Grit, NWUSD Dirty Deeds and the Columbus Outfalls) to attend and compete at this year's national Operations Challenge competition at WEFTEC in Chicago. They represented Ohio and OWEA very well. All three teams competed in Division II with two of our teams ending up in the top 10 out of 37 teams competing in Division II. Please see the Plant Operations Committee Report for a full breakdown of their standings.

Community Service Project

On Saturday September 29th WEF Students and Young Professionals Committee (SYPC) led an effort to construct the annual service project at the Manierre Elementary School

in Old Town Chicago. The project was hence called the Manierre's Sustainable Stormwater Project. This was the 10th annual WEF Community Service Project. Participants included members of the WEF Student and Young Professionals Committee (SYPC), organizers of the event as well as additional volunteers from the WEF House of Delegates and Board of Trustees.

This was also the second year in a row that the WEF House of Delegates and Board of Trustees participated in constructing this improvement. Dale Kocarek in his function with the Steering Committee worked with Speaker of the House Howard Carter to overhaul the all-day meeting for the House of Delegates at WEFTEC to allow better participation of members to participate in this event.

The WEF Service project is more than a rallying point for the Students and Young Professionals Committee. It is Community Building in its finest and is widely celebrated among all participants and sponsors. The service project featured a small storm water rain garden in the court yard/ playground of the school. An outdoor activity area next to the improvement on permeable pavers serves as an outdoor learning center to teach youth about the importance of clean water and clean water infrastructure.



WEF Service Project 2017 at the Manierre School

Committees and Workgroups

A primary reason for attending the Saturday session at WEFTEC is that it affords a delegate one of the only times in a year when he/she can meet face to face with fellow committee

and workgroup members. For most of us, having this initial meeting is very important and a critical part of the relationship building process. After all, in spite of there being more than 100 delegates, we get to know each other over three or more years and can become close. Also, most of our business is on conference calls, so it is nice to place a face and name with a voice.

There are five primary standing committees for the House of Delegates: Steering, Budget, Nominating, WEFMAX and Outreach. Dale and Ted are on the Budget Committee, and Tom is on

the Outreach Committee.

This year under Speaker of the House of Delegates Aimee' Killeen, we have three workgroups (WG): Membership, Student Chapters, and Operators Initiatives. The Membership WG will be led by Ted Baker this year. This committee will continue the work begun over the past few years.

The Student Chapters WG and Outreach Committees WG are in their first year. The Student Chapters WG will seek to find success stories and develop a template for successful student chapters, which are part of

the Student Chapters and Young Professionals Committee. Dale Kocarek has joined this WG and will be reaching out to OWEA Section Leaders in the future.

The Operator WG is a continuation of previous efforts begun in the past, of which Kim Riddell and Dianne Sumego were participants. Ultimately, this WG continues exploring issues associated with the professional development and career of operators including reciprocity. Tom Fishbaugh is on this WG.



NWOWEA

Walter Ariss, President

Happy Fall from the Northwest Section! In October, we traveled to the City of Fremont for our section meeting. A big "Thank You" to all the staff at the water reclamation center for hosting a great meeting. We enjoyed a tour of the newly constructed WRC, a great barbeque lunch, and some interesting technical sessions. With the meeting, we also held our annual Water for People pancake breakfast. This is always a great opportunity for our pancake flippers to show off their skills and for some great networking all for a good cause.

In September, our section hosted a two-day workshop

for lagoon treatment optimization. This was a follow up to a one-day lagoon workshop we offered in 2016. We filled all the available attendance spots for the training. This training is a continuation of the section's commitment to reaching out to small rural systems to provide training and education opportunities. We have heard nothing but great things from the attendees.

In November, we continued our efforts to prepare potential operators for the licensing exams with our annual operator education day. Grizzled instructors review potential questions and concepts that might be covered on both the state and ABC exams. The passing rate of our attendees continues to show the added value of this training.

In mid-November, we returned to Fremont for a Hands-on Collection Systems Workshop. Again, a big thanks to the folks at the Fremont WRC for hosting a very informative workshop.

We are planning some great activities for the spring, with a lot of new and exciting ideas as well as our quarterly section meetings. Keep an eye out for emails from the section with details about all our upcoming events.

Walter Ariss, walter.ariss@epa.ohio.gov



Photos from the NW Two-Day Lagoon Training held in September





Kris Ruggles, President

The SEOWEA Executive Committee has been busy planning the 2017-2018 section meetings and events. We will have at least four approved Contact Hours for every meeting. All 2018 Section meeting dates are posted on the OWEA calendar. The remaining Section meetings will be held as follows:

- ◆ February 8, 2018 - Industrial Pretreatment
- ◆ April 8, 2018 - Plant Operations and Collections
- ◆ May 10, 2018 - Regulatory/Biosolids/Safety and Past Presidents and Awards Luncheon

Notably, the April meeting will consist of a day of plant tours in southern Central Ohio instead of classroom setting. Again, we expect to have at least four approved contact hours. We have done a day of tours in the past with much success, and April often makes a great day to be out and about learning about



treatment facilities and their operation.

We will be hosting our 5th Annual Friends and Family event in the spring. We plan to organize a Columbus Crew soccer outing for a second time. Our Friends and Family Events have been very popular and well attended so far. The Friends and Family events are cost subsidized for families and made possible by our generous annual sponsors, to whom we are very grateful. Our Annual Sponsorship drive is ongoing now.



On September 18th, nearly 30 people attended the Lab Analyst Committee (LAC) meeting in Columbus at DOSD's Fairwood facility. This was my first time attending a LAC meeting, and I was impressed! Melodi Clark heads that very active committee for the Section and is on State committee. The meeting was free, lunch was provided by Thomas Scientific, and attendees earned contact hours.

Contact hour credits included a lab analyst exam trivia hour; as an engineer, not a chemist or lab person, it was very challenging! Attendance continues to grow for these great events. I highly recommend any wastewater professional attend in the future for quality content, Contact Hours, and PDH's.

Looking forward to the holidays and a great 2018!

Sincerely,

Kris

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Section Reports



NESOWEA

Kathy Richards, President

Hello Fellow Wastewater Professionals!

The North East Section has had a busy 3rd quarter with a couple training events, our annual BioMass-ers charity golf outing and the infamous Clambake!

Training events included a Laboratory Analyst training meeting in Ravenna as well as the NES fall section meeting, held in Stow with tours of EnviroScience and technical sessions at Silver Springs Park. Both events were well attended and the presenters were all very knowledgeable in their respective subjects. We greatly appreciate the hospitality of the host facilities and strongly urge you to consider welcoming your section neighbors into your facility for a meeting. You won't regret it, I promise!

The BioMass-ers players enjoyed a sun-filled very warm round, but all were observed conscientiously hydrating. The winning team hailed was comprised of Timothy Ball, Jamie Newell, & Kevin Swaidner (all from Kaufman Container) and Mike Seman from NEORSD. The proceeds from this highly successful event will be split between Water for People and the NES scholarship fund, both significant and deserving charities. The clambake was a rousing success with a fierce corn-hole competition (modesty prevents me from naming the winning team).

Our 4th quarter was every bit as ambitious. Our annual fall Operator's Review session was October 7th at the University of Akron, the NES FREE Supervisor's Seminar was at the Brushwood Pavilion in Furnace Run Park on October 26th, the Hands on Collection Workshop was on November 2nd and a FREE Industrial Coordinators Workshop was hosted by Donna Kniss at the NE district

office of Ohio EPA in Twinsburg on November 7th.

Looking into the future, we have set the dates for our first three events of 2018. The day-long Operators Seminar will be January 18th and the Industrial Waste full-day Seminar is set for February 15th. Both will be at the Days Inn in Richfield and typically reach capacity very quickly. Look for more information in November or December at www.NESOWEA.org. Then on April 19th we will be hosting our FREE Watershed Session at the aforementioned Brushwood Pavilion.

I am certain you recognize how many of our meetings are spearheaded by our section committees, and I would like to take a moment to thank our (largely unrecognized) Committee Chairs. Here is a completely inadequate shout out to our in-house subject matter experts and their generous employers:

- ◆ Awards Chair – Dan Johnson (Burgess & Niple);
- ◆ BioMass-ers Chair – Mike Cook (ADS Pipe);
- ◆ Collection Systems Chair – Don Gallimore (United Survey);
- ◆ Education Chair – Terry Gellner (TnT Engineering),
 - ◆ sub-category Science Fairs – Krishna Chelupati (ARCADIS);
- ◆ Industrial Waste/Pretreatment – Bill Cleary (Metal-dyne);
- ◆ Laboratory Analysts – Bev Hoffman (City of Geneva) and Tom Zocolo (City of Akron);



Tour of Enviroscience Facility.

Taken during NE Bio-Massters Golf Outing.

- ◆ Membership – Mark Hutson (Burgess & Niple);
- ◆ Plant Operations – Mike Welke (City of Warren);
- ◆ Publications – Chris Ryman (ARCADIS);
- ◆ Public Outreach – Steve Baytos (Avon Lake);
- ◆ Residuals – Mike Welke (City of Warren);
- ◆ Watershed – Bill Zawiski (Ohio EPA);
- ◆ Young Professionals – Ashley Williston (Burgess & Niple).

Please accept our heartfelt thanks and I encourage everyone to consider joining in making a difference. If you are unsure how to get started please contact me and I will

get the ball rolling.


And finally, I want to send my own personal words of gratitude to our current State Executive Committee and Administrative Assistants in Columbus. They have been dealing with some incredibly difficult, sensitive and complex issues and have been professional, transparent, communicative and – most importantly – responsible. For this I thank you.

In closing, the North East Section Executive Committee wishes all of our wastewater friends and your families a very happy and safe holiday season!

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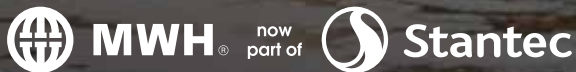
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SWOWEA

Steven Reese, President

Attitude for Gratitude

Did you know that gratitude can change your life for the better? Studies show gratitude has several benefits including better quality sleep (and who wouldn't want that), increased energy and even decreased blood pressure!

It is in that mindset that I want to offer my thanks to the Southwest Section and OWEA! Our group does very well because of the dedicated individuals working on committees, running events and pursuing new opportunities for our members. We have the consistent and committed support from municipalities, local companies and industries that keep our members coming back for more.

Southwest membership and our supporters include over 500 members across over 100 employers. Thanks to our members and supporters!

Announcements

Barb Wagner of the Metropolitan Sewer District of Greater Cincinnati has retired. After over 30 years of service with the District, she now moves on to travel, volunteering and enjoying the retirement lifestyle. We wish you the best, Barb!

It is with a sad heart we pass on the news of Carl Gatton's passing. Carl was a loving, kind, and generous man who leaves behind many close friends and colleagues. He felt strongly about educating those in this field and was actively involved in SWOWEA. Carl has served in several

water related positions, of which the most recent was as an adjunct professor at Cincinnati State where he taught Environmental Chemistry and Statistics. SWOWEA has offered a memorial donation to Hospice of Cincinnati in Carl's honor.

Our WAVE newsletter is now completely electronic. This is saving paper and printing costs, pushing more of our section funds to events for members!

Successful Events

SWOWEA is excited to announce our continued record section meeting attendance with over 135 people at our recent event with the Metropolitan Sewer District of Greater Cincinnati. The event included two plant tours at Muddy Creek and Indian Creek WWTPs as well as technical sessions and our business meeting at the Glen Carder Lodge. SWOWEA would like to Thank the MSD staff that provided tours at the treatment facilities and assisted in setting up the events. SWOWEA also sends our thanks to the event sponsors including Dugan & Meyers, Jacobs Engineering Group, BL Anderson and HP Thompson.

Upcoming Events

January 25, 2018 - Industrial Waste Seminar. Looking ahead into 2018, the Annual Industrial Waste Seminar will be held at the Manor House in Mason, Ohio.

For more details about this and other events, please visit the SWOWEA website at www.swowea.org or view our latest Southwest WAVE newsletter. It is a great resource for the membership!

Best Regards,
Steven Reese
sreese@hazenandsawyer.com



Muddy Creek WWTP Tour held on September 20, 2017.



Section Meeting held on September 20, 2017.

Young Professionals Update

by Ashley Williston, NE YP Chair

On June 8th, the YP groups from the northeast sections of OWEA and AWWA had a joint event. Cleveland Water hosted the event at their Crown Water Treatment Plant. Crown WTP is Cleveland Water's only water treatment plant not located in the City of Cleveland. The plant was first put into service in 1958 and pumps an average of 41.5 million gallons of water a day to the residents and businesses of Cleveland's Westside, including western and southwestern suburbs. A group of around 25 young professionals gathered for an insightful tour lead by Franco Noce; Crown WTP assistant superintendent and past NE Section AWWA YP chair that currently serves as the NE District Trustee for OAWWA. After the tour, the group gathered in the tasting room at Sibling Rivalry Brewing in Westlake for networking and conversation. We look forward to doing more joint events with the AWWA YPs in the future.

On October 3rd, the YP group hosted a Resume Review and Q&A Session with NESOWEA Young Professionals at Cleveland State University (CSU). This is an opportunity for CSU students to bring their resume and questions for a hands-on review and discussion. In addition to resume building, discussions included the importance of networking, interview strategies, and the various roles you can expect to take on in your first job out of college. This is the second time we have held this event, and we hope to continue to do it annually.

In October 2017, we started looking for mentor/volunteers to help with the 2018 Student Design

Competition. Last year was the first year that we piloted the program with the students and faculty at CSU. In addition to CSU, we are opening up the competition to students from University of Akron, Case Western Reserve University, and Kent State University this year. For additional information or if you are interested in helping mentor the teams, contact Muralikrishna Chelupati: Muralikrishna.Chelupati@stantec.com

To receive the NESOWEA YP emails to hear about our upcoming events and other YP information send me an email: ashley.williston@burgessniple.com.



Photos from event at Crown WTP.

Certification Committee

by Kathy Richards, Certification Chair

Hello all my certified brethren!

Just a very quick but important note this time. Renewals went live early November, after the results of the October exam. Notices were emailed out and renewal will be available online. We will not be mailing out new cards this year as the number of volunteer hours required to fulfill this is pretty enormous and with more and more getting lost in the mail, well, it's just no longer tenable. What we will do is email you a pdf of your updated card that you may print if you so choose. Those passing a new exam level will still receive a card and certificate in the mail. And speaking of passing a new level, congrats to the 15 individuals who passed the exam last month!

I am still looking for volunteers holding a Class IV Certification that would be willing to proctor upcoming examinations. The amount of time that is required is very minimal, two Friday mornings/year and all necessary training will be provided. Please consider this request and contact me if you are interested at certification@ohiowea.org.

Government & Regulatory Affairs Committee Update

by Dale E. Kocarek, PE, BCEE, Chair

GARA Ethics Mini Workshop for November 28, 2017

OWEA Government and Regulatory Affairs Committee is having a mini workshop on November 28th, 2017. The mini workshop was to accommodate the ethic and rules continuing education for engineers that was contained in HB 236 which was signed by the Governor on January 4th, 2017 and became effective on April 4th, 2017. A brochure for this workshop may be found to the right. This workshop was developed as part of the overall Strategic Plan for OWEA to provide more workshops, which are topical and relevant to our members. Also, by having this workshop be in the morning, one is not required to dedicate a complete day.

GARA Workshop Call for Papers for March 8, 2017

The annual GARA workshop will be a One Water event again this year and combine OWEA and OAWWA. A call for papers will be issued shortly. If you wish to present a topic please contact John Owen at John.Owen@epa.ohio.gov or Robin Rupe at RupeR@neorsd.org. John will lead the review effort on behalf of OWEA and Robin will lead the review effort on behalf of OAWWA.



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7:45 AM - 11:30 AM

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- Satisfies new Ohio PE requirement for two CPD hours per renewal cycle on ethics and rules.
- Operators will receive 2.5 “X” designated contact hours.

Susan Willeke, Education and Communications Administrator at Ohio Ethics Commission will be headlining this workshop.

Presentations will also feature Desmond Cullimore, P.E. of Bricker and Eckler and John Owen, P.E. of Ohio Water Environment Association's Government and Regulatory Affairs Committee as well as Jeff Kennedy, P.E., Past President, Past Vice President, Legislative and Government Affairs for the Ohio Society of Professional Engineers.

Directions

From I270

Take I-270 to exit 17A. Merge onto OH-161 E/US-33 E toward Dublin. At the first light, take a left onto Post Road. Stay in the outer left hand turn lane. Take an immediate right onto Kilgour Place. Follow the signs to The Conference Center at OCLC.

Suggested Parking

Parking is free and is located either in the front or rear of the building based on the meeting location.

OCLC Conference Center
6600 Kilgour Place
Dublin, Ohio 43017

2017 Biosolids Workshop

Thursday, December 7, 2017

Nationwide Hotel and Conference Center - Lewis Center

Workshop Schedule

8:30-9:15 AM	Respect the Rheology: Thickened Biosolids Pumping for Beneficial Reuse in Columbus, Ohio <i>Donnie Stallman, BC</i>
9:15-10:00 AM	AquaNereda Aerobic Granular Activated Sludge <i>Marc Nusser, AquaAerobics</i>
10:00-10:15 AM	BREAK
10:15-11:00 AM	Removing orthophosphate and improving dewaterability of digested sludge by post-digestion AirPrex® process <i>Fred Monago, Centrisys</i>
11:00-12:00 PM	Revisions to P-Index for Land Application - Research Update <i>Elizabeth Dayton, OSU</i>
12:00-1:00 PM	LUNCH
1:00-1:45 PM	Great Lakes Water Authority Biosolids CMMS <i>Bill Hollman, NEFCO</i>
1:45-2:00 PM	BREAK
2:00-4:00 PM	Biosolids Stabilization Forum - Focused presentations and open discussion on latest trends in biosolids stabilization and impacts on biosolids O&M. <i>Sustec/DMT - Speaker TBD</i> <i>Kruger - Speaker TBD</i> <i>Cambi - Speaker TBD</i> <i>Lystek International, Inc - Speaker TBD</i>

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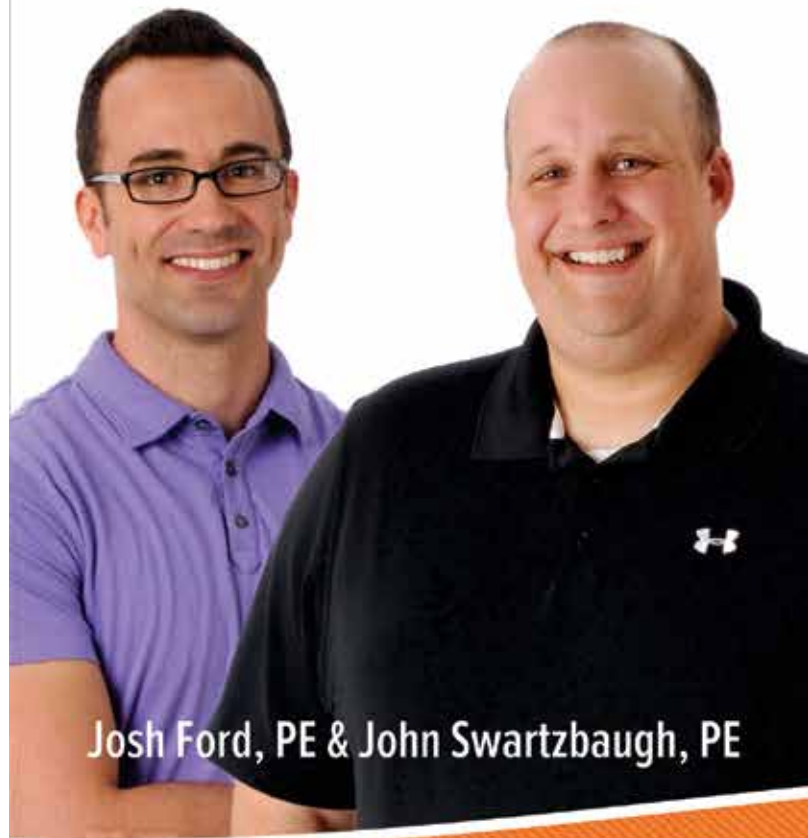
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Plant Operations Update

by Kim Riddell and Joe Tillison, Co-Chairs

We would like to thank the OWEA Executive Committee and all OWEA sponsors for sending all three Ohio WEA teams (the NWWSD Dirty Deeds, the Columbus Outfalls and our newest team, Cincinnati Grit) to WEFTEC this year in Chicago to represent Ohio in the national competition! OWEA covers the expenses for the winning teams travel to WEFTEC each year and this year they again sent three teams! THANK YOU on behalf of the Plant Ops Committee and the Ohio WEA teams!

Congratulations to the Northwestern Water and Sewer District Dirty Deeds for placing 6th overall in Division II (up from 8th place in 2016) and to the Columbus Outfalls for placing 9th overall in Division II. There were 37 teams competing in Division II this year in Chicago. Some additional statistics from the competition are: Cincinnati Grit placed 12th in the Collections Event; the Columbus Outfalls placed 5th in the Laboratory Event, 8th in Safety and 10th in Maintenance in addition to their 9th overall placement; and finally NWWSD Dirty Deeds placed 10th in the Laboratory Event, 8th in Maintenance and 6th in Collections in addition to the 6th place overall standing. OWEA was also represented well in the judging and event coordinating category as we had 13 OWEA members in Chicago participating on that side of the competition!

Great job ladies and gentlemen!

The committee also held its annual Plant Operations and Laboratory workshop on October 11th and 12th, 2017 at the Nationwide Conference Center. Our Wednesday featured speakers and topics were Jim Borton on process monitoring, MaryLynn Lodor on MSDGC's Odor Control Program, Rob Villee on the national flushable wipes issue and regulations, and the return of Eric Wahlberg on Activated Sludge Process Control. Day One was rounded out by our cocktail hour roundtable discussion and recap in which all speakers participated. Day Two included sessions on pumping systems, process monitoring and modeling, CSO reduction and advanced treatment at the City of Lancaster, a workplace improvement series by multiple Ohio leaders and finally the OEPA Nutrient Mass Balance from 2016. As always the lab committee provided concurrent sessions for Day Two. The committee is already starting to put some great ideas together for 2018 so please plan to put money in your budget to attend next year.

If you are interested in putting a team together for Operations Challenge, becoming a member of

Test Your Knowledge – Take the Operations Quiz

- 1.** Which of the following terms describes an activated sludge process mode in which aeration and clarification occur in the same tank?
 - a. Plug flow system
 - b. Complete mix reactor
 - c. Sequencing batch reactor
 - d. Step-feed system

- 2.** Which type of polymer has the most active product per unit weight?
 - a. Solution polymer
 - b. Emulsion polymer
 - c. Dry polymer
 - d. Mannich polymer

- 3.** Healthy mixed liquor in an activated sludge system should have what appearance?
 - a. Black with a gray foam
 - b. Dark brown, covered with a greasy tan foam
 - c. Light brown and frothy
 - d. Gray with no foam of any kind

- 4.** The mixed liquor suspended solids (MLSS) concentration range for a conventional activated sludge system process is?
 - a. 500 – 1000 mg/l
 - b. 1500 – 3000 mg/l
 - c. 5000 - 7500 mg/l
 - d. 8000 – 10,000 mg/l

- 5.** Which of the following is a typical piece of flow measuring equipment?
 - a. Nephelometer
 - b. Downward looking acoustic sensor
 - c. Counterweighted float-level indicator
 - d. Parshall flume

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

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

the committee or assisting as a judge / volunteer for Operations Challenge, please contact Kim Riddell at 419-234-4507 or kim.riddell@alloway.com or Joe Tillison at 419-354-6274. If you are an existing team or considering having a team in 2018, we encourage you to contact us soon to get on the schedule to use the equipment OWEA has for practice. The practice schedule fills up quickly and we don't want you to miss out on that time with the equipment! Call early!! We are here to help you out!

Future Committee Endeavors – If you are looking for a place to plug yourself in within OWEA, the Plant Operations and Maintenance Committee might just be that place! In addition to Operations Challenge and our annual two-day workshop, we have held a three-day course for Activated Sludge Process Control and are planning an additional location for 2018. We have also developed a short course (three hours) to be presented in the sections by Bob Brown and a Math for Operators Course is in development. We are looking for people interested in writing and reviewing information for these courses as well as eventually assisting in teaching them within your section. We hope to have these courses

ready and available soon. In addition, there are plans to develop Beginners and Advanced Wastewater Operations and Collections System Courses that will be rolled out in 2019. So in addition to our regular committee activities, we have lots of new and exciting places to get plugged in! We need you – so call or email Kim or Joe and we'll get you in touch with our specific project leaders. We look forward to hearing from you soon!

Mark your calendars for Plant Operations activities for 2018! The Operations Challenge competition will be held at the One Water Conference in Columbus on August 27th and 28th, 2018.

Kim Riddell, kim.riddell@alloway.com

Joe Tillison, JTillison@bgohio.org



Columbus Outfalls - City of Columbus



Operations coordinators and volunteers



Dirty Deeds - Northwest Water and Sewer District

www.ohiowea.org



Cincinnati Grit - Metropolitan Sewer District of Cincinnati

What is Safety?

Safety Committee Update

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

Baby, don't hurt me. Don't hurt me. No more.

Alright, stop singing and envisioning people dancing on Saturday Night Live, we need to get serious! What does safety mean regarding the workplace? Here is the Merriam-Webster definition:



SAFETY

- 1: the condition of being safe from undergoing or causing hurt, injury, or loss
- 2: a device (as on a weapon or a machine) designed to prevent inadvertent or hazardous operation

So there's the definition of safety. We should all be good, right? No need to continue with this article really. There's no way anyone should get hurt after reading and knowing what the word safety means, but that's not how life works. I was going to insert the number of workplace injuries that have taken place since you've been reading this article, but it's difficult to get an approximate total due to all the reported and unreported cases, not to mention the fact that it's disheartening. Instead, I'll give you the Bureau of Labor Statistics number for just Ohio from 2015: 104,000 nonfatal workplace injuries. Take note, I'm only giving you the nonfatal information because the number of workplace fatalities is a hard, depressing number to take in. My objective is not to depress, but to inform. All of us can be competent, patient and careful, so I feel that the number of fatal and nonfatal injuries can and should be drastically reduced.

Through experience and research, I've seen that the most common avoidable injuries can be generalized into two categories; overexertion and slipping/tripping.

Overexertion: can be either physical or mental concerning the workplace environment. The physical side of overexertion is typically caused by repetitive motions, such as typing, lifting heavy objects or working in an awkward position. The mental side of overexertion mainly involves various stresses on the job or in personal life. Most injuries related to overexertion are preventable though, by taking frequent breaks from challenging physical or mental activities, daily exercise, using correct

posture and knowing your body's limits.

Slipping/Tripping: can happen anywhere, at any time. Odds are, someone fell while doing an almost too accurate SNL impression that I mentioned earlier. Slipping occurs when the traction between your footwear and the floor ceases to exist. Tripping happens either by your foot or lower leg hitting something while your upper body continues to move forward, or by stepping down to a lower surface and losing your balance. These injuries, for the most part, are preventable. Good housekeeping, wearing proper footwear and identifying areas that may have slip/trip hazards are all ways to keep yourself and others safe.

Doing things safely may take a little longer, but the rewards of safety outweigh the penalties of having to wear a cast all summer because you were running to get that last donut and fell while someone "accidentally" tripped you and ate said donut while laughing. Not cool.

Good luck out there! Safety travels with us everywhere.



Safety Committee Contact Info

Safety Committee Co-Chair

Mike Welke
City of Warren
mwelke@warren.org

Safety Committee Co-Chair

Nathan Coey
City of Pataskala
ncoey@ci.pataskala.oh.us



OAWWA / OWEA 2018 Technical Conference & Expo

August 27th - August 30th, 2018

www.onewaterohio.org

Hilton Columbus Downtown

August 27-30, 2018

Greater Columbus Convention Center

Call for Papers – Abstract Submission Opens October 26th

Visit www.onewaterohio.org to submit your Abstracts Online by Friday, February 2, 2018

We are excited to develop a technical program for this joint OAWWA/OWEA conference. The water and wastewater industries both face similar challenges with new and current regulatory requirements as well as development of emerging technologies and industry practices. Efficient, cost-effective operation and maintenance of our aging infrastructure is at a premium for our water and wastewater providers.

We are looking to provide our members and conference attendees with a unique opportunity to gain professional development and educational opportunities for both industries at one time. We have selected the technical tracks (listed right) for our concurrent technical program to cover the educational goals of this joint conference.

We are only accepting on-line submissions of abstracts in order to streamline the submission process and gathering of your information. Visit www.onewaterohio.org to submit an abstract. Please remember to provide concise information and submit the required abstract (600 words, submitted in either Microsoft Word or PDF format) and biography information. This information will be used to review and select presentations for the conference technical program.

Presentation time slots will be 30 minutes long. Actual presentations should be 25 minutes in length with 5 minutes allowed for questions.

Once again, we are excited about this unique opportunity and look forward to an excellent technical program.

Technical Program Co-Chairs

Robin Rupe, NEORS, rupe@neorsd.org

Fred Smith, CDM Smith, smithfj@cdmsmith.com

TECHNICAL TOPICS

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Water Distribution

Water Treatment

Workforce Development

For general questions regarding the One Water Conference please contact info@onewaterohio.org



www.ohiowea.org



Lab Analysis Committee Update

by Denise Seman and Melodi Clark, Committee Co-Chairs

Happy Holiday season!

The cooler temperatures bring thoughts of pumpkin treats, snowmen (people), and cold weather activities (yea!). We decorate our lab every year with a Chemistree...how many of you decorate your work space for the holidays? Share your photos on social media, with the following tag: #owealacholidays for all to enjoy. I'll have a picture of our little tree up there, hope to see many more ideas

SW LAC – Karen Tenore and Jim Davis

SW LAC Meeting News!!

The SWOWEA LAC had a meeting on July 13, 2017 at the YSI facilities in Yellow Springs, Ohio. 50 persons were in attendance. Topics included sampling and measurement of pH, dissolved oxygen and ammonia, along with process monitoring. The presentations were given by Chris Cushman and Rob Smith of YSI, with 5 contact hours approved.

There was a meeting November 2, 2017 at the City of Sidney WWTP. Topics included fecal coliform analysis by IDEXX quantitray, ORP control of a sidestream treatment process, Sidney WWTP plant upgrades and a plant tour. Contact hours were applied for.

Meetings for 2018 will be announced in a future Buckeye Bulletin article.

To inquire about being added to our e-mail list or to get information about attending, hosting, sponsoring or presenting at a future LAC meeting, please contact one of the co-chairs listed to the right or a committee member:

Committee Members:

Lynette Hodnicki, City of Fairfield

Lori Kyle, Greene County

Gregg Mitchell, City of Sidney

Roger Rardain, City of Fairborn

Teresa Shinkle, Greene County

Rob Smith, YSI

NE LAC –Beverly Hoffman and Tom Zocolo

Our most recent meeting was held in Ravenna at the Lake Hodgson WTP. Speakers included Bill Zawiski (Ohio EPA), Elizabeth Crafton (University of Akron), and Chad Csepeggi (HACH). The topics of their talks were, respectively, the chemistry of dam removal, cyanobacterial blooms, and methods of nutrient detection. The event was attended by 18. A huge thank you goes out to our speakers, Marie Simon of North Coast Labs for organizational assistance, Cindy Mullins for securing the venue, Kathy Richards for connecting me to our speakers, and all of our attendees.

Moving forward, we have plenty of opportunities to organize further training events to secure contact hours for our membership. Ideas that have been put forward thus far include: Understanding the Method Update Rule, Hazardous Waste Control from Lab/Plant operations, and QA/QC procedures. We would like to extend an open invitation to anyone who has a compelling topic idea or special expertise they would like to share in future events to contact us. We can make it happen!

To be added to the NES LAC membership directory and automatically receive notifications, please email nesowealac@gmail.com.

Committee Members:

Marie Simon, North Coast Environmental Laboratories, Inc

Amy Starkey, Stark Co. Sanitary Engineers

SE LAC – Melodi Clark

We had a wonderful lab meeting on September 18th at the City of Columbus Jackson Pike WWTP. We were able to get four contact hours at no cost to attendees thanks to Darren Reese from Thomas Scientific for sponsoring our lunch! I would also like to thank Heather Curtis and Josh Lutz for presenting on the City's conversion of their bio solids to 100% beneficial reuse. We had 29 attendees for this meeting which is great! I plan on having one more meeting before the end of the year so if anyone would like to host a tour of their facility or present at our next meeting please feel free to contact me.

NWLAC- Tony Hintze and Terri Brenner

Hello from the Northwest Section. I'm writing to you all as I gaze out the window of a train car headed to my first WEFTEC adventure, where I have the opportunity to help judge the Operations Challenge Lab event. I can't wait!

Terri and I are still finalizing plans for our next meeting and it's all starting to come together. By the time this is published all the details should be worked out, so keep an eye out for the email and come join us.

We have found that many people that thought they were on our email list are no longer on it so if you haven't received an email from Terri or I about our meetings please contact us so we can make sure that you are on the list (tjhintze@gmail.com or tbrenner@ci.perrysburg.oh.us). Also be sure to check out our Facebook group NWOWEA Laboratory Analysis Committee.

We look forward to seeing you at the next meeting. Don't forget working in the lab is just like cooking in your kitchen, just don't lick the spoon!



Chemis-Tree

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.

Join Your Section's Lab Analysis Committee

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

An advertisement for AQUASTORE Tanks & Domes. The top part features the logo and text 'AQUASTORE Tanks & Domes'. Below this is a photograph of a large, dark-colored storage tank in an outdoor setting. To the left of the tank, there is a list of features: '• Never needs painting', '• Process, Sludge, Aeration Tanks', and '• Capacities over 6 Million Gallons'. At the bottom left, there is contact information for 'MID Atlantic Storage Systems, Inc.', including the name 'Jim Wary', phone number '740-335-2019', and website 'www.midatlanticstorage.com'.

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Passion and Poo - They do Mix Well!

by Barbara Browne

Just exactly what does passion mean to you? Is it something that you think of daily in your field of work? Do you have passions at home such as your spouse, children, pets, hobbies, friends, church, etc.? Have you ever thought about having a passion at work? What would be so wrong with that? We are in a field of wastewater treatment which is so important in keeping our environment clean and healthy for our future generations. This to me is a very important task which we should take very seriously.

I was once told that I was very passionate about my job and some engineers, supervisors, and employees did not know just how to deal with it. I was told to “tone” my passions down a bit so as not to overwhelm others with my passion. How does one tone down their passion? I could not. Most “normal” people, if there is such a thing, would ask us, how can we be passionate about treating poo? We know that we do not think of treating poo though because we are focusing on the end result... a healthier environment.

I worked thirty years in the field of wastewater treatment coming in at the bottom of the ladder and working myself up to a Treatment Supervisor. I oversaw three Class IV plants on the east side of town in Cincinnati, Ohio and worked with the Metropolitan Sewer District of Greater Cincinnati (MSDGC). I will admit, it was hard for me, as a woman, to come into a field of the “good old boys”

society”, or the mentality of “my way or the highway” or the supervisors who like to rule with the intimidation factors but I survived because I AM A SURVIVOR! Wastewater treatment thirty years ago was a different monster than it is now-a-days but I still see some of these old mentalities still lingering around.

When I had my chance to become a leader, I learned quickly that your employees do not like the old-fashioned styles of leadership but how many of us are willing to change to fit the needs of the employees as well as the companies’ needs? I bet not many because when we make changes in ourselves, it is hard. First, we need to realize that we need to make that change. Secondly, it takes a commitment from YOU to stick with that change.

There really is no reason why you should not show your passions to your employees. After all, the employees probably have the same passions as you do but might be afraid to show them because you have your passions all bottled up. You show passions in your home life, why not share your passions at work?

Are you so afraid that someone who works for you might just poo-poo on your passion? I learned that the more my passion showed to my employees, the more work they showed me. With passion comes other things though. I believe in empowering employees, trusting employees, teaching employees, and listening to employees. My

The People Place

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

Jason Tincu, SW OWEA Delegate, jtincu@brwnald.com



motto became trust people until they give me a reason not to trust them. I made some major changes in myself to help me get a better work team at MSDGC. I trusted my employees and built a great team.

These employees ran the plants, ordered the chemicals, made process changes, tracked data, called in overtime, and overall made my job so much easier, YES, so much easier. The employees were empowered to do their jobs and took the tasks and ran with them. The operators were running process samples and some truly enjoyed the extra tasks. I think we sometimes get bored in our jobs and become so complacent. This complacency does not fit in the important job we are tasked with. We must stay on our toes and keep learning about new technologies, new styles of leadership, new process techniques, etc.

Why is it so important to empower your employees? First off, I answered one and that was to make your job so much easier. The next important reason is that these employees might be filling in for you when you are at your one of many meetings. There comes a time when these employees will be taking your positions. It is so important for the company as well as the employee to have trusted and knowledgeable employees filling in these supervisory positions when the employees retire. The transition into these positions is so much easier when we empower our employees so they have as much knowledge and confidence as possible.

Knowledge is something that you do not want to keep. Spread your knowledge to everyone under your guidance so they know what is involved in becoming a supervisor. We all know that not everyone is supervisory material but by making our employees aware of what is involved in day-to-day supervision, it might sway their minds to think about it a bit more instead of just saying NO without any consideration about it.

Passion is so important in our field of work that we all need to have some. Just how much, I am not sure, but we need to show our employees that the field we work in is important and that there is nothing wrong with showing our passion for our job. We should be very proud to be a wastewater operator and show our pride in our daily work. We need to make sure that we do our best daily to ensure a cleaner and healthier environment for our children and grandchildren. We want to leave behind a great legacy that we did our best to clean the wastewater for the receiving streams.

I challenge each of you to make changes in yourself to be more passionate for yourself, your employees, your spousal units, and your company to ensure that we do leave a better and healthier environment for the years to come. Think about it! It is a lifelong commitment that you can do if you just put your mind to it. After all, I have heard that the mind is a terrible thing to waste. Show your passions and don't run from them. Utilize your love for wastewater treatment to become that passionate wastewater operator today!! Find that "mix" of passion and poo that works in your company for the future of our environment.

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Carl Gatton, SWOWEA Past President, Passed Away



It is with great sadness that the family of Carl Grover Gatton announced his passing on Saturday, September 9, 2017 at the age of 75 years. Carl was a loving, kind, and generous man who leaves behind many close friends and colleagues. Carl will be lovingly remembered by his children Carla (Lee) Emerson, Mark Gatton, Rebecca (Juan) Mendoza, Eric (Stacy) Gatton, and Steven (Jennifer) Gatton.

Carl grew up in Louisville, Kentucky. He was a graduate of Valley High School and Union Institute & University. Carl worked at Louisville Water Works, General Electric, Xetron, Hamilton Water Works, and Warren County Water. Carl was an adjunct professor at Cincinnati State where he taught Environmental Chemistry and Statistics. Carl was an electronics engineer, pilot, author, patent holder, and was recognized with many distinguished merit awards throughout his career. At his passing he was a resident of Hamilton, Ohio.

He was so passionate about helping those who work in the wastewater world. He felt strongly about educating those in this field and was actively involved in SWOWEA up to and including a term as SWOWEA president.



Carl Gatton with other SWOWEA Past Presidents at the 2016 Past Presidents Luncheon.



Career Opportunities

No charge for job seekers.

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

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

\$167 for a Professional Membership

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



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



WEF Utility Partnership Program Member Utilities

The WEF Utility Partnership Program (UPP) is designed to allow Ohio utilities to join WEF and OWEA while creating a comprehensive membership package for designated employees. Utilities can consolidate all members within their organization 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 any-time throughout the registration period.

ALL employees at the UPP utility will also be eligible for member rates for the OWEA Technical

Conference and Exposition, OWEA Workshops, and events.

- ◆ All employees at the utility will be eligible to register for a WEFTEC Exhibition-only pass at NO-Charge.
 - ◆ WEFTEC registrations can be included in the UPP Membership transaction, at the time of enrollment or can be grouped and submitted closer to WEFTEC.
 - ◆ UPP also includes a special, NO-Charge membership for Public Officials designated by the Utility, at their discretion.
 - ◆ Up to five new WEF/OWEA members can be added by the utility each year, at no charge for the first year of membership.
 - ◆ UPP utility will be eligible for distributor pricing on all WEF products and services – that’s 40% off list pricing. In addition to traditional items this discount also extends to online learning in the new WEF Knowledge Center.
- UPP members will be eligible for special discounted registration for other WEF Conferences and events.



OWEA currently has 29 municipalities signed up for the Utility Partnership Program.

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

Or contact OWEA, info@ohiowea.org, 614.488.5800

Avon Lake Regional Water	City of Mason	Clermont County Sewer District
City of Bellevue	City of Newark WWTP	Delaware County Regional Sewer District
City of Canton WRF	City of Oberlin, OH	DN Tanks
City of Celina	City of Painesville	Fairfield County
City of Columbus	City of Solon	Lake County Dept. of Utilities
City of Dayton WWTP	City of Steubenville	Metropolitan Sewer District of Greater Cincinnati
City of Fairborn	City of Toledo Div of Water Reclamation	Northeast Ohio Regional Sewer District
City of Harrison	City of Troy Ohio	Sanitation District No 1
City of London Ohio	City of Twinsburg	
City of Mansfield	City of Warren WWTP	
City of Marietta WWTP		

City of London

Wastewater Treatment Facilities

by Jamie Mills, Strand Associates & Dan Leavitt, City of London

Design Parameters

Influent Flows

- ◆ Average Daily Influent Flow (ADF): 5.8 MGD
- ◆ Peak Daily Influent Flow (PDF): 13.9 MGD
- ◆ Peak Hourly Influent Flow (PHF): 17.1 MGD

Influent Loadings

- ◆ Total Suspended Solids (TSS): 250 mg/L
- ◆ CBOD5: 300 mg/L
- ◆ NH3 (Summer): 25 mg/L
- ◆ NH3 (Winter): 20 mg/L

Discharge Loadings

- ◆ Dissolved Oxygen (DO): 5.5 mg/L minimum
- ◆ TSS: 12 mg/L monthly
- ◆ NH3 (Summer): 1.5 mg/L monthly
- ◆ NH3 (Winter): 3.75 mg/L
- ◆ E. Coli: 126 monthly
- ◆ pH: 6.5 minimum, 9.0 maximum
- ◆ CBOD5: 10 mg/L

rate thermophilic Class A sludge system using an egg-shaped anaerobic digester. The upgrade also included rehab of two of the existing aeration tanks, the existing final settling tanks, converted the old chlorine tank into the UV system, expanded the administration facility, and installed computerized control and alarm systems. The cost of the upgrade was \$24 million. The preliminary building, aeration tank, settling tanks, and blower building were put into use on January 7, 2007 and the new Class A digester system put into service June 2008.

The City of London sanitary sewer system serves an estimated population of 9,900 with a total incorporated area of 8.5 square miles. The City provides sewer services



City of London Wastewater Treatment Plant.

History of the WWTP

The City of London wastewater facilities were originally constructed in 1936 in the existing location. The plant was upgraded in 1973 and 1986, and the latest upgrade started in December 2005 and was completed in 2007.

The upgrade in 1986 expanded the plant to a 2.9 MGD average daily design flow with a peak flow of 3.8 MGD. In the 1990s through 2000, the City population grew about 10%, causing the wastewater flow to approach the plant design flow and exceed its peak wet weather flow. In 2004, the City submitted an updated Facilities Plan showing that expansion of the facility and replacement of equipment was needed. The plant expansion started in December 2005 which increased the average daily design flow from 2.9 MGD to 5.8 MGD, with the peak hourly flow to 17.1 MGD. The expansion consisted of a new pump station, head works building, primary settling tanks, one new aeration tank and two new final settling tanks, new blowers and blower building, UV system, and a new high



Influent Mechanical Screen

outside the city corporation to the London and Madison County Corrections Institutions with an annual average flow of 650,000 GPD. The collection system is comprised of approximately 45 miles of sewer lines and six pump stations.

The department is staffed by five dedicated employees who operate and maintain the wastewater treatment facilities and the collection systems.

Preliminary Treatment and Primary Clarifiers

The first level of the preliminary treatment building houses two influent mechanical rake screens, screening



Primary Clarifier

conveyors, grit classifier and a raptor fine screen for the facility's septage receiving. London began its septage receiving program in 2010. The basement of the preliminary treatment building holds primary clarifier pumps as well as a grit pump. A skylight was also incorporated into the building's design above the influent screens to introduce more natural lighting and reduce electrical costs

Grit is removed with a vortex-type grit removal system and forward flow proceeds to two circular, 65-foot diameter, 10-foot side water depth (SWD) primary clarifiers. Primary sludge is removed with two progressive cavity pumps and scum is routed to a primary scum pump station and further blended in with primary sludge being sent to the facility's gravity thickener.

Aeration Tanks

The existing three aeration tanks are compartmentalized with 17% of the tank volume acting as an anoxic selector zone with the remaining 83% of the tank maintaining aerobic conditions. The anoxic zone maintains suspended solids and adequate mixing conditions via submersible mixers where the aerobic zones are equipped with fine pore diffusers. Appropriate dissolved oxygen (DO) concentrations are sustained in the aeration tanks by five centrifugal blowers.

Secondary Clarifiers

There are four circular secondary clarifiers, two 55-foot diameter units and two 90-foot diameter units with all four units having a 15'-8" SWD and scraper-type mechanisms. The larger-diameter clarifiers have a shared



Secondary Clarifier

Plant Profile



Aeration Tanks

return activated sludge (RAS) wetwell and the smaller diameter clarifiers have individual RAS pumps and wells which are returned to the activated sludge tanks.

Disinfection

The existing disinfection system consists of two horizontal ultraviolet light (UV) disinfection banks. Under average flow conditions, only one bank of bulbs is required for disinfection, whereas the second is used in conjunction during peak flow periods to maintain normal disinfection criteria. Post aeration of the wastewater provides operator flexibility in maintaining effluent DO compliance before discharging to Oak Run Creek.



Ultraviolet Light Disinfection



Post Aeration

Sludge Handling

Settled sludge from the primary clarifiers is routed to a gravity thickener and waste activated sludge (WAS) from the secondary clarifiers is sent to a gravity belt thickener. Primary sludge and WAS are both thickened to approximately 5.0% solids before being added to a sludge blending well. Blended sludge is then routed to the inner chamber of an isolation tank where it is heated up from thermal crossover from the isolation tanks outer chamber, which contains thermophilically stabilized sludge from the aerotherm process (ATP) reactor. The recycling and heat transfer between blended sludge and treated sludge reduces the amount of energy required to heat the blended sludge and maintain thermophilic conditions in the ATP reactor. Temperatures in the ATP reactor average 149°F allowing for a 38% volatile solids reduction. Following the ATP reactor, sludge is routed to a mesophilic egg shaped digester (ESD) and thermally phased from 149°F to 98°F. Sludge is further treated for 14 days in the ESD, producing a class A biosolid. Solids are dewatered with a belt filter press (BFP) to approximately 20-22% total solids and land applied.

Future Considerations

London's WWTP is currently undergoing a nutrient removal facilities plan to address potential nutrient removal upgrades. The report combines the Senate Bill 1 requirement for a plan to reach 1.0 mg/L and a new NPDES permit limit of 0.48 mg/L monthly average for ammonia. The report will include a review of processes and equipment conditions, establishment of flow and load projections, bench-scale testing for biological and chemical phosphorous removal, review of alternatives for forward flow and sidestream total phosphorus and total nitrogen removal, and coordination with vendors, regulators, and funding sources. Bench-scale testing included chemical phosphorous removal (CPR) with three chemicals and at different locations in the plant, and biological phosphorous removal (BPR) using activated sludge from another WWTP already successfully operating a BPR process.



Egg Shaped Anaerobic Digester



Ohio EPA Update

In April 2017, Ohio EPA launched the Ohio Materials Marketplace (OMM), a significant step to help shift Ohio from a “take, use and dispose” model to one emphasizing recycling, remanufacturing, reuse and maintenance. OMM’s free online materials and waste exchange encourages a dialog between members and provides a forum where they can connect and find reuse and recycling solutions for waste and by-products.

Through OMM’s interactive messaging system, Ohio businesses, not-for-profits and government organizations communicate with other members to advertise and acquire materials that might otherwise be destined for disposal in landfills. Since April, 380 organizations have joined OMM, listing 90 available materials and 45 wanted materials. The marketplace has facilitated the reuse or recycling of 14,200 lbs. of materials.

Examples of advertised materials and their potential re-uses include:

- ◆ bulk wooden pallets (mulch base)
- ◆ used bricks (building materials)
- ◆ spent foundry sand (to be mixed with potting soil).

Examples of needed items to substitute for raw materials include:

- ◆ bulk alumina oxide (for metals harvesting/recovery)
- ◆ packaged food waste (to be used for anaerobic digestion/energy recovery).

Users of the marketplace include recycling processors, manufacturing plant operators, artists, sustainability

“This new service positions Ohio as a leader in the circular economy - promoting jobs, allowing for better efficiency and savings and helping remove materials from the waste stream.”

Craig W. Butler, Director

managers, small businesses owners and construction managers. Successful transactions have included plastics bottle caps, electronic waste, wood pallets, and plastic drums.

OMM members can save, or even make, money by finding a market for their unwanted materials and avoiding landfill tipping fees. Buyers save money by having access to sellers’ discounted (or free) materials, and Ohio’s environment benefits by having more material removed from the waste

stream.

The materials marketplace is a resource provided by the Ohio EPA to help organizations participate in the circular economy. The circular economy is a system that is regenerative and restorative by design, meaning resources are optimized through reuse and recycling, and waste is designed out of the process. Unlike the take, make and dispose model of the linear economy, in the circular economy all products and by-products are designed with the intent of being repurposed or reused. Utilizing this business model results in the decrease or elimination of landfill and waste disposal fees, generation of new products and services and energy savings.

Be a leader in the growth of Ohio’s emerging circular economy and zero waste goals. Watch the webinar at https://youtu.be/d_dSHFUn0u0, then go to <https://ohio.materialsmarketplace.org/> to join today. For specific questions, please contact Joseph Klatt at materials.marketplace@epa.ohio.gov or (614) 644-2798.



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Pataskala's Journey to a Self-Reliant Biosolids Management Program

by Nathan W. Coey, Utility Director City of Pataskala, WW4, WS3

The City of Pataskala is situated in southwest Licking County, roughly 20 miles east of the City of Columbus. The name Pataskala is derived from a native Delaware Tribal dialect to mean "bright waters". The Village of Pataskala was settled in 1851 after the installation of the rail road. Summit Station located historically in Lima Township, was a hub for the rail road into Columbus. Lima Township merged with the Village of Pataskala in 1996 to provide more localized control from urban sprawl. The merger protected the rural and agricultural identity of the far western portions of Pataskala. There is now over 300 lane miles of road in the City covering 28 square miles. The majority of the Pataskala service area remains in the historical village area.

Wastewater treatment for the village began in 1967 with the installation of two, four-acre lagoon treatment system. The treatment included lagoon aeration, chlorine disinfection, and flow monitoring. The lagoon treatment system was removed from daily service under a 1989 facility upgrade. The 1989 upgrade included an 'orbital' oxidation system, secondary clarifiers, 40,000 gallons of sludge digestion, sand drying beds, and UV disinfection. However, due to growth the facility was plagued with solids issues by early 2000.

Sludge processing was inadequate with no digestion time. The overloading of solids resulted in over oxidized sludge and treatment issues. The treatment issues were compounded during rain events as the aeration system was subjected to overflows that resulted in surface and potential stream run off. The sand beds were undersized so liquid land application was used on the fields at the treatment facility via spray irrigation units. There was no crop removal and the solids were overloaded on the fields. To this day there is still a high amount of phosphorus bound in the soils at a 2015 average of 600 ppm.

An OEPA inspection in 2007 resulted in immediate cease of the liquid land application process. Pataskala purchased a used 1-meter belt press for solids thickening and removal. Solids were pressed daily and sent to landfill operations for disposal. A rotary fan press was purchased in 2009; however, this upgrade still resulted in daily 10-yard dumpsters to landfill. The process control of the facility was limited to the daily press efforts. The plant was still in a solids overload state with daily issues. Often flow was diverted through the abandoned lagoons to capture solids lost through the clarifiers prior to effluent discharge.

An upgrade to achieve compliance was implemented in late 2010 to address the continual facility issues. The upgrade resulted in reconfiguration of the aeration system to prevent overflows. A gravity thickener tank was installed with 370,000 gallons of digester storage. The upgrade also included a modest cake storage facility to provide 30 days of storage prior to landfill disposal.

The upgrade did eventually allow for improvements in a healthy activated sludge process with a proper waste and disposal cycle. This still required the removal of 80 wet tons a month from the storage building. The City spent nearly \$300,000 in hauling and tipping fees from 2009 through 2011. In 2012, we started to work with Quasar Energy Group for sludge disposal which reduced our hauling costs from \$100,000 a year to \$40,000. I still had lingering issues that we were just getting rid of the product and not seeking beneficial reuse options with the many farm fields in Pataskala. I felt we had a commodity that could be utilized.

Near the completion of the Facility Upgrade (2012) I met a local agronomist. This gentleman helped me study our biosolids through his experience with the USDA through a 'Comprehensive Nutrient Management Plan'. The agronomist suggested we had excellent solids similar to the 'coveted turkey manure'. His insistence and public motivation opened the door for land application. He spoke publicly in favor of getting this product to the local farmers. My interest was piqued knowing I had support to move forward.

However, I was faced with a problem. We just completed an upgrade (all decided prior to my arrival) that provided merely a month of storage. The windows were impossible to really provide a benefit to local farmers. We looked at liquid application but our shared roadway with a subdivision prevented this option. We saved cash from development impact fees to build a new storage building that would provide a minimum of six months storage. The goal was to get this product in the hands of the farmers, handle operation in house, with a budgetary cost savings, and a focus towards beneficial reuse. As fate would have it, I had a staff member that had extensive farming experience. He helped nudge this along too.

We engineered and completed a new storage building





in 2015 with capital funds. The building would provide at minimum 6 months of product storage. Early in the process, we were motivated by the desire to get this great product to local farmers and we wanted to be involved in the process. We purchased a 140 horsepower tractor / loader unit along with a 10-ton side discharge manure spreader. We also purchased a used, tandem dump truck from the Service Department for trade in value. GPS equipment for the tractor was purchased to accurately track our application rates and provide the auto steer option for precise application. The program allowed us to generate excellent reports with accuracy of application in buffer areas. We also purchased a set of portable scales for days when we haul the product. We secured a used stone conveyor trailer that allows us to set walls and stack product higher in the building to maximize capacity. Our walls usually consist of 1,000 pound stubble bales that we break down during the hauling operation and deliver to the field.

Our application event begins with coordination with the farmer regarding the crop schedule. We visit the field and set up our buffer markings, if it has not been done prior via GIS. Buffer zones from occupied dwellings, wells, streams, and potential water ways on the field. We then consulted the long-term forecast from 'weather.gov' for

planning the sequencing of events. We weigh each truck load as it leaves our facility. We often spend 2-4 days hauling the product to the site. We also put earthen containment around our piles to prevent any nuisance issues. This is the time when folks take notice of our posted sign and contact me with questions. I make one on one contact with anyone that has questions about our process.

Each hauling event includes incorporation by the farmer after we apply the biosolids. This is done to minimize any odor complaints and to get the product in the soil as soon as possible. This is also per our agreement with the farmers as we provide and apply the biosolids at no cost.



Client: Terry drew dad
 Farm: sub-land
 Field: reusser 11-0302-3
 Name: reusser 11-0302-3 - Applic
 Type: Application
 Date: 4/19/2017
 Biosolids: 330.871 tons (US)
 Unit Cost: \$0.00/ton (US)
 Product Cost: \$0.00
 Applied Area: 87.287 ac
 Minimum Rate Applied: 4.910 ton (US)/ac
 Maximum Rate Applied: 4.910 ton (US)/ac
 Average Rate Applied: 4.910 ton (US)/ac





Getting Started Jobs Farms/Fields My Account Order Tests

Job Details Shipping Sheet Lab Results Recommendations

Lab Results — 58101

View PDF Results

Reussner 1/Reussner1/Whole Field

Hover over a sample below or on the map to highlight.

Sample #	CEC	pH	Base Sat (%K)	Base Sat (%Mg)	Base Sat (%Ca)	OM	P (ppm)	K (ppm)	Mg (ppm)	Ca (ppm)	Coordinate
1-7	11.8	5.9	1.81%	16.34%	51.64%	2.2	40	99	263	1,625	40.063587, -82.61
1-8	10.3	5	2.32%	5.77%	21.74%	1.9	63	111	81	507	40.063410, -82.61
1-9	8.8	5.8	1.71%	11.60%	27.77%	1.5	25	78	155	867	40.063227, -82.61
1-10	6.2	5.4	2.15%	19.67%	59.88%	1.9	20	63	169	1,806	40.063088, -82.61
1-11	11.1	4.8	1.38%	9.25%	29.80%	1.6	26	71	149	734	40.062964, -82.61
1-12	10.9	6.2	1.96%	22.00%	65.06%	2.2	65	99	327	1,891	40.062694, -82.61
1-13	7.4	6.3	1.78%	24.48%	74.09%	1.2	22	61	247	1,402	40.061712, -82.61
1-14	10.9	6.9	1.74%	19.79%	64.33%	1.7	16	86	294	1,879	40.063585, -82.61
1-15	10.6	6.5	1.42%	11.14%	71.07%	1.6	31	79	101	2,909	40.063352, -82.61
1-16	9.5	5.4	1.16%	9.42%	38.53%	1.2	23	51	122	970	40.064211, -82.64
1-17	10.6	7	1.38%	24.70%	60.52%	1.1	12	67	257	1,722	40.063449, -82.64
1-18	8.8	6.2	1.65%	18.26%	67.88%	1.4	15	75	244	1,774	40.061579, -82.61

Cation Exchange Capacity (CEC)



Pathogen Reduction Alternative P-1, geometric mean of seven samples below 2 million mpn/cfu is utilized. Vector Attraction Reduction Option VAR-3, bench scale aerobic digestion with VSS% reduction less than 15% after 30 days is also met prior to land application. The farmer and property owner (if not the same) will receive all paperwork relative to Ohio Administrative Code 3745-40. We also share the soil sample result recommendations, our GPS application data, Ohio EPA Agronomic Rate Worksheet, and test result information.

One of our employees introduced me to “AG PHD Radio Show” that includes podcasts and videos available on iTunes and YouTube. The Hefty Brothers are a wealth of information to the farming professional. For me it is a weekly dose of education regarding farming operations.

One of the episodes was about a product called “Soil Test Pro” an application for smartphone and tablets. This is a very convenient program for GPS soil sample collection and data reporting. The program provides the ability to map fields and then set up GPS sample grids for long term testing. No more guess work. We can collect samples at the same GPS location every few years to better gauge soil condition. The collected samples can be sent to a partner laboratory and results will be posted on line and accessible through a phone or tablet application. The results provide comprehensive soil data and recommendations for the most suitable crops for the soils. This information is provided to our farming partners along with the data related to the applied biosolids.

Lessons learned

The OEPA Agronomic Rate Worksheet is a great tool. It helps with tracking and reporting purposes. Develop worksheets to compliment the OEPA tool with a ground

level approach to the test results. Our results reported in MG/KG mean very little to farmers, that number needs to be worked down to pounds per acre. This will also help with annual reporting requirements. The data we generate for reporting purposes is valuable to a farming operation. It is beneficial to send biosolids to an agronomy laboratory to professionally calculate the nitrogen, phosphors, and potassium (NPK) ratio to the farmers. They can then take all our provided data to the local mill for the commercial fertilizer rates in respect to the free nutrients.

Familiarize yourself with the art of farming and practices of the local experts. Agronomy is the combination of science and technology to produce crops and land reclamation. Our involvement, on a small scale in Pataskala, helps provide a better way of life for our agricultural community. While the nutrients available in our biosolids does not completely eliminate the need for science in the form of additional fertilizers, it does provide a cost savings to the farmer.

In my efforts to continue to learn about farming practices I have attended Ohio Farm and Power Shows. I also listen to the “AG PH Podcast” to learn more from the professional farming community. The regulatory challenges biosolids generators deal with are a reality with local farm operations. There is a great deal we can learn from both sides while sitting at the same table. The reality, farming is driven by an end profit, or doing as much as possible to ensure a great harvest. This is often why the over application of commercial fertilizers is enacted. Unfortunately this comes with a run-off potential. Biosolids are not the short-term answer for farmers and beneficial reuse but a long-term approach towards soil conditioning.

Intentional efforts towards public education is vital to

a positive program. You will get phone calls, but make effort to talk to the local neighbors during the first application event. It helps to be seen while marking buffer zones and explain the process to the curious folks. Permanent or temporary land application notice signs will generate phone calls. The general public is not interested in my ability to cite the Ohio Administrative Code 3745-40. They want to know what it means to them and their property. The extensive testing and field approval process can speak for itself. It is vital that you know how to communicate your plan and what you are doing. Unfortunately, there will always be a stigma that comes with biosolids, or “human manure”, but don’t hide the truth. Be transparent on what it is and the efforts to make sure the product is stable and met all requirements prior to hauling. Yes the product can have an odor but educate on the means to minimize the odor.

Educate and share the information with the public. Prior to rolling out our program, I spoke about this often in public meetings. I wanted anyone to be fully aware of our program. This included running articles in the local newspaper about the program. This also sparked interest for other farmers seeking our product. This is an example of intentional outreach effort getting out in front of the program.

Since our first land application event in November 2015 through the spring of 2017, we have applied 208 dry tons of biosolids on 362 acres of approved fields. I feel that in our own small way we are making an impact to our local community.



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Nutrient Load Reductions: Policies for Diverse Perspectives

by Adrienne Nemura, Geosyntec Consultants

Ohio nutrient reductions are creating water quality and economic challenges. This was the topic for the Tuesday Roundtable at the 2017 Technical Conference & Expo in Cincinnati on June 27th, 2017. These challenges are more evident as the state develops nutrient load reduction policies to address water quality problems in the Western Lake Erie Basin (WLEB), Central Lake Erie Basin (CLEB), Ohio River Basin, Gulf of Mexico (GoM), and local watersheds. Building effective communication across the point and nonpoint source sectors is critical to develop the most cost-effective path forward.

Water Quality

Excess nutrients (phosphorus and nitrogen) can produce too much algae in streams, rivers, and lakes, including harmful algal blooms (HABs). However, forecasting the desired responses (restoration of designated uses like aquatic life and recreation) is challenging. US EPA established an 8-step framework for states to address excess nutrients – a framework that is best implemented through strong partnerships. Cost-effectiveness of point and nonpoint source technologies varies significantly and full implementation can be cost-prohibitive. For example, the cost of the Chesapeake Bay cleanup is at least \$50 billion; Florida will spend at least \$10 billion. There are also other costs to be considered, such as the impact on tourism and the cost of drinking water treatment and additional regulations.

Ohio Nutrient Strategy

Ohio published its statewide nutrient strategy in 2013 and amended it in 2016. This plan complements US EPA’s framework. Ohio’s strategy has priority nutrient reduction areas including six large watersheds (Maumee, Sandusky, Cuyahoga, Great Miami, Scioto, and Wabash); several distressed watersheds or critical natural resource areas (WLEB watershed); and several watersheds that may export excessive nutrients to downstream waters. The strategy also addresses the nutrient loading targets in the Great Lakes Water Quality Agreement Annex 4 (WLEB and CLEB) and the GoM. Ohio is targeting implementation resources based on “institutional readiness” to deliver improvements and the public’s willingness to implement solutions.

Ohio is measuring the effectiveness of reductions through a number of public reports including Ohio’s Integrated Water Quality Reports (required by the Clean Water Act) and a statewide Nutrient Mass Loading Report (required by the Ohio legislature). The figure shows the distribution of total phosphorus loads for some of the priority watersheds by point sources - wastewater treatment plants or WWTPs (labelled as National Pollutant Discharge Elimination System or NPDES); home sewage treatment systems (HSTS); and nonpoint source (urban, rural, and agricultural stormwater runoff and other

Roundtable Panel

Adrienne Nemura

Geosyntec Consultants

Brian Hall

Ohio EPA

Frank Greenland

Northeast Ohio Regional Sewer District

Kirk Merritt

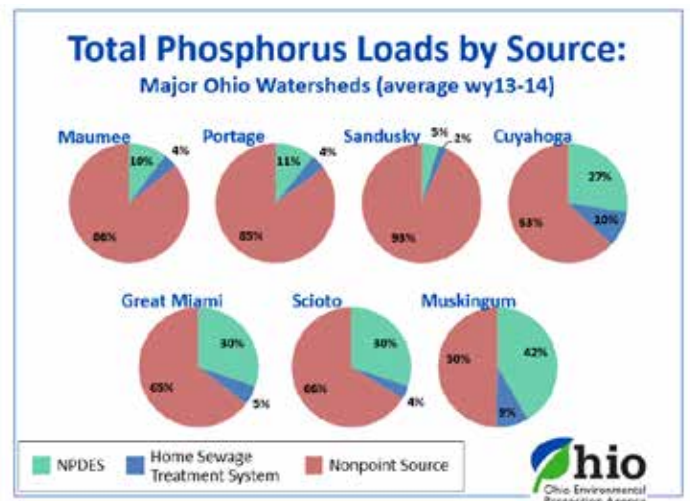
Ohio Soybean Association & Council

Jeff Rexhausen

Adam Blandford

University of Cincinnati Economics Center

sources such as streambank erosion that cannot be independently quantified). The distribution varies by watershed, suggesting the need for tailored solutions for each watershed to achieve cost-effective and efficient reductions. Ohio also continues to develop nutrient water quality standards for small to medium-sized rivers, large rivers, and inland lakes, which will affect NPDES permits.



Distribution of Point and Nonpoint Source Phosphorus Loads in Selected Priority Watersheds.

A Municipal Perspective

The Northeast Ohio Regional Sewer District (NEORSRD) is a regional agency providing wastewater and stormwater collection and treatment for a 355 square mile area encompassing 62 communities. NEORSRD owns and operates three WWTPs that serve a million customers. Since 1972, the agency has invested \$5+ billion in regional wastewater collection and treatment. The agency also has a \$3 billion, 25-year combined sewer overflow (CSO) control program and has implemented an annual program of \$42 million to address 420 miles of regional stormwater needs primarily targeted at erosion and flooding and reducing aquatic life impairments. NEORSRD’s costs also do not reflect community needs to address sanitary sewer overflows (SSOs), illicit discharges, local stormwater problems, and failing HSTS.

NEORSRD has reduced WWTP loads of phosphorus through low cost phosphorus removal. Addition of ferric chloride has achieved annual averages between 0.5 and 0.7 milligrams per liter (mg/L) at a nominal cost of less than \$250,000 per year. This is a very low cost (\$0.24 per pound) for phosphorus removal. The agency has evaluated higher levels of phosphorus removal (0.5 to 0.15 mg/L monthly average) at each plant. Costs range from \$160 to \$850 million in capital upgrades, with significant annual operations and maintenance (O&M) costs. The value of achieving further reductions, when the three WWTPs contribute 2% of the total phosphorus load to Lake Erie, is questionable – each \$100 million capital project increases NEORSRD’s rates by 1 percent. NEORSRD is therefore keenly interested in any modifications to the state’s permitting strategy for municipal point sources.

WWTP	Capital Cost	O&M Cost
Southerly	\$20 - \$180M	\$2.5 - \$9.2M
Easterly	\$90 - \$160M	\$1.7 - \$5.5M
Westerly	\$50 - \$90M	\$0.9 - \$2.4M
Total @ 0.5 mg/L	\$160 - \$330M	\$5.1 - \$17.1M
Southerly	\$ 30 - \$230M	\$3.4 - \$12M
Easterly	\$150 - \$340M	\$2.5 - \$8.6M
Westerly	\$ 80 - \$150M	\$1.1 - \$3.3M
Total @ 0.3 mg/L	\$260 - \$720M	\$7.0 - \$23.9M
Southerly @ 0.15 mg/L	\$270 - \$360M	\$11 - \$14M

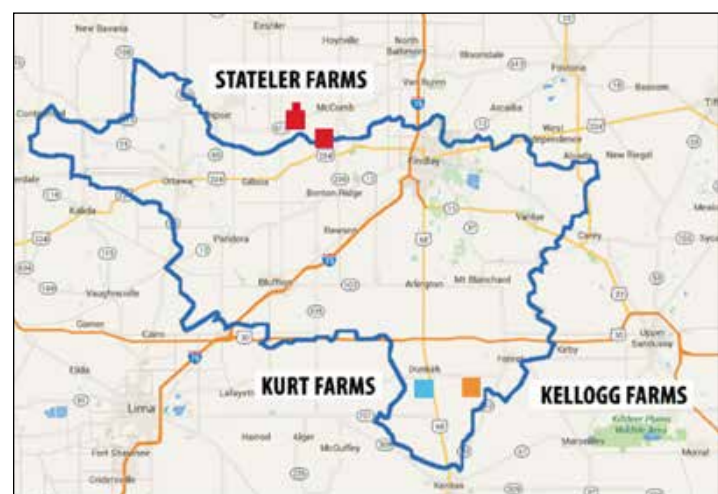
Cost Estimates of Additional Phosphorus Removal at NEORSRD’s WWTPs at Different Monthly Average NPDES Limits

The CSO program is being funded through sewer fees and is targeted to capture and treat 98% of the annual wet weather combined sewer flow. While a significant investment, it will not significantly reduce phosphorus loads (existing CSO loads are less than 0.5% of the total load). To help pay for this program, NEORSRD’s ratepayers experienced 12% annual rate increases from 2012 to 2016; and 8.3% increases are needed annually from 2017 to 2021.

Another significant program is NEORSRD’s regional stormwater program which involves \$42 million per year for erosion, flooding, and water quality projects. The current stormwater fee does not include wholesale phosphorus reduction efforts as the NPDES permit responsibilities lie with the member communities. Further, the magnitude of phosphorus loads from urban stormwater, and hence the cost-benefit of stormwater best management practices (BMPs), are unknown.

An Agricultural Perspective

Ohio’s soybean and grain farmers are investing millions of local farmer dollars in research and education to proactively focus on solutions through their state checkoff programs. Since 2011, this includes more than \$4.5 million in research; farmer and agricultural industry outreach and education; and analysis, technical assistance, and verification. According to Effects of Conservation Practice Adoption on Cultivated Cropland Acres in Western Lake Erie Basin, 2003-06 and 2012 by the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), individual farmers are increasing their efforts significantly and have reduced total phosphorus usage in the WLEB by at least 13%.



This estimate does not include any additional reductions made in the last five years.

Ohio State University and USDA are conducting edge-of-field research to evaluate the relationship between on-field conditions and nutrients leaving the field. Twenty-nine fields are being monitored and 14 of those are in the WLEB. Data from 1993 through 2015 shows that 80 of 88 counties have declining soil test phosphorus levels. This research will be finalized in summer 2018 and includes revising the Tri-State Fertilizer Recommendations and the Phosphorus Risk Index. The research will help farmers better understand how to mitigate the impact of nutrient runoff on local stream water quality.

Ohio agriculture is also promoting the 4R (Right source, Right rate, Right time, and Right place) Nutrient Stewardship Program. This program, led by Ohio Agribusiness Association and The Nature Conservancy, includes an audit process for fertilizer retailers to certify that they are following 4R principles when working with crop farmers. In Ohio there are 37 certified branch facilities (34 in WLEB) managing 2,515,000 acres (1,880,000 in WLEB), for 5,550 clients (3,780 in WLEB).

Fertilizer placement can be very effective at reducing nutrient loss. GPS technology allows for variable rate nutrient application with specialized equipment to precisely incorporate fertilizer in the soil. Ohio farmers are also using BMPs such as cover crops and buffer strips and other promising practices such as drainage water management, wetlands, two-stage ditches, and phosphorus removal beds. The Ohio Farm Bureau and USDA have three demonstration farms in the Blanchard River watershed – Stateler Family Farms, Kurt Farms, and Kellogg Farms. These farms are research beds to test these technologies. Results are widely shared with other farmers, management agencies, and the public.

In addition to these voluntary practices, new state regulations including Senate Bill 150 (signed in May 2014) requires farmers and contractors to be certified to apply fertilizer. To date, 18,000 certifications have been issued. Senate Bill 1 (signed in April 2015) prohibits application of fertilizer or manure on frozen, snow covered ground, or saturated soils or when a certain amount of rain is forecasted.

Farmers want to be good environmental stewards and are continually adapting their practices to improve water quality. They recognize that their decisions need to be based on the best science and research that is available and are actively funding and participating in that research. There are, however, still important research questions that need to be answered. These questions include the impact of legacy phosphorus in farmland; the impact of surface drainage and tile drainage (and how management practices may affect these two delivery routes); how particulate phosphorus becomes available to fuel algal blooms downstream; whether nitrogen control is also needed; and differences in how fertilizer and manure impact water quality. Finally, even the best BMPs cannot perform during heavy rain events – this presents additional challenges, particularly when considering climate change.

Economic Principles

- 1. RESOURCES ARE LIMITED (no one can afford to waste money)**
- 2. CHOICES HAVE CONSEQUENCES (when we invest in something that does not “move the needle”, we lose the opportunity to invest where it might make a difference)**

Economic Considerations

Both agriculture and urban wastewater utilities are investing in nutrient reduction; yet the cost of reductions are not always considered and there remains a lot of uncertainty and risk. The cost-effectiveness of different management approaches can vary widely in both the short- and long-term timeframes. Two basic principles of economics need to be considered – resources are limited and choices have consequences. Cost-effective decisions are needed.

The Clean Water Act framework was structured to require point sources to invest in pollution controls and encourage investments in nonpoint source controls. The range in costs for NEORSD’s wastewater plants to reduce nutrient emissions is huge and represents decisions facing Ohio’s municipal utilities. Nonpoint sources have the best position to reduce loads efficiently yet there is significant uncertainty. In agriculture, too much phosphorus is applied in some fields whereas in other fields, BMPs and other practices may be sufficient. There are also significant differences in the ability of point and nonpoint sources to pass on costs. Municipal point sources can rely on rate increases (though the ability to raise rates has limits). Farmers’ costs are controlled by global markets and different levels of regulation can result in Ohio farmers losing market share to states or countries where regulations may be more lax.

Water quality trading has been suggested as an efficient tool to make progress on reducing nutrient pollution. Voluntary markets would allow point sources to decrease their total costs by paying farmers to reduce nutrient emissions. An advantage of markets over regulation is that it can increase agricultural nonpoint sources’ participation in efforts to reduce nutrient emissions. If such a market is transparent and transaction costs are low, utilities are able to reduce nutrients at lower cost, farmers receive an additional revenue stream, and people wanting to recreate get clean water. To be efficient, however, markets need as few barriers as possible. Markets can create a level playing field and mitigate risk, maximizing surpluses and allowing technology to flourish, regardless of the source of the pollutant.

However, barriers exist for both point and nonpoint sources. Even when efficient markets are available, municipal wastewater utilities may be reluctant to trade – ratepayers do not receive the non-economic benefits for their investment and may not understand their payments to agriculture means they pay less overall. The Clean

Water Act's intent is to make water clean for those who recreate and fish, but the revenue received from fishing and boating licenses are not focused on ensuring the waters remain in good condition. To the extent beneficiaries do not pay, they are regarded as what economists call free riders, which can create worse outcomes for waterways.

For the agriculture community, markets do not work when tenant farmers lack control over the fields and when they are unable to recover their investment because prices are set by a larger market, which is not influenced by what is going on in Ohio. Farmers may also be leery that they will become regulated to the same level as point sources.

In the end, both markets and regulation value fairness but seek to achieve it in different ways. Regulation strives for certainty and uniformity; markets strives for efficiency and cost-effectiveness. Shifting from a regulatory to a market-based mindset is difficult – regulators and the environmental groups can perceive that the power to

“With the substantial funding needs for both point and nonpoint sources, we must invest our scarce environmental dollars wisely. This requires sound science and a scale and pace for implementation that is effective and sustainable.”

Frank Greenland

make progress is being lost.

The Clean Water Act creates barriers to efficient trading, though notable examples show promise in creating mechanisms that are more efficient. In the Chesapeake Bay, trading occurs with the costliest increments - everyone must achieve a baseline load first. More efficient programs exist – for example, North Carolina uses

a group compliance permit amongst the point sources. This allows for more trading and more efficiencies – not just among the costliest. Perhaps what is needed in Ohio is flexibility to establish a trading program that fosters the development of lower cost technologies to keep nutrients out of the water as cost-efficiently as possible. Ohio communities cannot afford to ignore this option.

Adrienne Nemura is a Senior Principal with Geosyntec Consultants in Ann Arbor, Michigan. For a copy of the roundtable presentation, please visit <https://www.geosyntec.com/pdf/2017-0627-OWEA-Nutrient-Roundtable.pdf>.

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A Chat with Barb Browne

by Megan Borrer, OWEA Staff

Staff: Where did you go to school and what did you study?

Barb: Oh my goodness. Okay so my first college was at Mt. St Joseph of Ohio and my first degree was music education K-12. At the time that was an all-female college of about 800 students or so. Now it's a University and it's co-ed. Then I was going to Cincinnati State Technical and Community College because MSD paid for schooling and all that. They had the environmental degree so I got the Associates in Environmental Engineering Water/Wastewater and just the one in Applied Science.

I got two other certificates – Process Control Instrumentation and Utility Safety and Security. Then I went back to the Mt. and got Criminology and Sociology – a Bachelors. I went on for a Master's in Public Administration in Government. Then I went on for PhD. I got like three classes away from my PhD when I came down with Stage Four Colon Cancer. That degree would have been Business Administration Organizational Leadership.

Staff: After all of that did you end up in wastewater?

Barb: Well, I planned on going up the ladder higher. Then once I had cancer, I was like, 'You know what? There's other life out there. I need to worry about healing myself first.' So I did that. And one thing, if nothing else I've learned from my thirty years with wastewater is first off, my passion is teaching. I did start off in the field of education; first, in a small Catholic school in Delhi teaching music and English to 7th and 8th grade. At that time my salary was like \$700 a month and I was trying to buy a house and everything and I got tired of peanut butter and jelly sandwiches.

My uncle was actually a Personnel Director down here at MSD. So he said, 'Put your application in.' So six months [later] I was hired and thirty years later I retired.

Staff: What professional certifications do you hold?

Barb:

- ◆ Member of WEF.
- ◆ Quarter Century Operator [Award].
- ◆ Member of the 5S.
- ◆ Proclamation City of Cincinnati for Leadership (and other leadership certificates)
- ◆ OWEA's W.D. Sheets Award [2010]
- ◆ OWEA J.W. Ellms [2016]



◆ I hold a Class IV License

At the last OWEA section meeting, another female operator came up to me and was bubbling over because she said there were only 11 females holding the Ohio WW4, she had just received hers. That, to me, is well worth mentioning in that we need more women breaking down those barriers. Work on getting your Class IV ladies!!

Staff: Do you have any children?

Barb: I have five dogs. Do they count?

Staff: I think they count! It sounds like you are kept busy with your dogs, but what other hobbies do you have?

Barb: Well, I was a church organist and choir director. I played organ at church for 30 years and retired from that back in 2006. I am a musician by trade. I started off playing organ at the age of six. Then my dad bought a piano and my brothers and I got into playing piano and organ duets. Back then there was an organization called Baldwin Piano and Organ Club. It was mainly a bunch of older seniors, so my brothers and I would go and play for them every once and a while. My dad was very strict and very determined that all of us were going to take piano and organ lessons and we did. I kept going all the way through college. I became the organist at the church and then I played in a 10-piece big band. I played keyboard. And [there were] other small little bands. My cousin and I had a band together and there was another band that I played in that was like five or six people. I really enjoyed that. Now I am partially retired because I am teaching at Cincinnati State. [I am teaching] water, wastewater, and



Barb Browne with fellow 5S Inductees at the 2017 Technical Conference & Expo in Cincinnati.

safety and security classes.

Staff: How long have you been retired from MSD?

Barb: My official date was February 1, 2015. My last Chemo treatment was Tax Day 2015.

Staff: You said you were at MSD for 30 years?

Barb: Yes.

Staff: Was the cancer what caused you to go into retirement?

Barb: It is basically what caused me to go into it because at that time I was told I was supposed to have been dead. So it was like I needed to go out and enjoy retirement, you know? My doctor didn't tell me that I was supposed to die until everything was over.

Staff: That's good! It must have kept your motivation up!

Barb: That's exactly why he did it. Exactly why.

Staff: What kept you at MSD for pretty much your entire career?

Barb: When I first started, it was before all the computerized data and all that stuff so we had a lot of people there. I thought for a while there that I would never be able to climb the ladder but once they started getting SCADA in and people started retiring, [positions] started opening up. I was able to climb the ladder and got my Class IV and was able to take over the whole east side of town which was three Class IV plants. Plus, I love wastewater treatment. It's different every day, I love the people I work with. It's a great job!

Now what I'm trying to do is convince others that it's a very secure job. It's a very cool job. You never know what to expect day by day and at the drop of a dime things can go south or you could have a nice, easy day but it's just a job that I really enjoyed doing over the past 30 years.

Staff: What positions have you had at MSD over the years?

Barb: I started off as a Plant Operator I. MSD's weird because they go Plant Operator I, Plant Operator I with license, then I went to an Incinerator Operator. Then I jumped up to a Plant Operator III, then I was Plant Operator III with a III license and then I was Plant Supervisor. Then I was Senior Plant Supervisor. Then Treatment Supervisor and that's where I retired.

Staff: What would you say is the biggest hardship you have overcome in the course of your career?

Barb: Cancer.

"I'm a heck of a lot stronger. If somebody says I can't do this I say, 'Don't give me that crap.'"

Staff: When were you diagnosed with cancer?

Barb: June 9th, 2014. It was Stage 4.

Once they diagnosed me, everything went so fast. They diagnosed me June 9th, I had my port put in June 23rd, I started chemo July 3rd. My big surgery was where they took out 60% of my liver, my gallbladder, foot of colon, 20 lymph nodes, and I had a bag on the side. All that happened October 15th and then after that was done I started up on chemo again. The chemo did its trick and they call my tumor circumferential in that it wrapped all the way around the colon. As the chemo was being given to me, it was closing my colon, so like the week before surgery I had to go get a stent put in. I was sitting at work throwing up at my desk because I couldn't pass anything.

Once I had my PICC line in they told me not to go into the plant anymore because it goes straight into the artery. They were concerned about the atmospheres and all that. My protein level dropped from throwing up that they were almost going to cancel my surgery the week after. They sent me home with a PICC line and fed me protein. I got 2-3,000 calories through an IV in my arm for the whole week. One thing I like to impress upon everyone I meet... Get a colonoscopy when it is due or if you have any symptoms!

Staff: That does not sound pleasant at all, but I'm glad you're feeling better.

Barb: Oh, I feel great. There were times like, 'Wow, just let me die.' You get to that point where you're throwing up and nothing's coming up. It's the dry-heaving stuff. I'm on a website with other people that have Colon Cancer / Rectal Colon Cancer and a lot of them are going through a heck of a lot worse than+ I am and it's like, 'How do you do this?'

Staff: How would you say your experience with cancer has made you a better leader?

Barb: I'm a heck of a lot stronger. If somebody says I can't do this, I say, 'Don't give me that crap.' You can do anything you put your mind to. I hear this throughout the whole [Colon Cancer / Rectal Cancer] website, 'You've got to stay positive. You've got to fight hard. You've got to stand strong.' You can't say I can't do this. That's a defeatist attitude. You've really got to use your mind.

Staff: What is your biggest career accomplishment?

Barb: At one time I had one of the highest records for getting operators licensed. I almost had a 100% passing rate at the one time through my classes and all that. That kind of went south. *laughed* That's probably one of my biggest accomplishments is the success I have had with operations and building teams on the east side.

In my company, Biju George was the Deputy Director and he brought in this leadership team and he made all supervisors go through this leadership thing and they taught you different styles of leadership. It really interested me in empowering employees and I tried it out on the east side and it really did work. I had one heck of a team built out in the east section. It made my job so much easier too because I gave them all the power to do everything. I basically just went into the background as a resource. 'If you need me, here I am.' It worked well.

Staff: What does being a leader mean to you?

Barb: Really it means that I have to stay on my toes because I want to lead by example. I believe that as a leader I can have fun with my employees but when there comes a time to get serious, we need to get serious.

I love being in the leadership position. It just seems to fit right with me. I guess it's the teaching. The teachers fill in the leadership role so I guess it's just been that way across my whole life. That's the way my father raised me. It was be the best you can be at everything.

Staff: What advice do you have for aspiring leaders?

Barb: Get rid of the old leadership mentality that knowledge is power, that it is my way or the highway, trust your people, you can be passionate about poo. You don't have to be an a-hole to be a good leader. Listen to your people. Your people have good advice, too. It's not like you're the only one that knows everything. Empower your people. They are the ones that are going to be the leaders when you retire. So teach them how to lead by example.

Staff: What is the best way for someone to develop these leadership skills?

Barb: Look at other leaders in your work history and draw from them. What did you like about this leader? What did you like about that leader? And form yourself. I took the leaders I thought were the best in my career and I became those leaders. It wasn't just one, it was several of them. Then I took my worst ones that had that, 'My way or the highway' attitude. I had a supervisor that said, 'If I haven't made you unhappy one day or I haven't ticked you off one day I haven't done my job.' And it's like, 'Nope, I don't want to be that kind of a leader.' I want you to come to work every day and I want you to be there because you want to be there.

Staff: What advice would you have for a YP looking to enhance their career?

Barb: I would say educate yourself. Read books. Go to seminars. Go to OWEA events. Networking is very

important too; which I never believed until I started it and then I was like, 'Wow, this is cool.' Give your people the opportunity to get out into SWOWEA, OWEA, WEF so they can see what else is out there. Half of these people are kept in a plant and have no clue what new technologies are, what new leadership or books are out there, anything! They need to be out. I understand that some communities can't afford to send their operators but you know even if it's just to a SWOWEA event. It's a start.

Staff: How do you help an employee that's having a problem in their workplace, or their career, or just like any problem in general? As their leader, how do you help them?

Barb: Well, you know, it's probably not politically correct but instead of them killing themselves by not having their head on their shoulders I'd rather sit down and talk to them and say, "Okay what's the problem?" Whether it's issues at home, or they're ticked off at somebody at work or financial issues, whatever.

If anybody knows anything else about me they know I'm up front and honest. I tell them like it is. I just come right out and say it. Too many people hem all around the bush and you never know exactly what they're trying to get to. Everybody knows where I stand.

Staff: How long you been involved with OWEA?

Barb: Oh my goodness gracious. Good question! I don't really know.

Staff: 2001.

Barb: Yeah, that's about right. That's a perfect example I didn't know anything about WEF, OWEA, SWOWEA and 2001 was like 16 years after my career started. My career is half over and I'm just learning about these companies?

Staff: We've got to get them involved!

Barb: Exactly! And that's one of the things I did. I got all of my operators signed up for WEF and all that. I got them out there for SWOWEA. I got them out there for OWEA. At least all of my operators out on the east side of town were interested and if they were interested I did not hold them back from becoming members.

Staff: How has your involvement with OWEA benefited your career and how has it benefited your operators that you have pushed into OWEA?

Barb: Well, I think just them knowing that I am interested in educating them and getting them out there and networking with other people, I mean that helps them.

"Empower your people.

They are the ones that are going to be the leaders when you retire."

"Look at other leaders in your work history and draw from them."

If they're having an issue with one process, they can ask somebody else at another plant. 'What works for you?' or 'What doesn't work for you?' or 'We've got this happening, do you have any idea?' It's a great place to network!

I used to get my operators out there any time we would buy a new piece of equipment because they would be the ones that were going to be running it. So, 'Is this going to work for us here at the plant?' 'What do you see this being good for?' 'What do you see that's going to be bad?'

Staff: It sounds like you put a lot of trust in your employees as a part of your leadership.

Barb: I trust everybody until they give me a reason not to trust them. That's my motto. Then it takes a while for you to rebuild the trust. And yes, I did trust my people quite a bit. I really did and they trusted me.

Staff: What is your favorite OWEA event?

Barb: I'm going to have to say Operations Challenge.

Staff: And why is that?

Barb: I had a team and Cincinnati was vital in starting it, so that's number one. I think Cincinnati needs to make sure that they keep going with teams in it. It was good to see them finally get a team back. The reason we stopped was that we were not getting the support we needed to get equipment to participate. I'm glad to see the new administration realizes how important it is because number one, again, it's great networking. You're making at least the team understand the importance of maintenance, collections. You're respecting every other division down within your company.

Operations Challenge is a way to get it open where everyone respects and understands what other

departments are doing. Now we have to work together as a team to really make MSD a great company. To be a good leader you have to make sure that you change yourself. You have to, number one, be willing to make the change in yourself and it's not something that's going to happen overnight or the next day, you know. Change takes a while and we know how much everybody hates change.

So you have to know what you want to do, what kind of leader you want to become, and then stick to it and become that leader.

Staff: What would your advice be to other leaders interested in getting a team for themselves for the Operations Challenge?

Barb: Talk to somebody that already has a team. Jim Borton had the Wooster team for so many years. You've got Bowling Green now, Cincinnati's got a team. Go hook up with another team and see what's really truly involved. How much time it takes. What you need to get it through. I mean, there's so many teams out there that would help you through. That's one of the good things you don't see with operations challenge is the Knowledge is Power crap. You want to see the other teams succeed. And the competition's great! It's a good, friendly competition. If it's not going to be fun and friendly then don't do it. If it becomes your job and you hate your job, don't do it. It's supposed to be fun, entertaining, challenging.

Staff: Any other words of wisdom you would like to share?

Barb: Never lose focus of what you're in wastewater treatment for. You're there to treat water, [so] treat water. Whatever it takes for you to learn, do it. If your company offers free college, go for it. Grow. Never stop growing. Never stop learning. Learn and grow until the day you die and have fun. Life is too short.

**"Never stop growing. Never stop learning.
Learn and grow until the day you die and have fun.
Life is too short."**



Fireside Chats - Looking for Recommendations!

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

meganborrer@ohiowea.org

Floodplain Services: Value That Needs To Be Considered

by Randall L. Keitz, P.E., Retired Water Resources Engineer, Floodplain Management Program, ODNR

The natural functions and processes of floodplains provide services that benefit society either directly or indirectly. An example of a floodplain service would be waste assimilation (i.e., capture of nitrogen and phosphorus). Floodplains perform a variety of essential functions and processes including floodwater conveyance and storage, groundwater recharge, wave attenuation (i.e., reduce downstream flooding), streambank erosion control, reduction in sedimentation rates, water quality maintenance and support of highly productive ecosystems to name a few.

The publication entitled "The Natural and Beneficial Functions of Floodplains, Reducing Flood Losses by Protecting and Restoring the Floodplain Environment" provides a list of some valuable floodplain services, which include the following:

- ◆ Store and convey floodwaters, thus diminishing floodwater velocities and resulting in the reduction of flood damages and flood related erosion.
- ◆ Increase soil fertility as floodplains naturally replenish the nutrients of the surrounding soils during periodic inundation.
- ◆ Improve water quality and quantity by providing areas of ground water recharge while also filtering impurities and nutrients.
- ◆ Support biodiversity, providing breeding and feeding grounds for fish and a wide variety of wildlife including endangered species.
- ◆ Contain immense forestry resources, including significant carbon sequestration potential.
- ◆ Enhance aesthetic value and recreational uses.¹

Natural capital and its associated services are more difficult to financially quantify in terms of comparable economic services and manufactured capital, therefore, they are frequently given little economic weight in cost-benefit analyses. However, there have been efforts over the past decade or more to quantify the value of floodplain services and the services provided to society by other land conditions (e.g., forests, wetlands, etc.). A study in the U.S. by Constanza, et al., estimates that the average value of floodplain services received by society to be \$7,927 per acre per year in 1994 dollars and \$12,492 per acre per year in 2013 dollars (conversion to 2013 dollars used the CPI inflation calculator available at the US Department of Labor website). For comparison, the same

study estimates the average value of services received by society from forest land to be \$392 per acre per year in 1994 dollars (\$618 per acre per year in 2013 dollars).² This comparison of average annual services by land type provides some insight on just how valuable floodplain services are to society (see Table below).

Land Type	Floodplain	Forest
Average Value of Annual Services per Acre in 2013 dollars ²	\$12,492	\$618

Another study on the value of floodplain services in the Czech Republic published in 2008 identifies the value of floodplain services received by society to be \$10,931 per acre per year.³ It does not specifically state the year of the valuation, but assuming it was in 2007 dollars then the value would adjust to \$11,704 dollars per acre per year in 2013 dollars, which is rather similar to the Constanza study results. It is important to note that both studies expect that the actual value of floodplain services to be higher than estimated, because some known floodplain services were not valued within the study.

In Ohio, recognition of this value from floodplain services occurs on a daily basis for the City of Akron and its citizens. The City of Akron owns 33% of the land surrounding the Upper Cuyahoga River in Portage and Geauga Counties and keeps this land, which is mostly flood-plain and wetlands, in a natural and undeveloped state. The Upper Cuyahoga Rivers flows into Lake Rockwell, which began operations in 1915 as the City of Akron’s drinking water supply. The City purchased much of the land it owns along the Cuyahoga River during the construction of Lake Rockwell, but the City will still purchase stream-side properties today, if available. The natural and undeveloped land along this river treats the surface water from impurities, prevents stream bank erosion, traps suspended sediments (i.e., silts and clays) on its floodplain due to frequent out-of-bank flooding, and many more benefits as previously mentioned in order to keep water treatment costs low at the City of Akron’s water treatment plant located adjacent to Lake Rockwell. Further, floodplain damages to structures (e.g., homes and business) are essentially eliminated.

The vision provided by the community leaders in the City of Akron nearly 100 years ago is still paying great dividends to its citizens today. In addition, 25 miles of the Upper Cuyahoga River was designated a State Scenic River in 1974. This provides the City of Akron additional support from the ODNR in maintaining the land adjacent to the river in a natural condition so that a safer, better

quality water supply flows to Lake Rockwell and ultimately lowers the drinking water costs for the citizens of Akron.

Given the great potential value provided by floodplains, their purchase by communities and maintaining them in a natural condition, as in the case with the City of Akron, can be a logical and economical strategy, plus it can reduce or eliminate future flood damages. However, a timelier alternative for communities to preserve and restore the services of their floodplains is to enact higher standards within your floodplain management regulations. Two higher standards that support the retention and creation of floodplain services include lowering the flood-way's allowable rise from 1 foot to 0.1 foot and requiring compensatory storage. More on higher standards can be located in the "Ohio Floodplain Regulation Criteria", revised August 2013, which can be downloaded from the ODNR Floodplain Management Program website.

Decisions made today regarding your floodplain management strategy may benefit your citizens for generations to come as in the case with the City of Akron. The question is - will it be your community?

¹ Costanza, et al., *The Value of the World's Ecosystem Services and Natural Capital*, Nature, Vol. 387, May 1997, pp. 253-260.

² A Report to Congress by the Task Force on the Natural and Beneficial Functions of the Floodplain, *The Natural and Beneficial Functions of*

Floodplains, Reducing Flood Losses by Protecting and Restoring the Floodplain Environment, June 2002.

³ ProAct Network, *Case Study: Ecosystem Services of a Floodplain with Preserved Hydrological Regime – River Luznice Floodplain, Czech Republic*. In: *The Role of Environmental Management in Disaster Risk Reduction and Climate Change Adaptation*, August 2008, pp. 79-88.



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Utilities Acting on Climate Change

by Beth Conway and Amy Kathman



Earth's land, oceans, and troposphere have been warming for many years. Projections for the U.S. from the 2014 National Climate Assessment include not only an increase in temperatures, but also other climate changes, such as an increased intensity of droughts in the Southwest and of heat waves and precipitation events throughout the U.S. Precipitation events also are projected to become more frequent.

Climate change risks are not limited to the U.S. Among the many risks projected globally by the Intergovernmental Panel on Climate Change (IPCC) are "drought, water scarcity, sea level rise and storm surges" for urban communities and "water availability and supply" for rural communities, according to IPCC's Climate Change 2014: Synthesis Report. The full report can be obtained at www.ipcc.ch/report/ar5/syr.

Water is likely to be further affected by climate change as precipitation patterns change, sea levels rise, and water quality degrades. In the U.S., the drinking water and wastewater infrastructure already requires significant investment to maintain current levels of service over the coming decades. The effects of climate change may significantly stress critical infrastructure further.

However, climate adaptation strategies can help mitigate climate change effects. Many municipalities already are assessing and implementing measures to build resilience to climate change. Their work provides examples of what adaptation measures can achieve.

Declining water resources due to drought

In the Southwest, Albuquerque, N.M.; Bernalillo County, N.M.; and the Albuquerque Bernalillo County Water Authority (ABCWUA) have demonstrated that relatively low-cost measures can be effective in adapting to drought conditions. Albuquerque and Bernalillo County began a conservation program in 1995 to deal with drought issues. In 1997, they developed a Water Resources Management Strategy that they update every 10 years.

The programs and ordinances undertaken at ABCWUA focused on residential areas and public buildings. They

encouraged water-conserving, landscaping and water-efficient appliances in new developments. According to the U.S. Environmental Protection Agency (EPA) report, Smart Growth Fixes for Climate Adaptation and Resilience: Changing Land Use and Building Codes and Policies to Prepare for Climate Change (EPA 231-R-17-001), ABCWUA gives rebates on the purchase of high-efficiency toilets, encourages xeriscaping (a type of landscape design for areas susceptible to drought), and touts compact development as examples of the measures instituted. As a result, residential customers achieved great reductions in water usage

In 2014, ABCWUA programs shifted more of the focus to non-residential customers. The water authority adopted four programs, according to their document, 2024 Water Conservation Plan Goal and Program Update. ABCWUA updated building codes, modified the xeriscape program in several ways to include a larger rebate to some non-residential customers, created a cooling tower rebate program, and offered assistance to new low-income customers with water auditing and water-conserving fixture installation.

Minimizing potential flood effects

Parts of Kansas City, Mo., are at risk of flooding from rivers and streams. As of early 2017, more than two thousand structures sit in Kansas City's 100-year floodplain.

Enter the Wet Weather Solutions Program which provides for street and sewer infrastructure upgrades as well as an increase in green infrastructure use. Two of this program's goals are to reduce flooding and increase in water quality. The shorter-term projects of the program's overflow control plan will be completed between 2010 and 2020. Major changes will be finished by 2035. For example, the Middle Blue River Basin pilot project which improved streetscapes through the inclusion of green infrastructure solutions, was completed in 2012.

By its end, the overflow control program seeks to reduce the estimated sewer overflow by approximately 15 billion L (4 billion gal) per year, thereby reducing cleanup, damage, and grey infrastructure costs, according to Kansas City Water Services.

Looking internationally, in Tokyo, Japan, heavy rains often lead to flooding, and increased urbanization has decreased the amount of permeable ground. In 2015, Tokyo completed an upgrade to the Tokyo Amesh, its rainfall information system. As described in the article,

“Reconstructed Tokyo Amesh system crucial to flood prevention” in the Spring 2017 issue of *WorldWater: Stormwater Management*, rainfall radars were improved by upgrading to X-band multiparameter radars. These radar systems offer improved collection of rainfall data due to wave polarization. Information gathered from both radar and rain gauges is used by centrally located operators in determining pumping requirements for individual pumping stations. The Tokyo Bureau of Sewerage plans to continue improving radar capabilities and to increase the capacity of sewer facilities to handle up to 60 mm of rain per hour.

Sea level rise

A report by The Union of Concerned Scientists, *When Rising Seas Hit Home Hard Choices Ahead for Hundreds of US Coastal Communities*, estimates approximately 85 coastal communities in the U.S. are at risk from chronic inundation, and the number of at-risk communities is expected to roughly double by 2035. Miami, New Orleans, and San Francisco are among municipalities implementing adaptation plans for sea level rise (SLR).

The City of Miami has monitored the risks of flood and saltwater intrusion for years. SLR affects flooding and saltwater intrusion risks. Among many projects underway to aid in adapting to climate change is the construction of a chlorine facility at the Central District Wastewater Treatment Plant. This facility will be elevated 4.9 m (16 ft) above ground-level to accommodate SLR and storm surges, according to the April 2017 BBC article, “Miami’s fight against rising seas.” The City of Miami Beach is installing pumps, improving drainage systems, and raising roads as part of their approach to address rising sea levels.

San Francisco, under immediate and long-term threat from SLR, has developed the Sea Level Rise Action Plan, which will have an SLR adaptation plan by 2018. Combined sewer discharge (CSD) outfall structures with low-elevation weirs present immediate threats from SLR to the wastewater treatment process. In 2014, a device to prevent the inflow of seawater into the sewer system was installed in a CSD outfall structure. Data gathered from this installation will provide information useful for the installation of future devices.

New Orleans faces risks from SLR from loss of coastal land. As noted in the report, *Resilient New Orleans: Strategic actions to shape our future city*, “Greater New Orleans has invested \$14.5 billion in such infrastructure as pump stations, levees, and floodwalls. The City of New Orleans also will leverage financial resources available through several sources to support the Coastal Protection and Restoration Authority. Adaptation approaches may, in many cases, require additional resources.

Resources available to utilities

Localities can access many resources to help develop climate change adaptation strategies. WEF offers the book, *Emergency Planning, Response, and Recovery* as well as the upcoming manual, *Sustainability and Energy Management for Water Resource Recovery Facilities*.

EPA’s *Creating Resilient Water Utilities (CRWU)* initiative also can be a resource. Through CRWU utilities can access tools, training, and assistance. The *Climate Resilience Evaluation and Awareness Tool (CREAT)* provides climate change threat identification, consequence assessment, and adaptation evaluation options for water and wastewater utilities. The table on p. 58 shows threats listed in CREAT for use in preparing assessments in the tool. These resources can be found at www.epa.gov/crwu.

CRWU also offers a basic guide to the effect of climate change on water and wastewater utilities. This guide is titled *Adaptation Strategies Guide for Water Utilities*.

For European cities, the European Union’s *Climate-Adapt* program can be found at <http://climate-adapt.eea.europa.eu>. It provides information on several areas, including projected climate change, adaptation case studies, options, and planning tools. It also enables users to share data.

For resources spanning both U.S. and international interests, resources from 100 Resilient Cities can be found at www.100resilientcities.org. Formed and funded by the Rockefeller Foundation, 100 Resilient Cities provides “resources necessary to develop a roadmap to resilience.”

Action today pays off in the long run

The work needed to adapt to climate change and handle extreme weather events can be expensive; however, the do-nothing option can be even costlier.

For example, New York City has an estimated \$1.1 billion of vital infrastructure at risk. To mitigate the risk, New York is investing in protective measures for facilities and structures and is developing the city’s green infrastructure. Construction investments between \$315 million and \$426 million in the city can save potentially more than \$2 billion in cumulative emergency response costs by 2065 according to *Workshop W13: Vulnerability & Risk Response to Climate Change* from WEFTEC® 2015.

Two principal goals for water and wastewater utilities regarding climate change effects are

- ◆ to assess risk and uncertainty due to climate change and
- ◆ to develop and take actions to improve resilience and sustainability in utility facilities and overall utility management.

Federal, state, and local funding is needed to adapt

infrastructure and water supplies to climate change. As part of an ongoing effort to encourage funding for critical water infrastructure, WEF’s government affairs team developed talking points on climate change related infrastructure investment. Access these talking points at <http://bit.ly/climate-talking-points>.

Threats listed by the Climate Resilience Evaluation and Awareness Tool

Threat group	Threats
Altered service demand and competing use	Changes in agricultural practices & outdoor use Changes in energy sector water needs Changes in influent flow & temperature Changes in residential use
Altered or loss of ecosystem services	Altered vegetation / wildfire risk Loss of coastal landforms Loss of wetlands
Degraded water quality	Altered surface water quality Saline intrusion into aquifers
Increased flood frequency & extent	Coastal storm surges High flow events
Increased incidence of droughts	Lower lake and reservoir levels Reduced groundwater recharge Reduced snowpack



Beth Conway (LEFT) is an engineer in the Water Science & Engineering Center and Amy Kathman (RIGHT) is a Government Affairs specialist at the Water Environment Federation (Alexandria, Va.).

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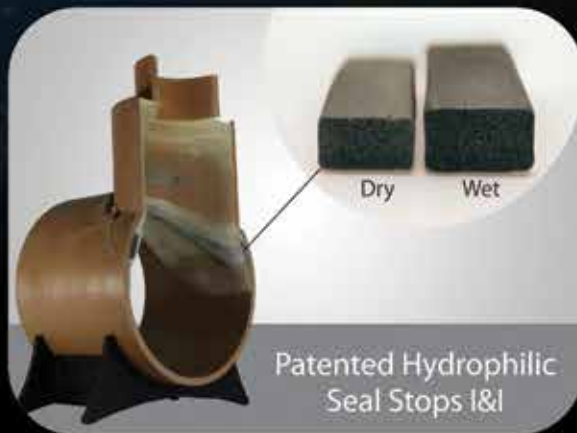
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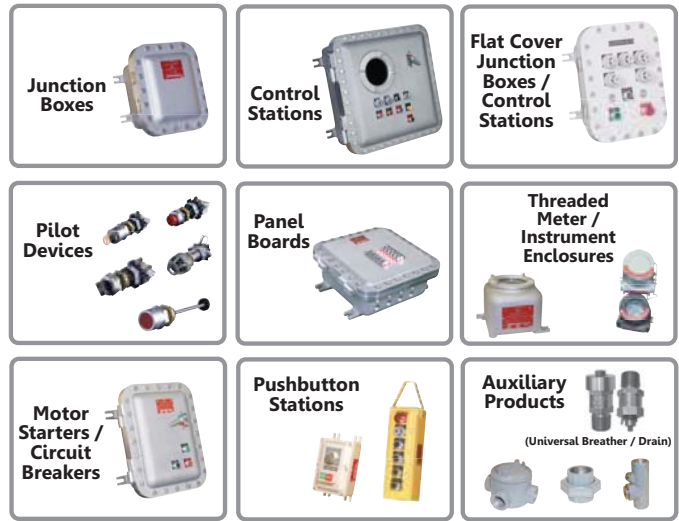
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Surveying

Achieving Energy Neutrality Through Co-Digestion

Water Environment & Reuse Foundation research provides both information and examples of successful energy recovery

by Kelsey Beveridge



Many in the water sector are striving to make water resource recovery facilities (WRRFs) be energy self-sufficient. Achieving this goal will reduce both waste and costs. To help foster this, the Water Environment & Reuse Foundation (WE&RF; Alexandria, Va.) has conducted many research projects that examine ways utilities can recover energy and reach energy neutrality. Combining waste treatment with renewable energy recovery provides benefits that such conventional practices as fossil fuel utilization and landfilling cannot offer.

This collection of WE&RF research highlights programs at WRRFs that support energy recovered from wastewater as a renewable energy source. The projects highlighted below are intended for facilities practicing (or planning to practice) several different processes, including co-digestion; incineration; and energy recovery and food waste management through anaerobic digestion (co-digestion). The WRRFs and other agencies examined in these projects provide valuable information that others can learn from and incorporate into their own practice to reach their sustainability goals.

Co-Digestion of Organic Waste Addressing Operational Side Effects (ENER9C13)

WE&RF initiated a series of complementary studies to better expand the science and understanding of the best practices to advance co-digestion as an option for increased energy recovery. This first project is one in a collection of research intended to advance anaerobic digestion to enhance renewable energy. The ENER9C13 study evaluated five WRRFs in New York, Texas, and California for co-digestion design, performance data, and operation and maintenance issues.

The findings indicate that digestion of fats, oils, and grease (FOG), food waste, and other organic wastes can increase a WRRF's energy production. As the facilities studied were early adopters of this process, the findings highlighted challenges they faced and the steps they took to address them.

In addition, the WRRFs interviewed identified their best management practices for co-digestion systems. These practices may be beneficial to other facilities beginning their co-digestion programs. First, they recognized that

consistent record keeping is crucial for operational decision making and identifying potential problems with accepting these wastes. Second, they recommended screening hauled wastes and creating a permit system for haulers who take measures to improve source control. Third, they recommended scheduling deliveries when WRRF staff members are present for unloading. Lastly, these facilities found that monitoring digester gas production requires better process control parameters than volatile solids destruction, which can be relied upon in anaerobic digestion of wastewater solids alone.

Energy Recovery from Thermal Oxidation of Wastewater Solids: State-of-Science Review (ENER13T14)

The research team on ENER13T14 performed a state-of-the-science review to evaluate the potential for energy and heat recovery from thermal oxidation of wastewater solids. They compared the value of the energy with that of coal in a triple bottom line approach and estimated the quantity of renewable energy available from thermal oxidation of wastewater solids.

The goal was to help WRRF managers identify how much energy could be recovered through implementing energy recovery projects and the potential for these projects helping facilities meet sustainability objectives. The research team developed seven scenarios to represent thermal oxidation (incinerator) system configurations. These scenarios identified potential energy recoverable from wastewater solids and residuals. Scenarios included co-firing wastewater solids with such alternative feedstocks as FOGs and woodchips to evaluate the potential for increased energy production.

The energy recovery in each of the seven scenarios produced more electricity than the solids process required to operate. This proves that energy recovery from thermal oxidation, theoretically, can make solids processing a net energy provider for WRRFs. The process is sustainable when compared to fossil fuel power generation; and existing and emerging thermal oxidation technologies provide reliable, effective, and flexible systems for implementing energy recovery.

Renewable Energy Production from DoD Installation Solids Wastes by Anaerobic Digestion (ENER14R14)

Department of Defense (DoD) institutions, such as the Air Force Academy, produce large quantities of food waste and consume large quantities of energy. This study demonstrated demonstrates that the energy in food waste, if recovered, can supply 60% of the energy requirements

for such DoD installations worldwide and help meet the DoD sustainability goals. Ultimately, the project demonstrated that anaerobic digestion is successful as a means of treating food waste and producing renewable energy to partially offset an installation's energy demands while reducing waste disposal. Biogas generated by the digestion process can be used without further treatment to generate energy. To further maximize energy production, the biogas can be purified to biomethane as a natural gas substitute.

The results revealed that that anaerobically digesting this food waste meets or exceeds performance objectives; moreover, the practice is cost-competitive with alternative methods of food waste management. Using anaerobic digestion to dispose of food waste while recovering energy also represents a significant greenhouse gas savings compared to landfills or composting. The produced biogas can be sent to a combined heat and power generator to produce electrical power that can be used to reduce facility power costs. The ultimate end use of the biogas or biomethane had a significant impact on cost-effectiveness.

Learning from WE&RF's research

Overall, the goal for these projects and others in WE&RF's portfolio is to help WRRFs and other agencies

become energy neutral and reduce the demand for purchased electricity or natural gas. The information obtained and insights derived can help to show how different energy recovery methods can be incorporated. Even more so, however, exploring real-life applications can encourage decision-makers to use new technologies to help their operations long-term

Kelsey Beveridge is the technical writer in the Communications Department at the Water Environment & Reuse Foundation (Alexandria, Va.). She holds a Bachelor of Arts in Environmental Studies from Franklin & Marshall College (Lancaster, Pa.).



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Creating the space to innovate

A Policy Perspective

by Amy Kathman



In August 2017, a 2-day experts' workshop, titled *Creating the Space to Innovate*, culminated a year's worth of progress in advancing innovation. Leadership, culture, procurement practices, regulatory programs and policies, and permit conditions all contribute to putting innovation into practice as much as does the development of new technologies. The Water Environment Federation (WEF; Alexandria, Va.) hosted the workshop in its role as a supporter of the Leader's Innovation Forum for Technology (LIFT) program.

LIFT is a joint effort of WEF and the Water Environment & Reuse Foundation (WE&RF; Alexandria, Va.). The program seeks opportunities to promote the adoption of innovative technologies and practices. LIFT includes a focus on the people and policies of innovation to identify and implement measures to manage or share risk. One example of this is LIFT's goal to provide a "space" for innovation through permit flexibility in compliance schedules or different kinds of permits.

Building on previous work

Previous efforts have laid the groundwork for the *Creating the Space* workshop. For example, prior workshop participants developed specific implementation scenarios around technologies most likely to be affected by barriers, flexibility needs, and regulatory incentives. Developing the scenarios relied, in part, on interviewing key innovators and early adopters who have pursued groundbreaking approaches and technologies to solve water issues. These interviews sought to gain an initial understanding of the requirements, motivators, accelerators, and challenges to these initiatives. For each scenario a strengths, weaknesses, opportunities, and threats (SWOT) analysis helped to refine further the articulation of constraints and opportunities for each scenario.

At the *Creating the Space* workshop in August, experts identified options — at a very specific and detailed level —, to eliminate constraints and take advantage of opportunities. The participants of the workshop considered ways in which its regulatory activities can reduce barriers to, or encourage incentives for, technology and innovation. The experts focused on high-interest technology implementation scenarios, their regulatory barriers, and where there is space to streamline between technology implementation and the regulatory/policy framework.

The workshop focused on five technology areas. These themes are high-priority areas for implementation and have encountered policy and people challenges to the uptake of the innovation. The first theme, *Improved Risk Sharing and Institutional Barriers*, related to general business practices while the other four were related to specific technologies or management practices. They include

- ◆ Digestion Enhancements,
- ◆ Water Capture and Reuse for Potable Uses (indirect and direct potable reuse and unplanned use all were included in discussion, but direct potable reuse was the focus),
- ◆ Reclaimed Nutrients, and
- ◆ Nutrient Optimization Strategy.

The experts concluded that while progress is being made to promote innovation in this sector, an overall challenging context for innovation remains. This situation signals a need to step back and discuss the ingredients of both a near-term and longer-term strategy to create an "innovation safe space" for the sector, as well as an "innovation culture" in the longer term.

Addressing policy and regulation

Policy and regulation also can substantially control how and when innovative technologies and practices are adopted. The primary federal regulations have not changed materially in more than 20 years. To enable innovation, the water sector must explore the landscape at the implementing mechanism level and devise specific approach(s) that will

- ◆ fully meet legal and regulatory requirements,
- ◆ provide certainty and defensibility for the operator, and
- ◆ reasonable assurance for regulatory bodies that compliance can be discerned, verified, and enforced if not met.

Examining the broader regulatory context to explore such areas as state-to-state reciprocity, technology acceptance, and technology procurement can help ensure the sector is prepared to embrace new technologies efficiently and without undue uncertainty or delay.

Finally, the experts also provided input into the policy components that form the basis of the WEF Government Affairs Committee's action plan. For more information on *Creating the Space to Innovate*, the action plans, WEF public policy efforts, or learn how you can get involved, visit www.wef.org/advocacy/legislative-and-regulatory-affairs.



Amy Kathman is a Government Affairs specialist at the Water Environment Federation (Alexandria, Va.).

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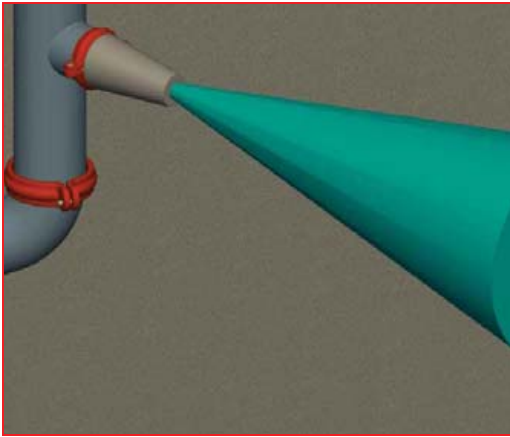
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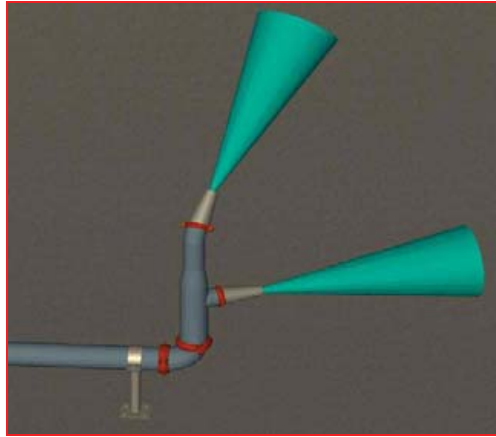
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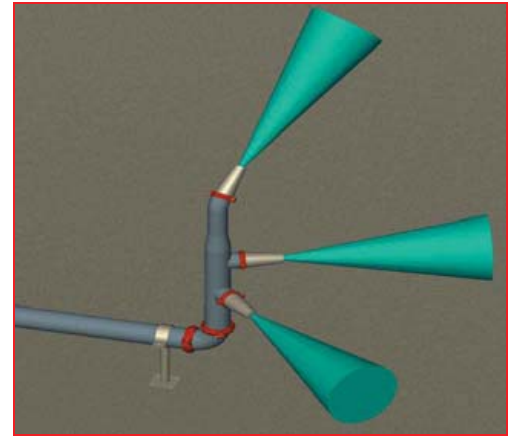
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