Ohio Water Environment Association
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Buckeye Bulletin

City of Mason

WRF Plant Profile

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Preserving & Enhancing Ohio's Water Environment

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Water Environment Federation
the water quality people®

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Get Involved - Join a Committee Today

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

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

OWEA NEWS

We are excited to announce that we are in the process of revamping our social media presence. Keep an eye out for updates and articles shared through our Facebook, Twitter, and Instagram. Please like, follow, and connect with us to be kept up-to-date with the organization and industry. If you have an interesting article or update please send it our way so we can share with our following.

We have also unveiled our website redesign. Please check it out for information regarding the organization, upcoming events, and for event registration.

As always, feel free to reach out to us with any questions or concerns.

Find OWEA on your favorite social network

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

OWEA 2016 Calendar

August
12 NE LAC Training
14 SW Friends and Family Night
23 One Water Utility Workshop
23 SE LAC Quarterly Meeting

September
14 SW Section Meeting
24-28 WEFTEC New Orleans

October
5 Executive Committee Meeting
26-27 OWEA Plant Ops/ Lab Analysis Workshop

November
10 OWEA Watershed Workshop
11 Executive Committee Meeting

December
1 OWEA Biosolids Workshop

Welcome **New Members**

April 2016- June 2016

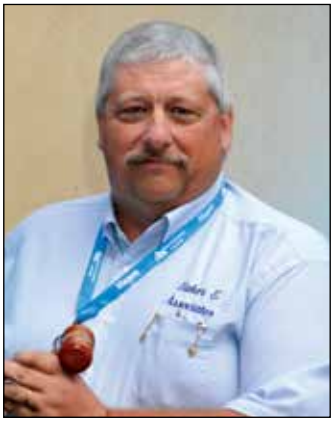
Thomas Banks
Rachael Beeman
Jeremy Bennett
Emily Birukow
Michael Bishop
Adam Bittinger
Kati Bollmer
John Borror
Jamie Brunelle
Matt Calcei
Soryong Chae
Pooja Chari
Ben Chenevey
Collette Clinkscale
Karl Dickinson
Jeremy Doster
Paul Eagar
Vicki Everett
Sherry Fair
David Frantz
Tim Gott
Ron Gribik
Keith Hammer
Sarah Hayes
Jeff Hollback
Bradley Holman
Michael Hondel
Martha Hood
Eric Hooper
Matt Horner
Craig Johnson
Eddie Jones
Justin Kerns
Chad Knippen
Peter Ledger
Robert Magallon
Mike Moore
Rhonda Morris
Thomas Mosure
April Norman
Robert Norris
Joseph Pastore
Jenna Phelps
Julie Pickering
Claude Powers
Phil Rhodes
Jennifer Richmond
Nicholas Ross
Hodon Ryu
Jerry Salvati
Dana Schnabel
Robin Schroeder
Kristi Senek
Ernie Shafer
Joe Shaw
Robert Snyder
Anne Steigerwald
Evan Tierney
Angela Tipton
Chris Tizzano
Victor Ujor
Chris Ulmer
Jonathon Van Gray
Richard Waugh
Rachel Webb
Brian Wellman

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

Hello OWEA members! It is an honor to be writing my first Presidents Column. By the time this reaches you summer will be almost over and the kids will be heading back to school soon. Like many of you our summer has been filled with back yard BBQ's and family reunions, ours was in the mountains of North Carolina this year.

Having taken over my business from my father, Harry Baker, I know what it is like to fill big shoes. Well on June 29th I stepped once again into some pretty big shoes left by Elizabeth Wick. It has been a great deal of fun watching Elizabeth guide our organization for the last year and we all owe her a debt of thanks for her service.



Ted Baker
OWEA President

As I talked about in my acceptance speech, I turned 50 this year and I have never known a year of my life without this business. I grew up with names like Dennis Meek, Tom Cardarelli, Larry Moon, Ken Killinger, Larry Rigby, Bill Hill, Bob Carter, Dick Roberts, Smith Carson, Francis Smith (who happens to be the father of our new Vice President, Fred Smith), and Walter "Billy" White (who was the very first Class IV operator in the state of Ohio). When Billy retired he had actually had his Class IV license for more then 30 years. Yes this business is family to me, through every stage of my life it has shaped who I am.

But our business has gone through many changes over the last 50 years. When I first started in this business in 1990 "contact hours" were sitting around a table at a meeting soaking in the 100-150 years of experience sitting with you. Now "contact hours" are sitting classroom style listening to another presentation from a presenter that you might or might not know.

My first call to action goes out to every superintendent and engineering manager. If you didn't know that Tom Cardarelli worked for the city of Youngstown, or that Larry Rigby worked for Floyd Browne, or that Billy White was at Painesville for 48 years it's simple you don't get out enough!! The people on this list and the 100's more like them in our organization have 1,000's of years worth of experience to share. If you as managers do not encourage your young operators or engineers to get to know these people, then our link to the past will be lost forever.

Within each and every one of us is a passion for the environment. For some of us it's been there since we were very little, for others it is just now surfacing as your involvement grows. This is why our link to the past is so important to us. Just like the link to your own history through your parents and grandparents, it makes you who you are. And the link to the history of our OWEA family is no different.

Between our four sections and our state sponsored workshops there are literally dozens of chances to get out. I encourage each of you to make the effort over the next year to make it to just one of these events. I promise in the end not only will our organization be better because of your visit but you will be better for it as well.

Thank you for allowing me the opportunity to lead this great organization for the next year.

--Ted Baker

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

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

2016 - 2017
Executive Committee Meeting Dates

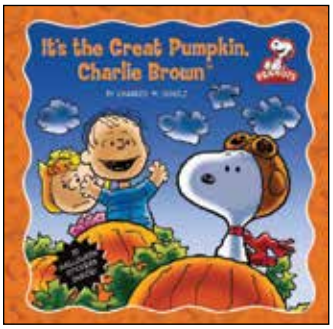
October 5, 2016	OWEA Office
November 16, 2016	OWEA Office
January 11, 2016	OWEA Office
February 8, 2017	OWEA Office
March 8, 2017	OWEA Office
May 10, 2017	OWEA Office

The Importance of **Community**

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

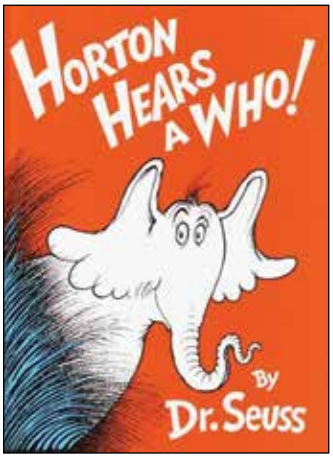
Influences

Growing up in the 1960s, I was exposed to an array of television shows and books that are not classics. This was an era when children's shows appealed to people of all ages. One of my favorites was the comic strip *Peanuts* featuring Charlie Brown, Snoopy, Linus, Lucy, Sally, Schroeder, Pigpen, and the Little Red Haired Girl. Developed by Charles Shultz (1922-2000) in the mid-1960s, I do not consider my Halloween Season complete if I do not see *It's the Great Pumpkin Charlie Brown.* The Peanut Gang personified a small community of happy children living in a world where the biggest fear was Lucy pulling the football away from Charlie Brown.



It's the Great Pumpkin, Charlie Brown by Charles M. Schulz.

During this same period, a very popular author was Theodor Seuss Geisel (1904-1991) also known as Dr. Seuss. While his most famous story was *How the Grinch Stole Christmas*, I feel that his best was H*orton Hears a Who!* It features an elephant named Horton that while splashing in a pool of water, heard a small speck of dust talking to him. Horton learned that the speck was a tiny planet; home to a community called Whoville, where an entire society called "The Whos" lived. The Mayor of Whoville asks Horton to protect them from harm, which Horton happily agrees to. This message left an impression that came to mind when I was the President of the Ohio Water Environment Association years later.



Horton Hears a Who by Dr. Seuss

The Importance of Community

According to Wikipedia, a community is commonly considered a social unit (a group of three or more people) who share something in common, such as norms, values, identity, and often a sense of place that is situated in a given geographical area (e.g. a village, town, or neighborhood). Obviously, this is a broad definition.

One of the most fundamental human needs is a sense of belonging. If this need is unmet, feelings of frustration, isolation, and despair set in. According to Harper Spero in her article published in the Huffington Post dated June 1, 2015, "Communities are helpful to join or create because they provide support to the individuals who are impacted by the daily stress, struggles and chaos of modern life."

It is obvious from reading the newspapers that social isolation is one of our greatest problems as a nation. Extended families living in close proximity no longer exist as they once did. Furthermore, organizations such as churches and other civil associations are no longer as popular as they had been. In Garfield Heights, a suburb of Cleveland, where I spent a portion of my youth, homes had large front porches, and it was common to have short friendly conversations with one's neighbors.

A New Community with both Curb and Social Appeal.

What I Learned as President

When I became President of the Ohio Water Environment Association on June 16, 2010 I had a robust agenda captured in a 21 minute speech at the banquet. One objective was to work with our board to evaluate the functions and traditions of our organization to see if they still made sense and added value to our members. If something did not work, cost too much money, did not add value, or outlived its purpose, I posed the question why we were still doing it. In touring the sections and meeting with many committees - I was an active member on seven committees as President - I became aware that each was a mini community, a little like the one Horton the elephant encountered. All were different but unique in their own way.

Section Only Memberships

One of my more interesting stories as President pertained to a practice called the Section Only Membership. When I was Secretary of the Southeast Section in 1990s, I encountered this practice a lot. Prior to the internet and web based registration, some of our members wanted to stay informed of events in other sections. As the years past and the use of the internet grew, I felt that the concept of a "section only" membership had grown obsolete.

I found that the only section maintaining this practice was the Northeast Section. While I expected to learn that they had only a few members, I was surprised to learn there were about 300! While I did not support the continuation of this practice, I wanted the Northeast Section to determine if this was something they wished to continue.

Several years later, the Northeast Section Board raised this question for a vote. During on open discussion in January 2015, I heard several speak for and against continuing this option for membership. The most impressive point was provided by Randy Bruback of Painesville, when he spoke of the Section Only Memberships as a sense of community and belonging to operators in Northeast Ohio. Randy said this was important to them. On May 22, 2015, the section voted to continue Section Only Membership.

Julie Nahrgang of WEAT.

"Finding Her Tribe"

We hear a lot about integrating YPs into OWEA and WEF. YP recruitment, retention, and matriculation continue to be a perennial topic at WEFMAX. While each Member Association (MA) seems to either struggle with or have their own formula for success, all agree that recruiting, energizing and encouraging YPs from student chapters and into the early stages of their careers is essential for the sake of continuity and sustainability. In this age where belonging to clubs and groups is considered "cool," our challenge is to find a way to appeal to all generations.

One of best benefits of being an OWEA Board member is meeting a lot of interesting and talented people. I have become good friends with some over time. One of the best messages on YPs and insights into joining came from Ms. Julie Narhgang, the Executive Director of the Water Environment Association of Texas (WEAT). I find Julie's insights to be forthright, insightful and creative. In doing a presentation at WEFMAX in Vail Colorado, she coined the term "finding her tribe" when referring to a young female YP in WEAT and how she moved/transitioned from being a YP to the post-YP period. The term "finding her tribe" spoke volumes to me about community.

My Tribe

In the end, we as mortal human beings are defined by time, space, and physical presence. My tribe includes many of the people shown in the photo to the right. As a group and as individuals, they are some of the most important people in my life, and the bond that I have with them is transcendent. The photo was taken on May 6, 2010 at a WEFMAX in Cleveland, Ohio at the Arcade. The photo shows our entire Board for the year 2009-2010. Our President then was Mark Livengood, and I was President Elect. Sitting between Mark and I is Dianne Sumego, Past President (2008-2009). Virtually each person in the photo now is a Past President. Fortunately, most remain active in one capacity or another.

I was pleased to learn that President Ted Baker formed the Past President's committee. Several in the past including Past President Tom Angelo talked about the past presidents staying involved and harnessing their experience and talents to make a better organization. Now it is a reality! To this end, I very much enjoy seeing OWEA Past Presidents Stuart Bruny and Jim Greener at the conference. Both men were heavily involved with OWEA a long time ago, and I am glad to continue to learn from them and enjoy their company today.

Closing

We must all find our tribe. In an era where we hear of social dysfunction, mass shootings, and general strife at every turn, I believe that the Ohio Water Environment Association contains multiple communities at the section level, state executive committee level, WEF level and in a plethora of committees. I hope that members and potential members look at our organization in that context. As a long time Board Member, I believe that it my responsibility to help create an atmosphere of belonging where everyone finds his or her tribe.

2009-2010 Executive Committee. Backrow left to right: Dan Sullivan, Michael Frommer, Elizabeth Wick, Tom Angelo, Phil Anderson, and Steve Morrison. Front row left to right: Jane Winkler, Mark Livengood, Diane Sumego, Dale Kocarek, and Doug Clark.

Dale Kocarek

Tom Angelo

Tom Fishbaugh

I am going to use this opportunity to discuss highlights from the WEFMAX meeting that I attended in Vail, Colorado on May 18-20, 2016. In addition to me, Ohio WEA representatives included fellow WEF Delegate Tom Angelo, Ohio WEA President Elect Ted Baker, Board Member and former WEF Delegate Kim Riddell, Executive Administrator, Amy Davis, and YP Chair Alicia Adams. Our other Ohio WEA Board members attended WEFMAX in Orlando, Chicago, or Philadelphia.

WEFMAX stands for WEF – Member Association – Exchange and it is one of the best things that WEF does to train Member Associations (MAs) such as Ohio WEA on how the WEF organization works and how we can work the best together. WEFMAX meetings are replete with interactive discussions led by WEF staff and other designees. Typical events include representatives of up to about 20 or 30 MAs and attendance is typically capped at 100, while average attendance is in the range of 50-75. WEFMAX meetings include WEF Staff and representatives from the Board of Trustees including senior officers. Our meeting included both WEF President Paul Bowen and Vice President Jenny Hartfelder.

The first afternoon features a House of Delegates meeting. Update reports are given on the five standing committees: WEFMAX, Steering, Nominating, Outreach, and Budget. As Vice Chair of the Nominating Committee, I gave the update report in Vail. Update reports are also given by members of the four workgroups: stormwater, management/ innovation, voice of water, and membership.

The House of Delegates (HOD) is the policy advisor for WEF. HOD Committees tend to be fixed and continue every year. They handle the majority of business associated with the House of Delegates and report to the Board of Trustees. Work groups typically have a lifespan of one to two years and are chosen to address key issues/hot topics of concern for WEF. Once in a while, a work group is determined to be so important that it is promoted to a standing committee. That happened two years ago when the MA Leadership Workgroup was promoted to the Outreach Committee.

With respect to the workgroups, there are several things that I believe are an interest to our members:

- There is little doubt that the subject of stormwater has been growing in interest over the last five years. The interest is so great that WEF has featured a Stormwater Pavillion at WEFTEC since 2011. But interpretations on stormwater have evolved. In the past, stormwater was associated primarily with hydrology and flood control. Now, it is becoming equally associated with water quality and pollution.
- There is ongoing discussion in the stormwater workgroup, of which I am a member; pertaining to how many MAs have actual stormwater committees. For example, Ohio WEA does not. At this time, we cover subjects associated with stormwater in several of our other committees including Government Affairs and Watershed.
- Through our research, we have found that there are many independent – not WEF affiliated stormwater organizations.

As most are aware, the wastewater pollution control industry has been undergoing a transformation and/ or Cultural Revolution over the last decade to eradicate terms like "sewage treatment plant" in favor of more positive names such as "water reclamation facility." There is a lot of good reason for this including building a better image with the public. Also, what had been viewed as a "waste to be disposed" is now considered to be "opportunities for resource recovery." Ohio WEA currently handles most of its discussions on resource recovery in the Biosolids Committee. However, in the future, expect to see a gradual re-branding of this committee to include the name Resource Recovery.

- It is evident that the majority of WEF members have strong affiliation to utilities, vendors, and engineering firms. However, WEF has become keenly aware that there is a segment of our industry which is under-represented including industries. The purpose of the membership workgroup is to see how WEF can reach these under-represented areas and expand WEF membership.
- The Voice of Water is a workgroup of which I am its Vice Chair. This workgroup is tasked with developing promotional tool-kits for MAs to promote the message/importance of clean water. We work in tandem with the National Water Coalition, which is a consortium of about two dozen organizations interested in the cause of promoting clean water. The Coalition's current push is promoting the event "A Day without Water," which is scheduled for September 2016. Much of the efforts of this workgroup have been delayed in the past waiting on the Water Coalition. Expect to see more activity from them in 2017.

Interested in joining a WEF Committee? Does travel make you hesitant to join?
Goodbye hesitation as many meetings are held over the phone.
Go to *http://wef.org/committees* for more information.

NWOWEA

Jeff Thompson, President

Greetings to all in the Ohio Water Environment Association family. As the incoming president of the Northwest section, I look forward to meeting even more members that are involved in the water and wastewater industry. When I first became a member my assumption was that it consisted of only operators and administrative people like myself. I soon realized that being a plant operator is just a piece of the puzzle that completes the OWEA organization. From Engineering, Equipment and Process Sales and Support people, including everything from Operations to Regulation Authorities. What a wealth of information and resources to have! And all just for the cost of membership. It is truly an honor to be in the company of these people, and my hope is, that as President of the section, I can serve them all well this coming year.

Before I tell a little bit about myself, I would like to thank Past President, Roberta Acosta for all of her dedication and hard work. She thinks she's on easy street this year, but unbeknownst to her I will be calling her, and others, for resources and advice. I also look forward to working with my fellow committee chairs; Walter Ariss, 1st Vice President, Gary Bauer, 2nd Vice President, Mark Lehnert, Secretary, Dave Sprague, Treasurer, and Pat Tebbe, Contact Hour Coordinator, plus the various chair people.

I, Jeff Thompson, am employed by the City of St. Marys and the Superintendent of Water and Sewer Departments. I started working for the City in 1991 as a Refuse Worker and three months later started at the Water Plant as an operator. During my eight year tenure at the Water Plant I obtained my Operator III license. The following 10 years I spent as a Maintenance/Operator for both Water and Sewer Plants which enabled me to obtain my Operator III license in Wastewater. My next three years were spent in the position of Plant Coordinator for the water and sewer plants. I was then promoted to the Superintendent of the Water and Sewer Plants for nearly two years. When Dave Sprague retired as Superintendent of Water and Sewer Departments I assumed the responsibilities, and have done so for the last two years.

When not doing my responsibilities for the City, I enjoy being outdoors, whether it's with a fishing rod, bow, gun or wandering my 40 acres of field and woods, it's just my passion. For this reason, I believe making sure the best water quality possible is leaving the St. Marys Sewage Plant. I want future generations to be able to enjoy what I do. The future generations of my family include two sons, a grandson, and two granddaughters. My hope is that along with teaching my grandkids bad habits, and then sending them home, that they also learn to respect and appreciate water quality and the need to protect all of the natural resources.

During my term as president of the Northwest Section I want to continue to provide people with informative meetings at very affordable prices. I want to work on trying to get small communities involved as much as possible. With limited budgets and personnel, small communities are challenged with being able to afford to have people away from their duties and the expense of traveling. And, unlike the upcoming U.S. presidential election, I don't feel the need, nor desire to make false promises that go unfulfilled, but I will do all I can in the best interest of NWOWEA and its members.

I wish to congratulate this year's winner for the Kathleen Cook Award, Tony Hintze, laboratory technician at the City of Fremont. Tony started at the Fremont WRC as an operator. He showed interest in the laboratory and pretreatment program and asked if he could be trained in the lab. He excelled in this capacity and was the obvious choice when an opening came up. Tony does not just perform his daily duties, he evaluates the lab results and regularly alerts management to impending problems and ways in which plant processes might be optimized. Tony is a very positive person and always strives to make the work environment a better place for his fellow employees.

This year's winner of the Moe Swaisgood Award is Andy Richardson, the Collections Supervisor for the City of Defiance. Andy is responsible for the entire Defiance collection system consisting of over 100 miles of sanitary and combined sewers. Weekly and after any measurable rainfall the Collection Crew checks the 26 overflow regulators from the combined sewer system that discharge combined wastewater into the receiving stream. In addition, Andy's staff will also assist homeowners when they experience lateral issues. This places Andy in a position where he can help home owners understand not only the technical problem (blockage, roots, crushed lateral) but also their responsibility to correct and maintain the laterals on their property. This service enhances the public-private effort to address I/I and system deficiencies.

I look forward to the challenges ahead, and encourage everyone to go to www.ohiowea.org to keep updated on upcoming meetings and events. When attending the meetings and events please feel free to introduce yourself to me and other attendees. Make it a goal to get to know someone you don't know every chance you get. This is our Association, a great resource for information and advice. The solution to a problem could very well be sitting next to you, and all at a cost of a membership.

Jeff Thompson

jthompson@cityofstmarys.net

SWOWEA

Jason Tincu, President

As I craft my first Section Update as Prez of the Southwest section of OWEA, I'm reminded of the years and years of service that have been given to the water quality industry and WEF/OWEA by countless professionals like me over the decades. The OWEA journey is so very powerful and the organization is ever strong! When I first attended a Plant Ops Committee meeting back in 2002ish never did I think I'd become this invested in any organization. So many amazing opportunities, so many amazing people, so many valuable experiences, I want to personally thank all the past SWOWEA leadership—but most notably our outgoing President, Roger Rardain, for his service and dedication to the organization.

As the SW plans its pathway forward for '16/'17, I ask the Executive Committee (EC) and Chairs to focus on one thing: ***quality***. Delivering quality services to our membership will be our highest priority while also looking for ways to be leaner/faster/better, fill any gaps, and have fun while doing it! The SWOWEA EC is loaded with experience, energy, and enthusiasm which makes my job as Prez, and those that immediately follow me, very easy! I'm looking forward to a very rewarding year in the SW. And as we say, the SW is Best!

We would like to reach to and say thanks to Adam Sackenheim, Jason Hunold, and the City of Fairfield for hosting our May Section Meeting. Fairfield had a chance to show off their amazing Community Arts Center, where the event was hosted, as well as a tour of their wastewater treatment plant. The SWOWEA would also like to thank the event sponsors, GRW, Hazen and Sawyer, Henry P. Thompson, and BL Anderson. The event was well attended and received!

Passing of the gavel from Roger Rardain to Jason Tincu.

We are super excited about our upcoming offerings including our Friends and Family event with the Dayton Dragons (8/14), our Section Meeting in Middletown (9/14), the Fall Lab Analyst Committee event at YSI (10/13), the Fall Op Ed Day (10/28), and our Plant Ops Seminar and Section Meeting in Mason (10/17). See the OWEA website for more details. In addition to this lineup, the SW is very excited about hosting next year's OWEA state conference in Cincinnati, ***Rollin Down the River***. Planning is well underway for what will, no doubt, be an awesome event! Thanks to Conference Chairs, Sharon Vaughn of the City of Dayton and Marty Davidson of BL Anderson, for spearheading this charge!

Lastly, I'd like to thank the membership of the SW for trusting in me to help guide the organization in a positive direction. I feel like I am simply a man of the people and an extension of the membership. That being said, feel free to contact me directly with any comments, questions, gripes, or suggestions at *jtincu@brwncald.com*.

NESOWEA

Paul Solanics, President

Hello members of the NESOWEA. My name is Paul Solanics. I am looking forward to serve as the President of the Northeast Section this year. It has been a rewarding experience moving through the ranks of the Executive Committee. Serving on the Committee has provided a great opportunity to work alongside some of the greatest people in our industry in addition to developing friendships that will last well beyond our short time together. Thanks to Tom Voldrich and the Executive Committee for a great 2015-2016 year. I especially want to thank Tom for his dedication, leadership and off the wall humor that kept a smile on our faces when things got hectic throughout the year.

I am currently the Director at the Solon Water Reclamation Facility. I have worked at the Solon facility for 34 years. I started as a seasonal employee working over my summer vacation shoveling sludge beds at the Plant (remember those days?). I worked my way through the various positions at the Plant as an Operator, Lab Analyst and Maintenance Manager. I was promoted to Director in 2005 and obtained a Class IV Wastewater Certification in 2007. I have been a member of the Northeast Executive Committee since 2010. In my spare time, I can be found playing softball, golf, beach volleyball, bowling, hiking, fishing, four wheeling, motorcycling and restoring classic cars.

This year my goals are to update and implement the policies and procedures for the Section, review and update the committee member responsibilities and continue to improve communication between the Executive Committee and Section Committee Chairpersons.

The May Section and Annual Business Meeting was held at the KSU Conference Center. Tours of the Kent Wastewater Facility and Water Plant were provided in addition to technical sessions for 3.25 contact hours. A big thanks to Bill Schesventer and Brian Johnson for providing the tours at their facilities.

We acknowledged members of the Northeast Section for their outstanding contributions to our Industry. Joe Sykes – Herb Hansen, Fred Neugebauer – Pretreatment, Kristi Senek – Lab Analyst, Ted Montecalvo – Collections, Jim Greener – Riley Award. We also recognized the scholarship recipients for abstracts related to our environment. First place – Bridget Neugebauer "Green Roofs", Honorable Mention – Noah Gresser "Green Infrastructure", Honorable Mention – Kaitlyn Welke – "The Necessity of Green Roofs in Urban Landscape".

I would like to welcome Bill Zawiski as the newly elected member of the Northeast Section Executive Committee. Bill is the Environmental Supervisor, Division of Surface Water at the EPA Northeast District Office. The current committee is represented by Vice President Kathy Richards, Treasurer Todd Taylor, Secretary Jim Cooper, Third Year Member Doug Harris, Second Year Member Mike Cook and First Year Member Bill Zawiski.

The State Conference was held in the section in June at the Bertram Inn & Conference Center in Aurora which included a Pre-conference Workshop focusing on Communication & Outreach topics. Thanks to Kathy Richards and Jim Cooper for organizing the workshop and for all the many volunteers, sponsors, conference chairs and presenters that dedicated their time and effort to make the conference a well attended and successful event.

Lastly, on July 15th we held the 10th Annual Biomasster's Golf Outing at the Mayfair Country Club. 30 foursome's participated in the annual event to raise money for the scholarship fund and Water for People. The weather was beautiful and a good time was had by all. No one was left thirsty or hungry as breakfast, lunch and a steak dinner were included. Mike Cook did a great job coordinating this event.

The upcoming events scheduled for the rest of the year includes the Fall Section Meeting on September 22nd and will feature tours of the New Waterford and East Palestine Plants. The annual clambake on October 8th and the "Free" Supervisor's Seminar at the Furnace Run Pavilion in Richfield on November 10th.

We have an Executive Committee meeting scheduled for July 28th to discuss Policy and Procedures, Budget and Improving Communications between the Executive Committee and various Committee Chairpersons. We have found that the work load continues to increase and we need to look for ways to include volunteers that have offered their assistance.

I look forward to the exciting year ahead and encourage anyone that wants to get involved as a chairperson, committee member or just volunteer to contact myself or anyone on the Executive Committee.

Paul J. Solanics
psolanics@solonohio.org

Tour of the Kent WWTP at the May Section Meeting.

SEOWEA

John Owen, President

Greetings fellow Southeast members. My name is John Owen and I am honored to serve as the 2016-17 President of the Southeast Section. I first want to thank Brandon Fox for his leadership of the Southeast Section during this past year as President. I would also like to thank Fred Smith for his service to the Southeast Section as both a Past President and Section Delegate. Congratulations to Fred as he becomes the 2016-17 Vice President of OWEA. Special thanks to the SE Executive Committee for their continued service and dedication that makes this organization great. I want to welcome the new 2016-17 Southeast Executive Committee. Kris Ruggles, First Vice President; Brenda VanCleave, Second Vice President; Chris Tarr, Secretary; Melodi Clark, Treasurer; Tiffany Maag, Third Year Director; Josh Holton, Second Year Director; Kyle Stull, First Year Director and Brandon Fox as Section Delegate and Past President. Kyle is our newest member, having been elected to the executive committee at our May Section meeting.

Our May Section Meeting was held in Columbus with a plant tour at the Jackson Pike WWTP and followed by lunch and our section meeting at American Legion Post #532. During the meeting we acknowledged fellow colleagues for their contributions to the water environment with Section Awards. The recipients of our 2016 Southeast Section Awards are listed below with the award name followed by the recipient. If you happen to cross paths with them, please offer them a word of congratulations. It was great that we were able to recognize these members.

F.D. "Dean" Stewart – Jeff Hall
J.W. Ellms – Michael Frommer
F.H. Waring – Joan Waugh
L.T. "Tom" Hagerty – Sheree' Gossett-Johnson
Engineering Excellence – OSIS Downtown Area Odor Control Facilities
Lifetime Engineering – David W. Stewart
Laboratory Analyst – Amy Hursey
Professional Wastewater Operations – David Work
Public Service Award; Mayor Richard E. Carpenter, Fiscal Officer Sharon E. Carpenter, Village of Lore City, Ohio
Collections System Award – Michael K. Miser
Facility Image Award – Athens Wastewater Treatment Plant

Also at our May Section Meeting, we started what will hopefully become a new tradition with Southeast Section, honoring our Past Section Presidents during lunch. At our inaugural Past Section President's Lunch, we honored the following past Section Presidents who were in attendance:

Matt Boone ('13 - '14)
Stuart Bruny ('80 -' 81)
Bob Cottrill ('77 - '78)
Bryan Curry ('11 - '12)
Sheree' Gossett-Johnson ('00 - '01)
Paul Matrka ('08 - '09)
Joann Montgomery ('87 - '88)
Greg Otey ('09 - '10)
Fred Smith ('14 - '15)
Brad Stanton ('05 - '06)
Darin Wise ('03 - '04)

Moving forward, one of my goals as Section President is to continue with the Section's mission to see attendance growth of our section meetings. Over the last few years, we have seen growth from 35 attendees to over 50 at each meeting. In conjunction with meeting attendance, another goal is to continue with providing our membership with high quality, affordable contact hours that create a great learning environment for all. We are able to offer this at a great value with the help of our Section sponsors. We started to recruit our sponsors two years ago and we hope to see an increase in support this year. If you have not become a Southeast Section sponsor yet, please contact myself, Brandon Fox, or Fred Smith for details.

During this next year, we will be continuing to offer several opportunities for nonmember operators and Small System Operators to attend section meetings and state events free of charge. The Section is planning to kick off this next year with a Friends and Family night at a Columbus Blue Jackets game at Nationwide Arena. The details are still being worked out, so be on the lookout for a section e-mail with more event and registration information.

John Owen
john.owen@epa.ohio.gov

Is Your Membership Profile Up to Date?

Are you receiving your copy of the Buckeye Bulletin and timely email updates from the Ohio Water Enviroment Association? Has your job or position changed?

You can update your information online at:

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

Government & Regulatory Affairs Committee Update

by Dale Kocarek, P.E., Government and Regulatory Affairs Chair
John Owen, P.E., Government and Regulatory Affiars Co-Chair

Direction and Strategy

I am in the process of working with President Baker and the Executive Committee to pursue a slight change in the operations and focus of the Committee. This is to create more relevance for our members. The things that will be happening in the near future include the following:

- In 2017 our popular Government and Regulatory Affairs workshop will be combined with the Ohio AWWA's Safe Drinking Water Act workshop. Details on the date and location will be announced in the next few months, but we anticipated that our workshop will again be in the North Columbus/ Polaris area as before. The benefits of this joint event will be to provide one training opportunity to both clean water and safe drinking water professionals.
- President Baker has asked Jason Tincu to work with me on workshop and event planning that involves both OWEA and the OAWWA. In addition to our annual workshop, OWEA is planning a Utility/Management workshop in 2016 and another One Water Conference in 2018.
- I am looking to increase our advocacy by combining efforts with NACWA and AOMWA for legislative support and working more closely with Steve Dye and Claudio Terneiden of WEF Government Affairs. The most recent effort was our support of the WRDA Bill, which is discussed below.

Ohio House Bill 214

Since 2014, proposed bills to require open bidding of piping materials for publicly funded water and wastewater projects have come before legislatures in several states, including Ohio. The intent of these proposed bills is to restrict the ability of utilities to specify preferred piping materials for water and wastewater projects, and reduce the control that engineers and utilities have over selection of piping during improvement projects. WEF and AWWA have been tracking these activities both through the national and State organizations and AWWA especially has been actively opposed to proposed bills that have come up.

Ohio House Bill 214 first appeared in May 2015, proposed by Representative Andy Thompson from Marietta. The legislation was unanimously opposed by the Legislative and Government Affairs committee in 2015. In 2016, however, a nearly identical legislation has been under consideration with the Energy and Natural Resources Committee. At the most recent committee meeting, the legislation was supported by the American Chemistry Council, and opposed by numerous municipalities, industry organization, and piping material manufacturers.

Given the multi-state appearance of similar bills, this effort appears to be part of a push from groups in Washington. The American Legislative Exchange Council is reported to be a prominent backer of this legislation, and is pursuing efforts to enact the bill at state and local levels across the country. Beyond Ohio, similar legislation has been proposed in North Carolina and Arkansas. None of the proposed bills have been successfully enacted.

The actual text of the proposed bill is very short:

"A public authority shall not prefer one type of suitable piping material over another in constructing, developing, maintaining, rebuilding, improving, repairing, or operating a water, waste water, or storm water drainage project that is funded in whole or in part with state funds, unless sound engineering practices suggest that one type of suitable piping material is more appropriate for a particular project."

However, the implications for water and wastewater utilities could be significant. There have been concerns raised by utilities and engineers about the potential loss of control over the ability to control piping material specifications. The legislation intends to use ASTM and AWWA standards to define allowable piping materials. A key objection to this proposed bill is that it allows for no consideration of the complex factors that go into an engineer's and utility's decision for pipe on a water or wastewater project such as life cycle costs, maintenance requirements, and suitability for the application. There is also considerable risk of delay and objections to "sound engineering practices" that may allow piping material manufacturers to contest engineer and utility decisions during design.

OWEA continues to track the status of this legislation,and will provide updates of any additional developments. The bill has been opposed by numerous organizations in Ohio and across the US. OWEA opposes this bill and will provide guidance to members if additional action is needed by membership.

WRDA Bill (S.2848)

OWEA wrote letters to Senator Brown and Senator Portman in support of S.2848 - the Water Resources Development Act (WRDA) of 2016. An excerpt of the text is as follows:

"We are pleased to learn that this bill is receiving strong bipartisan support for addressing our nation's water resource infrastructure. We also believe it is critically important for the full Senate to consider this bill and urge you to support its consideration and passage."

In addition to authorizing critical U.S. Army Corps of Engineers (ACOE) projects, this bipartisan package includes common sense reforms to the Clean Water Act (CWA) that save ratepayers millions of dollars, leverage the private marketplace for investments in water infrastructure, and strengthen tools to protect public health.

If enacted, we believe this will be an important piece of legislation by providing much needed relief to communities struggling to comply with unfunded federal mandates by ensuring clean water investments remain affordable to ratepayers and generate the greatest water quality gains at the lowest cost. The bipartisan package also includes a range of provisions that address infrastructure investment, health, and safety issues of our drinking water and wastewater systems. These are all positives for our members and communities and invoke many of the things we have discussed over the years and during the Fly Ins to Capitol Hill each year.

We believe that the legislative package will be valuable to Ohio communities both large and small, which strive to meet the requirements of the Clean Water Act each and every day. Further, the bill includes authorization of the Great Lakes Restoration Initiative through Fiscal Year 2020 at $300 million annually.

In conclusion, we believe that communities in Ohio and the United States will benefit by enacting S. 2848. Our letters included a number of people that support the bill.

Meet **Brandon Fox**

Executive Committee Update

Brandon Fox is the newest member of the board and Southeast Section OWEA Delegate. He is currently the Wastewater Residuals Manager for the City of Columbus where he manages the City's Compost Facility and oversees the ultimate disposal and/or beneficial reuse of biosolids generated at the Jackson Pike and Southerly WWTP's. Brandon holds an OEPA Class IV Wastewater Treatment license and Class III Water Treatment license. He earned his Bachelor's degree in Agricultural Education from The Ohio State University. He has been in the wastewater/water industry for 12 years working in all aspects of operation and maintenance of wastewater collection systems and treatment plants. He has been active in the SEOWEA Section on the Young Professionals Committee, Residuals Committee and most recently working his way through the Executive Committee and finishing the 2015-2016 year as President.

In his spare time, Brandon enjoys spending time with his wife and high school sweetheart, Mandy and three children, Ben, Dylan and Drew. Brandon enjoys woodworking, gardening, coaching his children, working with fair animals and anything outdoors. One tip Brandon offers to newbie's in this industry is: "Get involved early in your career in an organization like OWEA. The personal and professional growth that comes with volunteerism is immeasurable and the experiences and partnerships that can be developed are critical to a successful career in this industry."

As stated by Gordon B. Hinckley, *"One of the great ironies of life is this: He or she who serves almost always benefits more than he or she who is served."*

Certification Committee

by Kathy Richards, Certification Chair

Felicitations!

An enthusiastic round of applause for the Laboratory Analysts that passed the Voluntary Certification Examination given this past April! These fine folk join the ranks of 450+ Ohio Wastewater Laboratory Analysts and Industrial Pretreatment Inspectors/Operators that are reaping the many benefits associated with certification.

Laboratory Analysts

Class I

Timothy Bennett
Craig Clements
Donna Corvo
Chad Kidd

Class II

Rhonda Golubski
Scott Gronas
Don Knife

Class IV

Kathleen Rish

While not yet required by the state of Ohio, many employers require that their analysts achieve a specific level of certification and OWEA certification is recognized by many other states through reciprocity. Exams for Class I, Class II, Class II and Class IV are offered twice a year. The next opportunity to sit for the examination is Friday, October 21, 2016. Applications deadline is Friday, September 16, 2016. Applications and information can be found at: *http://www.ohiowea.org/lab_analysts.php*

Kathy Richards – Director, Certification Board
certification@ohiowea.org

Workplace Distractions

Affect Productivity & Safety

Safety Committee Update

by Nathan W. Coey, City of Pataskala Utility Director, Safety Co-Chair, Southeast Section OWEA Safety Rep

Business News Daily published an article on June 12, 2015 titled "10 Distractions That Kill Workplace Productivity". The link for the article and be located at

http://www.businessnewsdaily.com/8098-distractions-kiling-productivity.html

The article shared results of a survey with the "10 biggest workplace productivity killers". The "productivity killers" in descending order are as follows:

1. Cellphones/texting
2. The Internet
3. Gossip
4. Social media
5. Email
6. Co-workers dropping by
7. Meetings
8. Smoke breaks/snack breaks
9. Noisy co-workers
10. Sitting in a cubicle

"Workplace productivity killers" can often distract employees from being dynamic and efficient in responsibilities at work. Chad Brooks, the author of the article, shared some insight to "productivity killers." "Workplace distractions can lead to some pretty significant consequences. The study discovered that these interruptions can negatively affect quality of work, employee morale and the boss/employee relationships." Rosemary Haefner, Chief Human Resources officer at CareerBuilder was quoted in the article, "Between the Internet, cellphones and co-workers, there are so many stimulants in today's workplace, it's easy to see how employees get sidetracked."

The article brings to light that the very technology (and people) we lean on to do our job can often be our biggest distractors. The article states employees can be easily "sidetracked" with the "productivity killers". The "killers" not only negatively affect productivity, it threatens our workplace safety and wellbeing. Our treatment facilities and systems are dangerous enough without the threat of distraction. Any level of distraction includes an exponential increase for workplace injury. We have all seen the videos of people texting and walking with often unfavorable results.

Certified treatment operators have taken a solemn oath to protect human health and the environment. Our citizens, the people we serve daily, expect clean water every day. We must take that responsibility with the utmost respect. We must perform all aspects of our job with precision and excellence. We do not take a "mental day off" due to productivity or safety killers. We must be passionate with the duties at hand to ensure public health and safety. We must not neglect personal safety in the face of adversity. Our daily mission of clean water includes operating in a safe and reliable manner with a daily focus of excellence!

A productive employee is a great asset. Involve your staff in productivity and safety initiatives. A focus on employee safety is an easy way to enhance employee morale.

"Without continual growth and progress, such words as improvement, achievement, and success have no meaning."

Benjamin Franklin

Godspeed,

Nathan W. Coey
City of Pataskala, Utility Director
ncoey@ci.pataskala.oh.us
740-927-4134

COMMITTEE CONTACT INFORMATION

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City of Warren
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Safety Committee Co-Chair
Nathan Coey
City of Pataskala
ncoey@ci.pataskala.oh.us

Students & Young Professionals Update

by Alicia Adams, Young Professionals Chair

The membership committee is looking for YPs to help recruit and retain other YP members and students. If you are interested in getting involved with OWEA and like reaching out to fellow co-workers and operators give fellow-go-to-person Tom Angelo a call at 330.219.7883 or email him at *tangelo@munitreat.com*. He'll explain ways that you can get involved with the membership committee.

We would also like to congratulate Muralikrishna Chelupati from Arcadis, Megan Miranda from American Structurepoint and Jenn Delebreau from Strand Associates for providing fantastic presentations at the OWEA Annual Conference this year. They each did a fantastic job!

The SE OWEA YP's recently collaborated with the SE AWWA YP's for a project tour of the Columbus Southerly WWTP Biosolids Land Application Facility. Led by the AWWA SE YP District Chair, Tyler York, the group consisted of young operators, engineers, Ohio State students, and industry fans who toured the construction site of the fast paced and exciting project. Thank you to the City of Columbus for sharing this opportunity and thank you to those who joined and supported the event!

The Young Professionals committee is always interested in recruiting new young professionals out there. Please email *aadams@munitreat.com* if you are interested (or know someone that is) in joining the email distributions.

Northeast Section YP Update

by Ashley Williston, Burgess & Niple

We have some exciting things to report from the Northeast Section YP committee. This year's Northeast Section Young Professional Award winner was Krishna Chelupati. Krishna is an active member of our NE YP committee and is also involved with the NE Section Science Fair committee. Krishna won this award for his paper titled *Holistic Sewer Rehabilitation for the Next Generation I/I Control*. As the recipient of the YP Award he received free admission to the 2016 OWEA State Conference, one night stay at the The Bertram Inn & Conference Center, and presented his paper during the technical sessions on Tuesday. Congrats Krishna!

Krishna Chelupati and Elizabeth Wick at the Annual Conference.

Our next NE Section YP event will be sometime in August to listen to Doug Dietzel's presentation on *Overflow Control Using Chemically Enhanced High Rate Treatment*. The presentation will explain the process of Chemically Enhanced High Rate Treatment, the pilot designs at each of the Northeast Ohio Regional Sewer Districts Facilities and the data that was collected over the past three years. The YP group is having this event so Doug can practice this presentation before WEFTEC this fall. Doug has been selected as an alternative presenter for the technical session *Where did my Carbon go*.

Here is a little more about Doug: Doug is an active member in the Northeast Section YP organization, he is on the NEORSD Operator Challenge Team (Minimal Headloss) who also will be going to WEFTEC to compete. Doug holds a Class II Wastewater License and has a Certification in Geological Information Systems. Doug is from Lakewood, Ohio and graduated from Baldwin-Wallace College in 2012 with a Bachelor of Science in Biology and a Bachelor of Art in Sustainability. Doug has been with the NEORSD for more than four years. He started in May 2012 as a Biology Chemistry Co-op performing chemical analysis on wastewater samples. In December 2012 he was hired as an Operation and Maintenance Process Specialist.

Our NE Section YP group is still strongly involved in supporting The Cleveland State University (CSU) Student Environmental Movement (SEM). SEM has been very busy in the last year hosting events such as a Wild and Scenic Film Festival, numerous stream and beach cleanups, and the NEOWEA's Watershed meeting to name a few. The student group is comprised of roughly 35 members who mainly major in environmental science or biology at CSU. Their mission is to educate the public on environmental issues as well as take direct action to protect the environment to the best of their ability. Our YP group is in the process of organizing a beach cleanup and cookout with CSU where the entire NE Section will be invited – so keep on the lookout for the announcement and I hope you can join us. During the last beach cleanup that SEM and NE YP group participated in we collected over 100 pounds of trash in two hours!

Doug Dietzel presenting.

To sign up for the NE YP email list to hear about upcoming events and other YP information, email Ashley at *ashley.williston@burgessniple.com.*

Young Professionals participating in the beach clean up.

Lab Analysts Committee Update

by Denise Seman and Melodi Clark, Committee Co-Chairs

Hi Everyone!

Annual conference just finished, what a great event!

The lab committee judged the lab portion of Ops Challenge. What a great bunch of competitors we had this year. Congratulations to team Outfalls from the City of Columbus. They took first place in the lab event! Kudos to both Northwest Water and Sewer and NEORSD teams for also putting in a great lab presence. The competition times were close this year, all of our teams did great! Wish them luck as they will be traveling to WEFTEC to represent us.

Special thanks to our lab judges: Karen Tenore, Tony Hintze, Terri Brenner, Mike Heniken, Patrick Wersell, and of course – both of us, LOL.

Lab Munkee made another appearance this year. He's been a bit of a recluse the last couple of conferences, but decided to come back with hopes of no further monkee-nappings. ☺

Coming events: the annual OWEA Plant Operations and Lab Analysis workshop will be October 26 & 27th. We have a great line up of speakers and topics again this year. Watch the OWEA website for registration information.

NW LAC – Tony Hintz and Terri Brenner

It's hard to believe that August is here already, but as they say "time flies when you're having fun!" It was great meeting many of you at the conference. Terri and I had the opportunity to judge the Lab portion of the Operator Challenge and it was a blast! All the teams did a great job! Good Luck In New Orleans!

We are excited to continue to add new people to our email list, so if you would like to be added send your info to *tjhintze@gmail.com* or to *tbrenner@ci.perrysburg.oh.us*. Joining this list will keep you up to date on upcoming meetings along with any important information pertaining to the Lab. We look forward to hearing from you.

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

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

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NE Chair
Bev Hoffman
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Join Your Section's Lab Analysts 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.

SW LAC – Jim Davis and Karen Tenore

Our meeting in Sydney (May 12) was attended by 29 people. We had 2.0 contact hours, covering the plant expansion, lab tips & tricks, and using your lab data to optimize process control. Our last meeting was Thursday, July 21st hosted by the City of Fairfield WWTP.

Upcoming Meeting is:

Thursday, October 13th

Hosted By: YSI, Inc.,

1700/1725 Brannum Lane, Yellow Springs, Ohio, 45387

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:

Karen Tenore or Jim Davis.

Committee Members:

Lynette Hodnicki, City of Fairfield

Lori Kyle, Greene County

Teresa Shinkle, Greene County

Gregg Mitchell, City of Sidney

Roger Rardain, City of Fairborn

Dr. Robert Smith, YSI

NE LAC –Bev Hoffman

We are in the planning stages for a meeting in October. Watch your email for more information on the upcoming meetings

Please let me know what topics you are interested in.

This will help us plan better meetings.

If you would like to be added to the NES LAC membership directory and receive automatic emails for training events, please email *nesowealac@gmail.com*.

Committee Members:

Marie Simon *marie@northcoastlabs.com*

Lisa Feigle *lisaf@gacdwr.org*

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

SE LAC - Melodi Clark

This article is coming right after the state conference and it was a great success. The conference had great lab topics this year! The OPS challenge was awesome. The three teams did a great job with the lab event. I had so much fun hanging out with all of our fellow chemists from all over Ohio. I have pushed back our next meeting to early August as the state conference has kind of pushed our meeting out a little. I am still planning on having Newark WWTP as our location. I will be looking for people to speak at it so please contact me if you are interested. I am also looking into having one big mega LAC meeting before the end of the year here in Columbus with all four sections. I will be reaching out to the other conference chairs to see if they are interested. Hope to see you at our next meeting, let's try to break our last attendance of 26!

Career Opportunities

No charge for job seekers.

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

$160 for a 30 day posting if not a member.

$160 for a Professional Membership

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

Ohio

Charitable Outreach Committee Update

by Alicia Adams, *courtesy of water.org*

For most of us, the idea that water could keep us from going to school, doing our job, and providing for our families is a strange one — even impossible. But for millions of women and girls around the world, that scenario is a day-to-day reality.

Courtesy of *water.org*:

Empowered women will change the world

"In many countries, women are responsible for finding and collecting water for their families. All the water they need for drinking, washing, cooking, cleaning. They walk miles, carry heavy burdens, wait for hours and pay exorbitant prices. The work is back-breaking and all-consuming. Often the water is contaminated, even deadly. In these instances, they face an impossible choice – certain death without water or possible death from illness.'

"Once they are old enough, girls join this effort. They spend countless hours trying to provide this basic life necessity.'

"Women also struggle most from the lack of adequate sanitation, the often unspoken part of the water and sanitation crisis. The sanitation crisis for women can be summed up in one word: 'dignity.' Around the world, fewer than one person in three has access to a toilet. In many countries, it is not acceptable for a woman to relieve herself during the day. They wait hours for nightfall, just to have privacy. This impacts health and puts their safety at risk. About half of all girls worldwide attend schools without toilets. The lack of privacy causes many girls to drop out when they reach puberty.'

"The dual aspects of the water crisis – lack of water and of sanitation – lock women in a cycle of poverty. They cannot attend school; they cannot earn an income.'

Providing Hope for Generations Ahead

"Around the world, women are coming together to address their own needs for water and sanitation. Their strength and courage transforms communities. With the support of Water.org and its local partners, women organize their communities to support a well and take out small loans for household water connections and toilets. They support one another, share responsibility. These efforts make an impact, taking us one step closer to ending the global water crisis.'

Photo courtesy of waterforpeople.org.

The results?

Education

- "Increased girls' school attendance, level of education and literacy rates, as they no longer need to miss school to secure water for their families and have adequate and separate sanitation facilities.'

Health

- "Improved health for women and girls who no longer have to delay defecation and urination.
- Reduced child and maternal mortality as a result of access to safe water, sanitation facilities and improved hygiene during child birth.
- Increased dignity and reduced psychological stress for girls and women particularly when symptoms associated with menstruation, pregnancy and childbirth can be managed discreetly.
- Reduced physical injury from constant lifting and carrying heavy loads of water.
- Reduced risk of rape, sexual assault, and increased safety as women and girls do not have to go to remote and dangerous places to defecate or to fetch water during the night.'

Socioeconomic Opportunity

- "Increased recognition of women as having skills and knowledge outside the scope of their traditional roles.
- Strengthened voice for women in their families and communities to negotiate their own needs.
- New opportunities for women's employment as well as greater autonomy and independence."

1.5 Million people now have access to safe water through @waterforpeople's work. Help us celebrate those who make their work possible, and the people who make it worth it. Let's celebrate the #FacesOfProgress

Feel free to contact myself or Afaf if you want to get involved with Water for People here in Ohio.

AAdams@Munitreat.com

MusaAB@CDMSmith.com

Ohio con•flu•ence 2016

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Public Education Committee Report

by Kevin Stilwell, P.E., Chair

Education Outreach

We are planning on making a strong push to grow our EOFAR program heading into the second half of 2016. We have developed a flyer to advertise our available funds, and plan to distribute these to every corner of the state. We are reaching out to educators, schools, and other educational platforms to make them aware of who OWEA is, and what we can do to provide better education for our great industry. If you are interested in getting involved, want to distribute some flyers, or just simply know of someone that would benefit from our EOFAR program, please feel free to contact me.

Rain Barrels

In collaboration with Coca-Cola, we are going to begin receiving barrels from them, and transforming them into rain barrels. This effort will provide rain barrels to local communities and schools, and also give kids the opportunity to use their artistic side in decorating the rain barrels. More information to come soon.

Kevin Stilwell, P.E., Chair
kkstilwell@psara.com

State Science Day 2016

OWEA Award Recipients

"Earthworms in the Treatment of Sewage Sludge" won the $500 Scholarship. The scholarship was awarded to tenth grader, Jamie Bradbury of Geneva High School.

"Water Quality: The Effects of Agricultural Runoff" won the $300 Scholarship. The scholarship was awarded to twelth grader, Shelby Dalton of Rock Hill Senior High School.

"What Purification Methods Purifies Tiffin River Water the Best?" won the $200 Scholarship. The scholarship was awarded to ninth grader, Clay Bowden of Tinora High School.

2016 Stockholm Junior Water Prize Winner

Travis O'Leary was the Stockholm Junior Water Prize Winner with his project "Liquid Nitrogen's Effect on Oil Spills." O'Leary is a ninth grader at Carroll High School.

Public Education Committee

Operates to honor OWEA's commitment to preserve and enhance the water quality of Ohio.
Goal is to inform and educate inside and outside community

The OWEA Public Education and Outreach Funding Assistance Request (EOFAR) Program:

- Established in 2015 by the Public Education Committee
- To ensure continued success of OWEA's commitment to public education and outreach
- Average funding level is $500 per application/applicant
- Citizens of Ohio of all ages; particularly K-12

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

Funding may be requested:

- Individually through an OWEA member on behalf of interested teachers/citizen group representatives
- Funds are to support qualified public education or outreach event/activity
- The form must be completed on-line at OWEA's website:
  http://www.ohiowea.org/public_education.php/

Outreach Funding Assistance Request Process:

1. Members of the OWEA Public Education Committee review and determine the level of funding to be awarded.
2. Check made payable to school/organization where the teacher/citizen is employed.
3. Grant recipients must provide a summary of how the funds were used and copies of invoices (if applicable) within 6 weeks following the event/activity

Additional Outreach:

- Local Science Fair judging
- Booth set up and distribution of materials and giveaways at events across Ohio
- Internship opportunities at the OWEA Office to introduce and provide networking and mentoring opportunities for environmental, engineering, public health students
- Student Chapters at Ohio universities and colleges

For More Information Please Contact:

Kevin Stilwell
Public Education Committee Chair
kkstilwell@psara.com
513.791.4418

OWEA Office
614-488-5800
amydavis@ohiowea.org
info@ohiowea.org

Plant Operations Update

by Kim Riddell and Joe Tillison, Co-Chairs

The Plant Ops Committee is pleased to announce that the 2016 Operations Challenge Invitational that was held during the OWEA Annual Conference was a huge success! Three teams from Ohio competed in this years' event. We heard great things from all of the attendees and many teams are already making plans to come back again next year! Rumor has it some may even field multiple teams…

I wanted to also take a moment and thank all of our event coordinators because without them, we could not pull together such a great competition each and every year! So thank you to:

Laboratory – Denise Seman, Youngstown and Melodi Clark, City of Columbus

Safety – Ed Nutter, City of Newark

Process – Jim Borton, CH2M

Maintenance – Doug Sayre, Allied Technical Services

Collections – Kevin Givins, City of Wooster

Also a big thank you to all of the other volunteers and team members that assist with set-up, tear down, judging and everything in between! We truly couldn't do this every year without you!

Congratulations to the NWWSD Dirty Deeds for taking 1st Place in Division I and to NEORSD Minimal Headloss for taking 1st Place in Division II.

The results of the 2016 competition were as follows:

Ohio Operations Challenge Winners

1st Place – Dirty Deeds, NWWSD, Bowling Green

2nd Place – Outfalls, City of Columbus

3rd Place – Minimal Headloss, NEORSD

Laboratory Event

1st Place – Outfalls, City of Columbus

2nd Place – Dirty Deeds, NWWSD, Bowling Green

3rd Place – Minimal Headloss, NEORSD

Safety Event

1st Place – Dirty Deeds, NWWSD, Bowling Green

2nd Place – Outfalls, City of Columbus

3rd Place – Minimal Headloss, NEORSD

Process Control Event

1st Place – Minimal Headloss, NEORSD

2nd Place – Dirty Deeds, NWWSD, Bowling Green

3rd Place – Outfalls, City of Columbus

Maintenance Event

1st Place – Dirty Deeds, NWWSD, Bowling Green

2nd Place – Outfalls, City of Columbus

3rd Place – Minimal Headloss, NEORSD

Collections Event

1st Place – Dirty Deeds, NWWSD, Bowling Green, OH

2nd Place – Outfalls, City of Columbus

3rd Place – Minimal Headloss, NEORSD

We would also like to thank the OWEA Executive Committee for voting to send all three Ohio WEA teams to WEFTEC this year in New Orleans to represent Ohio in the national competition! OWEA covers the expenses for the winning teams' travel to WEFTEC each year and again this year has graciously agreed to cover and send three teams! THANK YOU on behalf of the Plant Ops Committee and the Ohio WEA teams!

If you are interested in putting a team together for Operations Challenge, becoming a member of the committee or assisting as a judge / volunteer for Operations Challenge, please contact Kim Riddell at 419-234-4507 or Joe Tillison at 419-354-6274.

Mark your calendars for 2017! The Operations Challenge competition will be held at the OWEA Annual Conference on June 26th, 2017 in Downtown Cincinnati. And don't forget to attend the Plant Operations and Laboratory Workshop which will be held in Columbus at the Doubletree on October 26-27, 2016. It's going to be a very nice workshop with lots of great speakers lined up! Topics include: Green Infrastructure and certification, Utility Performance, Emergency Pumping and other emergency planning, BNR controls and lots of other great topics!

Kim Riddell, *kim.riddell@alloway.com*

Joe Tillison, *JTillison@bgohio.org*

Test Your Knowledge – Take the Operations Quiz

1. For sewers less than 15" in diameter, the maximum distance between manholes is:

a. 200 feet
b. 300 feet
c. 400 feet
d. 500 feet

2. Which of the following terms refers to a hydraulic condition where billowing solids flow over the effluent weir when a portion of the flow through a clarifier experiences a much shorter detention time than the rest?

a. Surging
b. Overload
c. Dispersion
d. Short-circuiting

3. Which piece of laboratory glassware is used to mix chemicals and measure approximate volumes?

a. Pipet
b. Beaker
c. Graduated Cylinder
d. Buret

4. Assume that the typical pH of the influent at your treatment plant is 7.1. The laboratory technician comes to you this morning and indicates that the pH is now 6.2 at the influent. This decrease in pH is likely caused by?

a. A change in outside temperature
b. Too much alkalinity in the influent
c. A caustic substance in the influent
d. A corrosive (acidic) substance in the influent

5. What is your first course of action if you see a slow constant drip from a pump shaft packing seal?

a. Make no adjustment
b. Loosen the gland nuts
c. Change the packing material
d. Fill seal with more water as needed

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

Answers: 1-c; 2-d; 3-b; 4-d; 5-a

How to Get that Project Funded:

Tips for Navigating the Public Financing Arena for Your Next Project

by Roberta Acosta

For many local governments, when money is tight, funding for infrastructure investment is one of the first items cut from the budget. Water and sewer projects are often costly and the deterioration of these systems isn't as easy to see as say, damaged roads or schools. However, lack of planned maintenance and capital investment in our water and sewer infrastructure has far-reaching implications such as undermining public health and safety and economic growth as well as the environmental and financial issues associated with NPDES permit violations and drinking water standards violations.

There are a number of federal and state funding programs available to assist municipalities with financing for water and sewer projects. However, you must be careful not to rely solely on these traditional funding sources which are available primarily in the form of loans. Heavy debt burdens can financially paralyze a utility, impacting not only your ability for future borrowing but also the day to day operations of your system.

In general, regardless of size, water and sewer systems do not save enough for regular system maintenance, let alone capital improvements. Operating in a constant state of crisis management is financially and mentally challenging. This is especially true for many smaller systems that do not have the economies of scale of their larger neighbors, making the cost of installing, operating and maintaining utilities that much more of a burden to their customers. Local municipalities can dramatically increase their odds of constructing and maintaining their water or sewer facilities if they plan ahead. In most cases, seeking public financing for a project requires a minimum of two years to secure and release the necessary funding. You also need to consider the time and expense for the preparation of income surveys, preliminary engineering reports and environmental assessments that can easily add six months and several thousand dollars to your project. In addition, you need to be strategic in deciding which projects you finance with public funds. The simple fact of the matter is that funding agencies often have different priorities than local and regulatory officials, meaning that a priority project to the utility or EPA may not be a priority project for a funder. It's important to familiarize yourself with the individual funding programs in order to make the best decision for your project so that you don't waste valuable time and effort.

One way to help you strategize your funding priorities is through the use of an asset management or capital improvements plan. This will allow you to identify those projects that are truly a capital improvement versus those projects that are considered maintenance projects. Maintenance projects, such as water tower inspection and painting, source water projects or water or sewer line replacement or extensions, unless there is a compliance issue or NPDES violation, are generally not very competitive and if they are fundable, they are not usually grant eligible. New systems, such as unsewered areas, are also very difficult to fund primarily due to the small customer base. These areas typically have less than 200 customers and without substantial grant funding, are just not affordable. Another priority fact of life to a funding agency is that regardless of any compliance or public health issue, the ability of the system (a.k.a. "the borrower") to pay back the loan is the number one consideration for providing funding for a project.

In Ohio, there are five primary sources of funding for water and sewer projects, which are summarized in the table below. There are a lot of nuances to obtaining public funding so it's always a good idea to discuss your project with a local program representative to make sure you are on the right track.

Other, more limited funding programs include Appalachian Regional Commission, which is a grant program available to Appalachian counties in Ohio, US Army Corps of Engineers 594 Program, some economic development programs and of course there is always the option to issue bonds or property (or even income) tax assessments. Keep in mind, the more funding programs you try to secure for a project, the harder it is to coordinate your project schedule as the timing of availability of funds varies greatly.

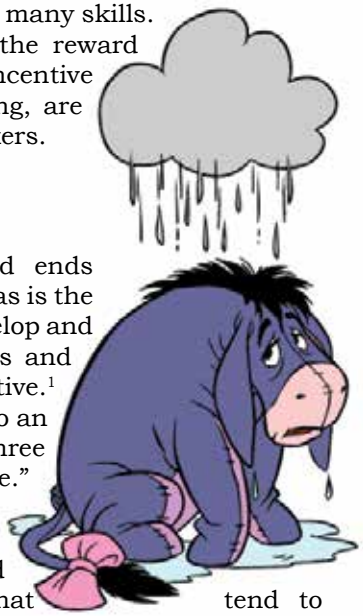
Navigating the public financing arena can be daunting and challenging but you can chart your own course if you plan accordingly. Make sure you have prioritized your projects into categories that identify the need and appropriateness for public financing. Make sure that you understand the funding agencies' priorities and eligibility requirements before applying and allow enough time in your project schedule to secure the necessary funds.

Program	Type of Financing	Terms	Priorities	Cycle
Ohio Water Development Authority	Loans and limited grant programs	5-30 Years Interest rate is based on term and current market rates. Rates are adjusted monthly. Grants are available for research and development projects and some unsewered areas.	None	Monthly (except November). Applications are due by the first of them month for an award. No engineering or environmental review requirements
Ohio EPA State Revolving Loan Funds Water Pollution Control Loan Fund (WPCLF) Water Supply Revolving Loan Account (WSRLA)	Loans and Principal Forgiveness (PF) PF is available to eligible communities based on compliance issues and financial thresholds	WPCLF: 5-30 Years Interest Rates vary, but are generally below market rates. WSRLA: 5-30 Years Interest rates vary, but are generally below market rates	Assist with compliance issues	Awards are made monthly, however processing of applications requires 90-180 days. Preliminary engineering reports and environmental reviews are required.
Community Development Block Grant (CDBG) Residential Public Infrastructure Program (RPIG)	Grants Systems serving populations of 10,000 and below are eligible.	Grants of up to $500,000 for construction and $100,000 for connection assistance to eligible homeowners.	Community must be at least 51% low-to moderate income and serve a primarily residential area. There must be a compliance or public health and safety issue. Funding requires a 1:1 match, either from local funds or another funding source	Applications are accepted on an open cycle until funds are expended in any fiscal year beginning June 15. Preliminary engineering studies are not required, but an environmental review is required prior to release of funds. An income survey may also be required in order to determine eligibility.
Ohio Public Works Commission (OPWC)	Loans and Grants	Typically 0% interest but can vary based on District. Terms are 30 years.	Must be an improvement to an existing system and usually solving a compliance related issue in order to be competitive.	Applications are made to County/District representatives in the Fall. Small community projects not funded at the District can compete at the State-level for Small Governments (SG) funding. SG awards are made each May. OPWC funds are available July 1 of each year.
USDA/Rural Development	Loans and grants	Interest rates vary quarterly but are typically below market rates. Terms are set based on expected life of the infrastructure and affordability. Maximum term is 40 years.	Lender of last resort	Open application cycle. Availability, type and amount of funds is based on appropriation from federal budget. Requires preliminary engineering and environmental report prior to obligation of funds.

A Workplace That **Thrives**

by Dave Wilson, City of Dayton

How do we as leaders create a thriving, vibrant workplace? Exciting leaders trail blaze for the organization, setting everyone on fire with exuberance. Multi-talented leaders use many styles and tools to lead, changing styles as situations dictate. Creating thriving workplaces requires many skills. Valuable relationships are the reward for vibrant leadership, the incentive for the tough days of leading, are the interactions with coworkers.



Is Eeyore a Realist?

The challenge begins and ends with negativity. Negativity bias is the notion that it is easier to develop and encourage negative thoughts and feelings than it is to be positive.[1] "When delivering bad news to an employee, give them two or three positives for every negative." "A teaspoon of sugar (or stevia) helps the medicine go down.[2]" We are equipped with hedonistic memories that tend to look at the negative aspects of relationships first before considering any awesomeness. With all of that sadness and human nature to overcome, how do we stay happy and at the same time not drag down everyone around us?

The Chameleon

Daniel Goleman studied 4,000 leaders and found visionaries, coaches, harmonizers, encouragers, pacesetters and commanders.[3] The successful leaders were able to weave through each of these styles from situation to situation.

- Visionary – Sets and communicates the vision for the team
- Coaches – Builds and establishes trust to enable teaching and learning
- Harmonizers (peace makers) – brings the team together emotionally
- Encouragers - Inspire team participation towards a common goal
- Pacesetters (the challenging leader) – sets high standards for the team
- Commanders – uses positional power to produce results.

Goleman found that successful leaders use the commanding option sparingly, preserving relationships while producing results. Leaders need to be able to "push the rock" to complete the necessary work to provide the team with the tools to complete job tasks. An additional skill is the ability to serve and lead, to be "in the trenches" with the troops, showing first-hand the path to victory.

Punching the Time Clock

Team members spend a significant portion of their lives at work. Going home knowing your work made a difference is a feeling of accomplishment with no equal. Reaching the end of a day knowing that the work completed made

The People Place

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

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

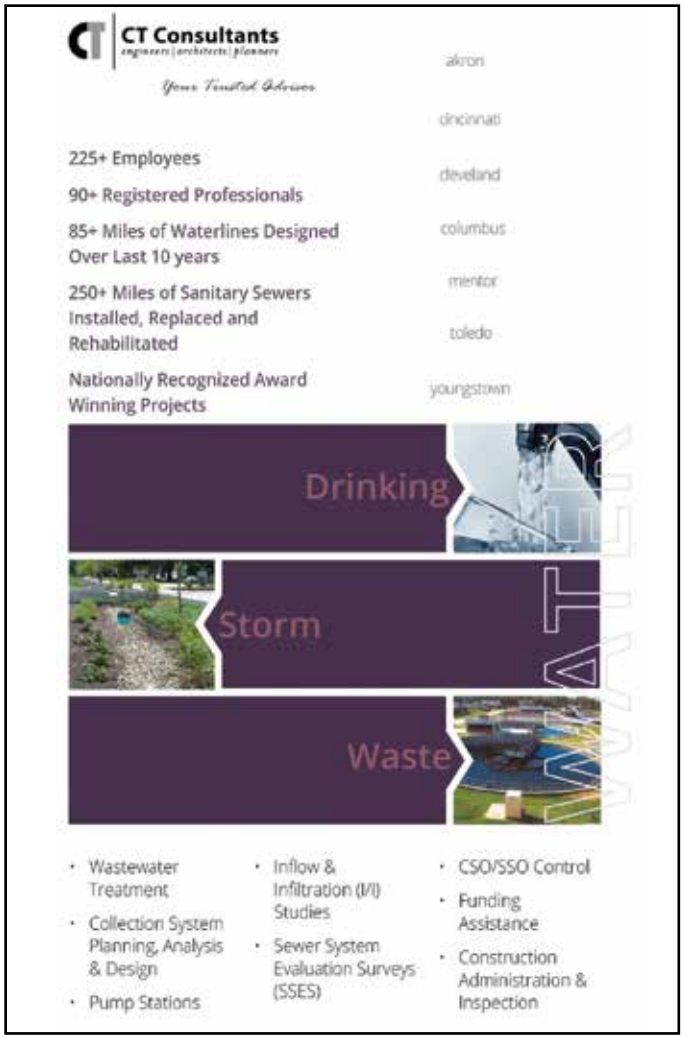
a difference, influences all aspects of a person's life. By achieving excellence in our duties, we have the ability to improve health and the environment. Leaders provide feedback and encouragement that we all need to make that difference. People desire to accomplish meaningful, good work. Expressing gratefulness to teams and people builds up people. We need to find ways to say thank you for accomplishing the tasks set before us. Part of a feeling of accomplishment comes from achieving challenges. A team should always be striving for excellence. Character is your belief system, your values. Integrity and character should never be compromised in the pursuit of excellence.

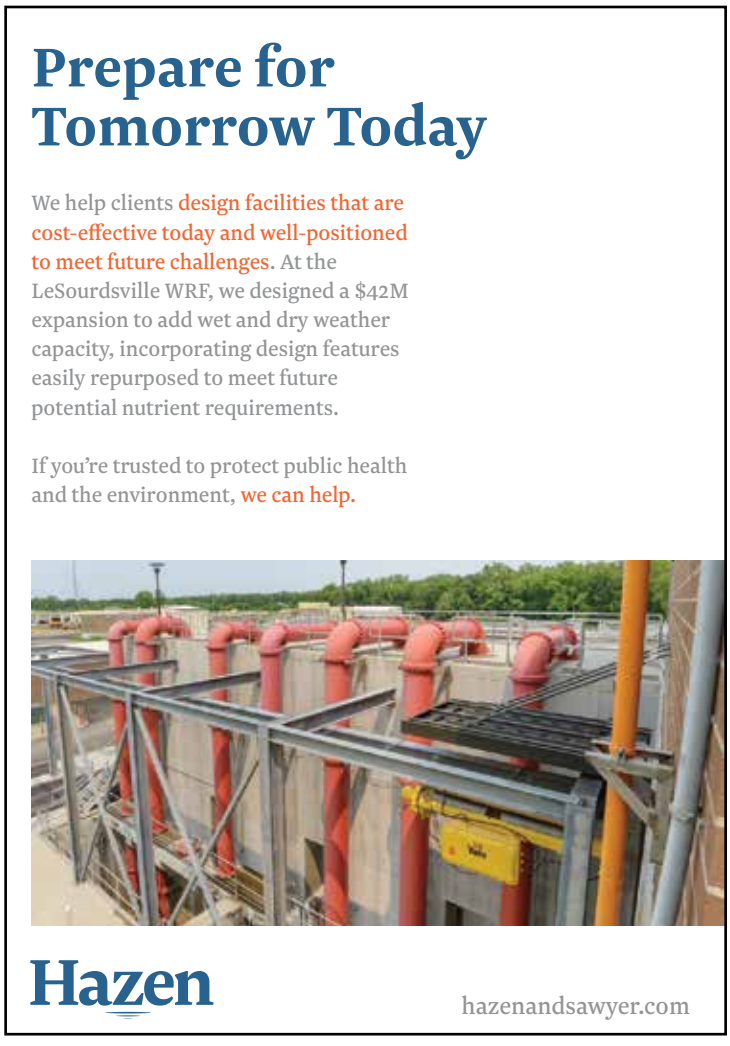
Recharging, Peers and Superman

This leader person sounds like Superman, eh? How does Superleader recharge the battery? A basic premise is that introverts recharge through alone time and tasks, while extroverts recharge through social interactions. Alone time to recharge is good but all Superleaders need to have a support system. Superleader needs to have peers. On Saturday Night Live[4], "Middle-Aged Man had "Drinking Buddy" to share ideas with and brainstorm solutions to challenges. We do not all need a "Drinking Buddy" but we need peers to share and support each other. Equally important, is the peer that can be honest and give Superleader honest, sometimes difficult feedback. Importantly, Superleader does not have to have a set personality. It is important for Superleader to behave true to herself. Changing who we are to be Superleader not only violates the character law above, our teams can tell when we have turned into Stinkyleader. Leadership does not require personality change, to achieve success.

1. Guido Peeters *2. Walt Disney (Mary Poppins)*

3. Daniel Goleman *4. Mike Myers/Chris Farley*





Roll Call

OWEA members may complete the Roll Call form at http://www.ohiowea.org/memberships.php

Information regarding members who have passed away may be emailed to info@ohiowea.org

HDR, a leading engineering and consulting firm, welcomes **Dr. Taymour El-Hosseiny, PhD**, PE, to its Columbus office. As Senior Utility Planner and Modeler, Taymour brings 25 years of utility experience to HDR, including utility master plan hydraulic and hydrologic computer modeling, development of programs to eliminate SSO and CSO, stormwater master planning, flow optimization and monitoring programs, and green infrastructure planning. Originally from Egypt, Taymour received his BS and MS in Civil Engineering from Ain Shams University (Cairo, Egypt), and his PhD in Water Resources Engineering from the University of Guelph, Ontario, Canada.

Kevin Stilwell, P.E. has joined PSARA Technologies as a Project Engineer in their Cincinnati office. Kevin received a Bachelor's degree in Civil Engineering from the University of Tennessee. He is a registered Professional Engineer in the state of Ohio and has over five years of experience in the water and wastewater industry, previously working at RA Consultants. Kevin has worked on numerous projects including facility stormwater improvements, pump selection, and water and sewer main design. He has served as the SWOWEA Public Education Committee Chair for over three years, and the OWEA Public Education Committee Chair for one year. "I'm excited to embark on a new adventure with PSARA Technologies, as I continue on my career path. I'm looking forward to continued growth in my engineering career, while diversifying my portfolio at PSARA we provide Personalized Service with Accessibility, Responsiveness and Accountability."

HDR, a leading engineering and consulting firm, is pleased to announce that **Matthew Casey, P.E.**, has joined HDR's Columbus, OH office as a Client Service Manager. With over 21 years of experience, Matt received his Bachelor of Science degree in Engineering from The Ohio State University and holds PE registrations in both Ohio and North Carolina. He has focused his career on civil and environmental water/wastewater projects, including booster/pump stations, sanitary sewer collection systems, and long term control plans.

With more than 20 years of municipal water and wastewater consulting experience, **Bill Johngrass** has returned to the ms consultants team. Bill has extensive design and project management experience working on a variety of projects throughout the Midwest, including the $500 million City of Columbus Water Supply PCM program, $55 million Southerly WWTP Primary and Aeration Improvements project, as well as a number of wastewater treatment plant evaluations for cities across Ohio. Bill also has experience with overall wastewater system assessments and master planning for counties, cities, and villages.

As a Senior Business Project Manager, Bill will focus on project delivery and support business development efforts in the ms Environmental (water/wastewater) sector, working with clients and project teams to deliver practical solutions for municipal clients throughout the nine ms consultants offices. Bill is a member of ASCE, WEF, and AWWA and has participated on the civil engineering advisory board at Youngstown State University.

Michael Frommer P.E., joined Delaware County Regional Sewer District on March 7th.

Frommer brings 13 years of experience from AECOM where he was vice president and area operations manager. His experience also includes project manager for sanitary sewer projects in Columbus, Defiance, Hilliard, Lima, and Newark.

Frommer is a licensed professional engineer and has water supply and wastewater operator licenses with the Ohio Environmental Protection Agency. He also served as utilities director with Southwest Licking Community Water and Sewer District.

Frommer is a past president of the Ohio Water Environment Association (2014 - 2015) and 5S Member.

Membership Services

If you need assistance with membership details, event registration, or coursework reports, contact us at 614.488.5800 or:
Amy Davis, Executive Administrator
amydavis@ohiowea.org
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meganborror@ohiowea.org

Advancing **Sustainable Infrastructure** with Envision®

by Elaine A. Flinn, ME, ENV SP and Denise Nelson, PE, ENV SP, LEED AP
McKissack & McKissack

The Envision rating system is to the Civil Environmental Infrastructure built world, what LEED is for the Architectural built world. I have always loved the outdoors for as long as I can remember. My father would carry me on his shoulders as a very small girl through the hills of Ohio to the streams and lakes for fishing and boating. I grew up loving the trees, the fields, flowers and of course, fishing. I remember doing a plot assessment in grade school. Creating pollution posters to educate the community about the effects of pollution on our environment. I guess they did convince me that we need to take better care of our world.

For Ohio, protecting our environment became national news with the Cuyahoga River catching on fire. The devastation on our environment by past generations from Lake Erie to the Cuyahoga Valley and to the Ohio River, has brought a toll on our generation. With the restoration of the Cuyahoga River, it is a testimony that the damage can be reversed and restoration can be celebrated. The Cuyahoga River is restored as a viable sporting and recreational natural resource for future generations to enjoy.

The Blue Herron returns to the Cuyahoga Valley. "Water quality is important to Akron and its neighbors," said Garry Moneypenny, president of the Akron City Council. "The Akron Water Reclamation Facility contributes to better health, a better environment, improved wildlife habitats and boosts our economy." These are reasons that I am excited about the Envision rating system. We now have a tool to help us focus and measure sustainability in the Civil Environmental world.

The Envision rating system for sustainable infrastructure is the new international reference for best practices for all types of infrastructure. After four years in the industry, hundreds of municipalities, consulting firms, and contractors are using Envision to improve the sustainability of infrastructure projects in North American and world-wide.

The Envision rating system for sustainable infrastructure is a collection of best practices that provides guidance for decision making throughout the entire project lifecycle. It includes 60 credits, or sustainability concepts, organized into five general categories: Quality of Life, Leadership, Resource Allocation, Natural World, and Climate and Risk. Envision is freely available online, *http://sustainableinfrastructure.org/* , as a guidance manual, a project pre-assessment checklist, and a comprehensive project assessment scoresheet.

Envision is also available as a rating and scoring system for determining sustainable achievement and earning project awards. Award levels, based on the points achieved by addressing the 60 credits, include bronze, silver, gold, and platinum. Beyond the hundreds of project self-assessments, 13 projects have completed third-party verification and received awards, several projects are currently in the verification process, and dozens more are on the path toward an award. The projects with Envision awards are:

1. The William Jack Hernandez Sport Fish Hatchery, Anchorage, Alaska, received an Envision Gold award in July 2013. This brownfield redevelopment incorporated sophisticated recirculation technology that reduced the water and energy normally used by conventional hatcheries by 95 percent while supporting sport fishing industry. The project restored a public park with viewing areas, trails, a boardwalk, and educational signs while protecting the on-site stream.

2. The Snow Creek Stream Environment Zone Restoration, Placer County, California, earned an Envision Platinum award in November 2013. Another brownfield restoration, this project also restored historic wetlands and the stream environment zone by removing fill and debris and reestablishing vegetation and wildlife habitats. This project also created a public park with walking paths.

3. The South Los Angeles Wetland Park in the city of Los Angeles, California, earned an Envision Platinum award in January 2014. The purpose of the wetland was to enhance the quality of stormwater runoff by treating runoff from a 525-acre contributing watershed and create a new public park in a community with little green space.

Wetland Park in the city of Los Angeles, California. Photo Courtesy of Psomas.

4. The Sun Valley Watershed Multi-benefit Project in Los Angeles County, California, earned an Envision Platinum award in August 2014. The project consists of several improvements in the watershed to manage stormwater runoff, provide flood protection, improve watershed health, increase open space and recreational opportunities, and increase wildlife habitat.

5. The Line J, Section 1 Pipeline in the Tarrant Regional Water District of north central Texas earned an Envision Silver award in October 2014. This two mile, 108-inch diameter pipeline delivers water from reservoir for use to

meet potable demand. The project improves the ability to meet growing water demands and future projections.

6. The Grand Bend Area Wastewater Treatment Facility in Ontario, Canada, on the shoreline of Lake Huron, earned an Envision Platinum award in February 2015. This project is the first Envision verification in Canada, and the first wastewater facility to earn an Envision award. The project expanded the capacity of the facility by converting an existing lagoon into an extended aeration mechanical treatment facility and wetland nature reserve.

7. The 26th Ward Wastewater Treatment Plant in New York City, New York, earned the Envision Silver award in August 2015. The $150 million project upgraded the plant and provided critical redundancies to ensure it remains in a state of good repair for decades to come.

26th Ward in New York City, New York, Photo Courtesy of New York City Department of Environmental Protection.

8. Low Level Road in Vancouver, Canada, earned an Envision Platinum award in September 2015. The project involved the realignment and elevation of approximately 2.6 kilometers of road providing space for two new rail tracks and eliminating three existing road and rail crossings to provide direct access to major port terminals.

9. Tucannon River Wind Farm in Columbia County, Washington, earned an Envision Gold award in November 2015. The wind farm includes 116 turbines atop 80-meter tubular steel towers and produces an average of around 101 MW.

10. West Park Equalization Facility in Nashville, Tennessee, earned an Envision Platinum award in February 2016. The wastewater storage facility eliminates unpermitted discharges from the collection system during wet weather and doubles as a recreational facility for the community.

11. Historic Fourth Ward Park in Atlanta, Georgia, earned an Envision Gold in April 2016. The park is the first in a network of parks and trails circling downtown to revitalize the area and manage stormwater runoff.

Fourth Ward Park in Atlanta, Georgia, Photo Courtesy of HDR, Inc.

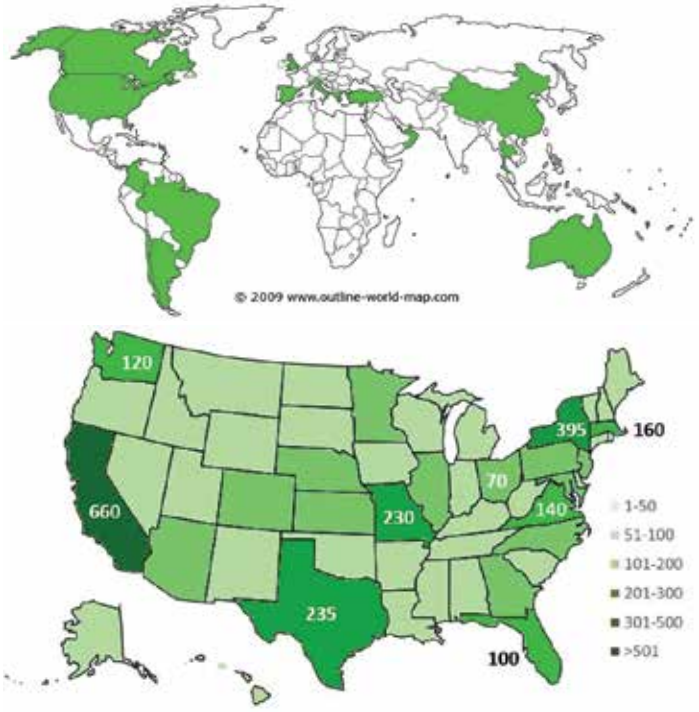
12. Ridgewood View Park Reservoir and Pump Station in Beaverton, Oregon, earned an Envision Gold award in March 2016. This Tualatin Valley Water District potable water facility replaced existing infrastructure to increase capacity and upgraded amenities at a local park.

13. The Green Build Project at San Diego International Airport in San Diego, California, earned an Envision Platinum award in May 2016. The project was a major expansion of Terminal 2.

Evaluating the application of Envision on the first nine projects, we found that the industry is successful at addressing a wide variety of sustainability topics. On average, the projects:

- Addressed 39 of the 60 Envision credits. Five were found to be not applicable, and 16 (including four innovation credits) were not addressed.
- Addressed one innovation credit. Innovation points have been awarded in the Quality of Life, Leadership, Resource Allocation, and Natural World categories.
- Addressed all five categories.
- Addressed credits at all levels of achievement.

The Institute for Sustainable Infrastructure (ISI), the non-profit organization that administers Envision, also offers the Envision Sustainability Professional (ENV SP) credential. To date, there are over 4,500 professionals worldwide who have earned the ENV SP credential. While 98% of ENV SPs are from the US and Canada, there are credentialed users in 20 countries around the world. Across the US, there is at least one ENV SP in every state. California is leading the pack with 660 and Ohio has 70.



Top: Countries with Envision Sustainability Professionals. Bottom: States with Envision Sustainability Professionals.

The ISI Public Information Committee created a poll for public sector professionals on their use of Envision. Results indicate that 72% of respondents have a sustainability plan or communicate to their stakeholders about addressing sustainability issues in projects. Of the 75% of respondents that have heard of Envision, 40% are using Envision (the checklist or scoresheet). 27% t of their employers have a directive or commitment to use Envision, and 30% have mentioned or required Envision when procuring consultants.

In March, ISI announced the release of a redesigned website. Now is a great time to earn the Envision Sustainability Professional credential or try the Envision scoresheet for project assessments. Visit *www.sustainableinfrastructure.org* to see these new features:

- A Learning Center that includes ISI's blog, case studies, links to webinars and articles, and other educational resources.
- A streamlined login portal that includes your projects, credentials, and membership information.
- A completely redesigned Project Scoresheet that allows for quicker project assessments and score calculations as well as collaboration opportunities among team members.

Poll Results

72% Have a sustainability plan or communicate to their stakeholders about addressing sustainability issues in projects.

Public Sector Use of Envision

27% Have a directive or commitment to use Envision

30% Have a mentioned or required Envision when procuring consultants

More information on the industry's adoption of Envision is available in the Governing article *The New Tool Helping Cities Build Sustainably* (Daniel C. Vock, September 2015). The article *Envisioning More Sustainable Infrastructure* by Jessica Stoikes (March 2016) at *ForConstructionPros.com* describes the Envision assessment of the I-4 Ultimate highway project in Florida. The CE News editorial *When Budgets Are Tight, Invest in Sustainability* by Anthony Kane (December 2015) discusses the need for a change in infrastructure development processes.

For additional information on ISI, Envision, and our community of practice, please consider visiting our website for the latest news and blog posts, subscribing to the ISI Envision email newsletter, joining our LinkedIn group, following us on Twitter (@ISIEnvision), and subscribing to our YouTube channel.

Elaine A. Flinn, ME, ENV SP is the Ohio Infrastructure Manager for MCKISSACK & MCKISSACK. McKissack & McKissack (McKissack) is a national architectural, engineering, and construction services firm that has earned a strong reputation for consistently delivering high quality projects and programs for government and private sector clients.

Denise Nelson, PE, ENV SP, LEED AP, is the Vice President for Public Education at the Institute for Sustainable Infrastructure (ISI). ISI is the non-profit organization founded by APWA, ACEC, and ASCE to administer Envision

City of Mason Water Reclamation Plant

by Kathleen Wade-Dorman, P.E., Public Utilities Assistant Director,
Bob Beyer, Public Utilities Manager, & Ed Smith, Public Utilities Manager

In 2006, The City of Mason began receiving flow into a brand new Water Reclamation Plant, located on 36 acres at 3200 Mason Morrow Milgrove Road. Since 2006 the City has made various improvements and modifications to the plant, and constantly works to operate this plant as cost effectively and efficiently as possible.

History

The City of Mason is located in southwest Ohio between Cincinnati and Dayton. Originally founded in 1815, Mason is noted in the region for the great schools and recreational destinations such as Kings Island amusement park, Great Wolf Lodge, The Beach Waterpark and the annual Western & Southern Open. In addition, Mason also is home to over 34,000 residents, over 500 businesses and more than 90 corporate headquarters or manufacturing operations.

Aerial view of City of Mason Water Reclamation Plant.

The City of Mason built its original wastewater plant in 1964 and underwent two expansions because of the significant growth experienced from the late 1980's to the early 2000's. With the last expansion in 1995 fresh in everyone's mind, staff realized in early 1999 that the planning for the next expansion was already needed. The problem was the existing plant was landlocked and options of expanding treatment across the Muddy Creek or designing high rate treatment were not optimal from a cost or operational stand point. City staff began to look toward property that was available one mile downstream of the existing plant. After seven years of evaluating new technology, equipment and finalizing a design and two years of construction, the new plant was completed with a design flow capacity of 8.67mgd. The plant was also designed for future increased treatment capacity. This would be accomplished by completing incremental improvements throughout the plant. When completed these improvements would increase the final design year treatment capacity to 13mgd.

Treatment Process

The City conveys raw wastewater through seven lift stations. This wastewater flows into the plant through a 48-inch diameter trunk sewer into one of two wet wells at the influent pumping station. With three (2-4550gpm and 1-2100gpm) submersible, centrifugal pumps in each wet well, the wastewater is pumped through a 36-inch force main up to the screen and grit building and then flows through the treatment works by gravity. The influent pump station is capable of pumping a peak flow of 26 million gallons per day.

Preliminary treatment first passes through one of two five foot wide concrete channels. Each channel contains a mechanical perforated plate screen of stainless steel panels with 6mm circular perforations that revolve on a conveyor. The screens include mechanical brushes and a washing system to prevent clogging. The wastewater can also be directed to a manually cleaned bar screen when needed. After screening, the wastewater enters one of two 14-foot diameter vortex grit removal and classification units. Each unit is rated at 15mgd. Effluent flow from the grit collectors drops into a 48" gravity pipe to the next step in the treatment process, the oxidation ditches.

The two oxidation ditches are Eimco A2C extended aeration, single stage nitrification, biological nutrient removal (BNR) reactors with a capacity of 5.6mgd. Depending on the volume of wastewater coming into the plant, the MCRT is 18 days, with a MLSS = 4,000 mg/l, F/M Ratio = .075 lb. BOD5/day/lb. MLSS and an Organic Loading = 19.8 lb. BOD5/day/1000cf. This process is streamlined for the removal of phosphorus and nitrogen in three stages which vary in the amount of oxygen available in the water. The levels of oxygen in the different zones support different actions by specific types of bacteria used to treat the waste.

The Anaerobic (No-Oxygen) Zone is the outermost rectangular tank attached to the end of the oxidation ditches. In this first stage, phosphorus is released from microorganisms. Return Activated Sludge (RAS) is also pumped back to this zone. Underwater mixers are used to promote contact between the influent sewage and the RAS.

The second stage, the Low-Oxygen (Anoxic) Zone, is constantly recycling flow internally with the aerobic zone. Located between the anaerobic tank and the oxidation ditches, this process has an opening from the aerobic zone and does not require gates or pumping of the internal recycle.

In the last stage, the High-Oxygen (Oxic or Aerobic) Zone or Oxidation Ditches, phosphorus is taken up in greater quantity than previously released. Two underwater aerators (150hp) and the off gas from the dryer incorporate air into the water to maintain sufficient levels of oxygen during this stage. Some of the mixed liquor in the oxidation ditches is continually being removed. It is returned back to the anaerobic zone as RAS or sent off as wasted sludge to the clarifiers.

Dried Sludge Silo.

Full holding tank.

Final clarification is performed by three (105ft diameter, 14ft depth, weir length of 330ft) settling tanks aided by a positive suction sludge withdrawal system. The influent is pumped from under the tank up through a center influent feed well. The feed well is equipped with baffled scum ports that permit floating material to escape from the top of the feed well to where it will be picked up by the scum rakes. Water is then used to carry it back to the head of the plant for additional treatment. In addition Ford-Hall Brushes are used in the tanks to help keep the edges and weir clear of algal growth.

The effluent from the settling tanks flows through a flow metered three feet parshall flume and past the medium pressure, high intensity Trojan 3000Plus UV system. To disinfect, the wastewater flows across one of two banks (A&B) of ultraviolet (UV) light that is generated by rows of long tubular bulbs in two concrete channels. The level of wastewater in the channels is controlled so that the bulbs are always submerged, regardless of the rate of flow through the plant.

The UV system automatically adjusts flow pace to the intensity of the bulbs according to the flow leaving the plant. It works similar to a dimmer switch in your home, but is done automatically. The advantage of flow pacing is the reduction in power consumption which translates to a cost savings on the monthly utility bills.

From disinfection, flow is sent to different areas for final distribution. The majority of the flow passes through a large trough and over an open cascade, a series of dams across the channel. This allows the discharged water to absorb additional oxygen before entering a 48-inch diameter pipe that conveys it to the Muddy Creek.

A portion of the effluent is sent into an effluent well that provides a reservoir for the reclaim water pumping stations that discharge to a local golf course for irrigation, a community sports park for irrigation and a non-potable water (NPW) system that serves the WRP and provides

cooling water to the bio-solids dryer, and elutriation water pumps for the gravity thickener tank. By reusing treated water in the plant and at the park, the city saves thousands of dollars a year by not having to purchase treated drinking water for these purposes.

Plant effluent used for the NPW system and the reclaimed water system must be chlorinated. No chlorine is added to the sludge thickener system. Chlorination is accomplished by pumping sodium hypochlorite solution into the pump discharge lines. The 15% sodium hypochlorite solution reacts with the effluent water to produce chlorine.

The concentrated sodium hypochlorite solution is stored in two 1,700 gallon polyethylene tanks. Each tank is about 6.5 feet in diameter and 10 feet tall. There are three separate sodium hypochlorite pump/control systems: one to transfer solution between the storage tanks or into a smaller 300 gallon tank known as a day tank, the second to pump solution from the day tank to the NPW system, and the third to pump solution from the day tank to the reclaimed water system.

Reclaimed Water Systems

The Heritage Oak Park system provides irrigation water to Heritage Golf Course upon request. Normally, the golf course requires irrigation water during dry weather periods, from around May 1 to October 1. Due to the elevation of the golf course and the length of the force main to it (about three miles), the reclaimed water system operates at a very high pressure of around 180 psi. The normal flow when the system is in operation is about 500,000 gallons per day. Use of the reclaimed water allows the golf course to avoid purchasing higher-cost drinking water for irrigation.

Due to public health concerns, systems that provide treated effluent for irrigation are subject to close scrutiny by Ohio EPA. The city must at all times maintain a positive chlorine residual at the point of discharge to the golf course's holding pond. The city is also required to do bacteriological sampling. Mason has been selling water to Heritage Club since 1995 and has a very successful track record.

Similar to the golf course system, the Mason Sports Park Reclaimed Water System includes a dedicated system that pumps reclaimed water to the nearby Mason Sports Park to irrigate the ball fields. The water used is considered "Class A Effluent" because it incorporates additional treatment to make it suitable for irrigation.

Sludge Thickener Dilution Water System

The sludge thickener dilution water system provides unchlorinated plant effluent to the gravity sludge thickener. The use of dilution water improves the performance of gravity thickeners and helps eliminate odors. The thickener dilution water system consists of two submersible pumps. Each delivers approximately 500,000 gallons per day at low pressure.

Biosolids Processing

The sludge from the settling tank flows by gravity into a tank and then is pumped. Some of the solids are returned to the head of the plant as RAS and a portion is sent to a gravity thickener as Waste Activated Sludge (WAS).

After sludge wasting, the secondary sludge is sent to the gravity thickener. The design of the gravity thickener is unusual in that effluent water is sent to the thickener along with the wasted sludge. The sludge thickener functions much like a miniature clarifier and is used to increase the solids content of the waste activated sludge from about 0.5% to 2%.

Following thickening, the sludge is held in aerated sludge holding tanks until dewatering. The choice of dewatering equipment was key because the more water removed before drying, requires less energy in the drying process. Therefore, centrifuges were selected early in the process with a minimum target of 20% total solids going to the dryer.

Following centrifuge dewatering, the sludge cake is pumped under high pressure into Komline Sanderson's

Vibrating Screen Seperator.

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paddle dryer, an indirect, oil-heated thermal dryer in order to produce a Class "A" biosolids product. The dryer has a maximum feed capacity of 8,000 wet pounds per hour, or 96 wet tons per day if run continuously for 24 hours. The dryer evaporates the moisture from the feed sludge and delivers a product at a minimum 90% total solids and achieving Class "A" biosolids status.

Next to the Solids Processing building is a 65 foot tall, 6,000 cubic foot silo for storing dried biosolids. The silo can discharge directly into truck beds using remote operator controls. As mentioned above, the off-gas is removed from the dryer by a wet-ring compressor and conveyed to diffusers located in the oxidation ditches.

SCADA Upgrades

The City is currently completing a major SCADA system upgrade which will bring all of the process on line so they can all be monitored and controlled on site and remotely. This upgrade consistes of an Ethernet based Control System LAN, and all new fiber optics in a loop so that if one system is down everything else would still be monitored. Previously, with the old SCADA configuration, if one system went down, everything from that point on would be off line. The upgrade is utilizing controllogix based PLC platforms. At this time the project is about 90% complete. Based on the preliminary testing of the systems that have been installed to date, so far this projects looks to be a success.

Conclusion

The City of Mason's new WRP construction and the upgrades completed in recent years have been a very successful investment for the City and its residential, commercial and industrial customers.

Author Note: Shortly after contributing to this article, Kathleen Wade-Dorman accepted a new position as the City Engineer for the Village of Indian Hill. Congratulations Kathy on your new position. The City of Mason appreciates your 16 years of dedicated service!

Mechanical Screens.

UV Channels.

Sludge Dryer Front.

Sludge Dryer Top.

WEF Utility Partnership Program Member Utilities

The WEF Utility Partnership Program (UPP) is designed to allow Ohio utilities to join WEF and **OWEA** while creating a comprehensive membership package for designated employees. Utilities can consolidate all members within their organization onto one account and have the flexibility to tailor the appropriate value packages based on the designated employees' needs.
Key Benefits Include:
UPP is fully customizable, based on the needs of each utility, and a WEF team member will be on-hand to walk each utility through the enrollment process.

ALL members at the utility will be enrolled, with synchronized begin and end dates, on ONE invoice, for an easy one-time per year payment.

All members, who were already WEF members, retain original membership number, credit for all years of membership, and remain a full-voting WEF member.

ALL employees at the UPP utility will be eligible for membership registration rates at WEFTEC, as well as the early-bird rate for Premium and Standard WEFTEC registration at any-time throughout the registration period. **ALL employees at the UPP utility will also be eligible for member rates for the OWEA Technical Conference and Exposition, OWEA Workshops, and events.**

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

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

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

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

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

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

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

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

Or Contact Amy Davis, amydavis@ohiowea.org, 614.488.5800

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- Facility Tours
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- And so much more!

Topics for 2017

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

Call for Abstracts

Abstracts Due: October 17, 2016

Submit Online: *http://www.ohiowea.org/call_for_abstracts.php*

Contact: Jamie Gellner, Technical Program Chair, *jgellner@hazenandsawyer.com*

Hosted by the Southwest Section
For information, contact:

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

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

Jamie Gellner
Technical Program Chair
513.469.2750
jgellner@hazenandsawyer.com

Ohio Water Environment Association
614.488.5800
info@ohiowea.org

2016 Conference Wrap-Up

Once again another year has passed and we can close the page on OWEA's 90th Annual Technical Conference & Expo! We hope everyone had a BOOMING time networking and training. This year's events were held in beautiful Aurora and Streetsboro in the Northeast Section. The week offered the perfect opportunity to reconnect with old colleagues and friends and meet new ones. There was a great mix of fun and networking with training and education. Some highlights from the week:

Monday

Some chose to spend the day in the beautiful, but hot sunshine at Boulder Creek Golf Course for fellowship and fun. Others chose to attend the preconference workshop to hone their public outreach skills. We had a great group attend all the way from the UP in that state up north to share their outreach programs from the Tip of the Mitt Watershed. A new event this year was just a social time for those in for the conference. Several hospitality suites were open to allow us to mix and mingle and enjoy each other's company.

Tuesday

The conference kicked off with an Awards Breakfast to celebrate the achievements of fellow members and thank many for their hard work and dedication to the industry. The day continued with more than 66 vendors sharing their wares and exchanging knowledge in the exhibit hall. Many thanks to the staff of the Streetsboro Wastewater Treatment Plant for opening your doors to the many attendees that wanted to visit. The day was capped off with a relaxing evening at ThornCreek Winery.

Wednesday

This was a day filled with knowledge sharing during the 32 technical sessions offered throughout the day. Presenters from across the country shared their knowledge on laboratory, nutrients, wet weather and collection systems, asset management and treatment to name a few. The day was wrapped up with the induction of five new members to 5S and the Annual Banquet. WEF President Paul Bowen presented the WEF Awards to some very deserving members. Elizabeth Wick's reign as president ended as the gavel was passed to Ted Baker. The evening was rounded out with music and dancing!

Thursday

This day wrapped up the conference with updates from the EPA. You were also able to attend the All Star Performers presentations in case you missed them earlier in the week.

Thank you for joining us at the 90th Annual Conference. We hope you were able to learn and grow with your fellow wastewater professionals and develop and strengthen relationships over the week. The success of the conference and organization would not be possible without all of you! We hope you will join us in Cincinnati June 26th-29th for the 2017 Annual Conference.

Sincerely,

2016 Annual Conference Committee Co-Chairs

2016 Annual Conference Committee

Art Kimpton, Co-Chair
Deb Houdeshell, Co-Chair
Mary Ann Driscoll, Co-Chair

Ted Baker
Kathy Richards
Keith Riley
Paul Solanics
Mike Welke
Ken Rogozinski
Kim Riddell

Jim Cooper
Molly Page
Tom Voldrich
Joe Tillison
Mary Baker
Amy Davis
Megan Borror

Minutes of the 2016
OWEA Annual Business Meeting

The 90th Annual Meeting

The Bertram Inn & Conference Center, Aurora, Ohio, June 28, 2016

Submitted by Jane Winkler, Secretary-Treasurer

President Elizabeth Wick called the meeting to order at 10:30 am. Fred Smith made a motion to accept the agenda. Second by Doug Clark. A quorum was established.

President Wick welcomed the group and made some brief comments.

Items for approval were the 2015 annual business meeting minutes. Jane Winkler, Secretary-Treasurer, reported that the minutes were published in the Fall 2015 issue of the Buckeye Bulletin. The minutes and Treasurer's report were displayed on the overhead. Mike Welke made a motion to approve the minutes, with a second by Fred Smith. Motion carried. Jane Winkler gave the Treasurer's report. A motion to approve the report was made by Mike Welke and seconded by Doug Clark. The motion passed.

The WEF delegate report was given by delegate Dale Kocarek.

Paul Bowen, WEF BOT representative and current President, offered greetings from WEF with comments on YP engagement, sustainable business practices, a development of a 3 year business plan and increasing member benefits.

Section reports were given. Tom Voldrich gave the Northeast section report; Roberta Acosta reported for the Northwest section; Brandon Fox represented the Southeast section and Roger Rardain presented the Southwest section report. Each outgoing section President was presented a certificate of appreciation for their service by President Wick.

Standing/Ad hoc committee reports

Committee chairs were permitted to give brief updates on their committee's activities. Written reports were submitted for the minutes.

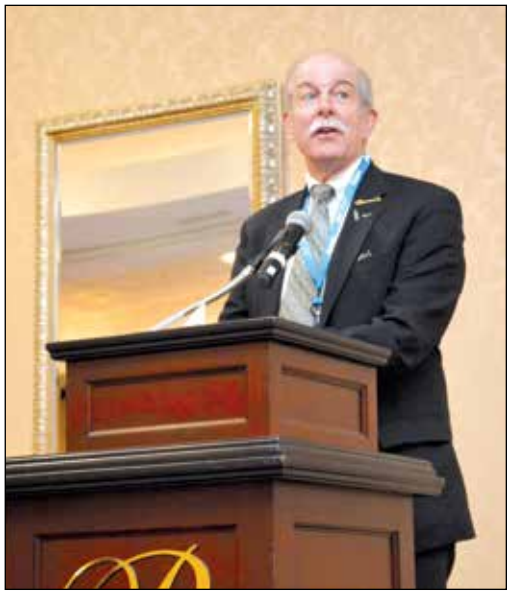
Items for Voting

Nominations and elections- Tom Angelo presented the 2016-2017 slate of nominations as President–Ted Baker, President Elect -Jamie Gellner, Vice President- Fred Smith and Secretary-Treasurer- Jane Winkler. Motion carried. Brandon Fox will serve as SE delegate. Elizabeth Wick will serve as Past President. Mike Welke made a motion to elect the slate as presented, with a second by Keith Riley.

There were no other announcements from those present. A moment of silence was held for deceased members.

President Wick adjourned the meeting at 11:35 am.


uponor
Tuesday




Wednesday

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A Chat with **President Ted Baker**

by Megan Borror, OWEA Staff

Staff: Do you have any children?

President Baker: I do, I have two children. I've got a 22 year old daughter, Jessica and a 20 year old son, Joseph.

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

President Baker: I have a bachelor of science in economics from the university of North Carolina- Greensboro

Staff: If you could be president of anything besides OWEA, what would it be? Like, anything in the whole world.

President Baker: I have no idea. *laugh* I guess I will say a sports card company like Topps, or Upper Deck or Fleet or something like that

Staff: What's something that most people don't know about you?

President Baker: I don't think most people know I'm a Geocacher. I don't think most people know that.

Staff: Where's the coolest place you've ever Geocached?

President Baker: I guess it would be on top of a volcano on Hawaii

Staff: Oh that's neat. What did you find in that?

President Baker: It's an earth catch. There's no physical container. You have to look at the rock formations and stuff like that and answer questions for those catches. But that's probably the coolest one.

Staff: What would you say is your favorite pastime?

President Baker: That I'm an avid golfer.

Staff: Why did you choose this industry as a career?

President Baker: I grew up in it. My dad started this business in 1966, same year I was born.

Staff: What is your favorite thing about the industry?

President Baker: The people.

Staff: Why do you say that?

President Baker: When I think about all my friends that I have, all but a couple of them are associated with this industry in some way.

Staff: How has your career created value in your life?

President Baker: How has my career created value in my life? I think because of the satisfaction and I think that's [what] everybody in this industry gets from knowing what we do for the environment.

Staff: What drives you to succeed?

President Baker: I'd say following in the footsteps of

Past President Elizabeth Wick passing off the gavel to President Ted Baker at the 2016 Annual Conference Banquet.

President Ted Baker giving his President's Speech at the Annual Banquet wearing his "King's Crown" presented to him by Past President Elizabeth Wick.

my father and not wanting to disappoint him.

Staff: What would you say is your favorite OWEA workshop that we do?

President Baker: Wow. I guess the operations one.

Staff: Alright. We kind of touched on this before, but why did you join OWEA?

President Baker: I guess the same reason, it is part of our industry so it was kind of a natural thing to join.

Staff: And how long have you been a member?

President Baker: I think 25 years this year. I think 1991 to 2016 so 25 years.

Staff: Why did you decide to join the executive committee?

President Baker: We had to start from the section. Let's see, 17 years ago so I joined in '98 or '99, I think, was my first year on the section.

Staff: Do you remember why you joined or was that too long ago?

President Baker: I got talked into it by two board members. *laugh*

Staff: Are they still in the organization today? Those that talked you into it?

President Baker: Oh yeah, I thanked one of them in my [President's] speech [at the Annual Conference], Tracy Mills. Tracy is actually the one who talked me into it.

Staff: So he's the one to blame for all of this?

President Baker: He's the one to blame for all of this. Yes.

Staff: What OWEA Committees have you been on throughout your time? And/or what titles have you had leading up to President?

President Baker: Well I've gone through the sections so I've been in the NE section. I [am] on the sponsorship committee, obviously right now. I have done local arrangements for state conference. I've been on the [Public] Education committee. I did two of the state golf outings as well.

Staff: What do you think is the biggest change you have seen in your time with OWEA?

"I think we have become more passionate about educating our members."

President Baker: I think we have become much more passionate about educating our members.

Staff: How do you think we have done that?

President Baker: Because I think we've had to. I think EPA has dictated some things that have forced us in that direction to take care of our membership. But I think we've become very passionate as opposed to just doing it.

Staff: Who would you say is the past president that you most admire?

President Baker: Wow. I'm going to say Debbie Houdeshell. That's a tough one because Keith Riley would be a great answer too.

Staff: Well you can have two answers if you want.

President Baker: I'm going to say those two. I can't limit it to either one, sorry. *laugh* Because those two have by far influenced me the most since I've been on the state executive committee because of their involvement both at the state and they both went fairly high at WEF too. So I would say the two of them for what they have done for this industry and for doing anything for OWEA that goes beyond anybody else.

Staff: Are you interested in going up in WEF like they did?

President Baker: Yes.

Staff: What is your ultimate goal position?

President Baker: I would like to be WEF President

Debbie Houdeshell, Ted Baker, WEF President Paul Bowen, and Keith Riley at the 2016 Annual Conference Golf Outing.

someday. We have never had one from the state of Ohio. We have had a treasurer from the State of Ohio, Earlene O'Neil, and Debbie and Keith both were on the board of directors. I know Debbie was, actually I think both of them might have been Speaker of the House. I know Debbie was. It's also the highest that anybody has gotten from the state of Ohio.

Staff: So you're going to surpass them all?

President Baker: I would like to. That's my goal. I would very much like to be the President of WEF.

Staff: What would you say is your first decision as president?

President Baker: *laugh* I'm not sure I've made any decisions as president. No, I don't think there have been any decisions. Other than just normal stuff, figuring out Committee Chairs, meeting dates, and stuff like that but there certainly hasn't been an opportunity to make a decision yet.

Staff: What would you say are the most important decision that you make as president? That you'll make this year.

President Baker: I have no idea. I don't think I will know that until it happens.

Staff: For those that don't know how it works, what are you all responsible for as president?

President Baker: I would say president is the easiest year. I mean basically I'm responsible for the goings on of our staff and our executive committee but it's not like other positions that have a specific duty.

Staff: You just fill in where you need to?

Ted Baker checking in on the NEORSD Operations Challenge team at the 2016 Annual Conference.

President Baker: Yeah, President's the easy year. *laugh* President Elect is the tough year.

Staff: Why is that?

President Baker: You have to do the technical program! And that is not easy!

Staff: What are you most looking forward to in your easy year of presidency here?

President Baker: I think just continuing the direction of our executive committee that we've had over the last few years and I very much am interested in promoting our usefulness to those outside of our organization.

Staff: If you could improve one thing during your term, what would it be?

President Baker: I would say operations challenge participation. I'd really like to see that get bigger.

Staff: What would say you want your legacy to be as president?

President Baker: I'm hoping that the rain barrel program will be my legacy. We're going to start doing rain barrels in villages, cities, and small towns. Hopefully [we will be] working with school kids to paint them all through the Public Education Committee.

Staff: What would you say is an accomplishment that you are striving to announce before you pass the gavel at the next conference?

President Baker: My opinion is that it's not one person so I think it would be the success of the executive committee. You know, more YP involvement, more operator involvement or public education, or grants going out. I think those are accomplishments of the group so I don't consider there to be a single accomplishment from a president. I think it would be great to be able to move those things forward.

Staff: What advice would you give to someone who wants to get more involved with OWEA?

President Baker: Pick the area that you love and work in that area. If you like Biosolids, work on the Biosolids Committee. If you like to work with operators, work with the Operators Committee. If you're a lab person, work on the Laboratory Committee. Find what you're passionate about and work in that one area. Don't try to spread yourself all over the place.

Staff: What is the coolest thing you have been a part of because of OWEA?

President Baker: Well I would guess that the only thing that I could answer would probably be the WEFMAXs that I have gone to.

Staff: What would you say is your favorite WEFMAX?

President Baker: Let's see, favorite because of where it was would have to be Hawaii but I would say my favorite--because it was my first one--was Arizona. We were in Sedona, that was my very first WEFMAX.

Staff: What was the thing that most surprised you with WEFMAX when you went to Arizona?

President Baker: I think the similarities that the [Member Associations] share across the country.

Staff: What do you think is your favorite thing about OWEA?

President Baker: I guess it's sort of like the answer as before. The people.

Fireside Chats

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

Asset Management for Small to Midsized Collection Systems

by Richard Miller, PE, Associate/Senior Project Manager FTCH, Incorporated

Asset management is simply the system by which a community maintains and operates its infrastructure, in this case, its wastewater collection system. Sewers were constructed fifty or even one hundred years ago with little thought that they would eventually have to be rehabilitated or replaced. As these assets begin to approach the end of their useful lives, it has become apparent that a programmatic approach is needed to track the condition of these assets as well as to assure that we will have the funding necessary to keep the collection system functioning as designed and able to provide the service intended well into the future.

What first comes to mind when you hear Asset Management?

- An inventory of the entire collection system.
- A maintenance plan for sewers, manholes and pump stations.
- Projected expenditures for the next 20 years.

Or

- An inventory that we don't have funding to complete.
- A maintenance plan that exceeds our budget.
- Expensive software that requires training and dedicated personnel to use.

Asset Management doesn't have to break the bank. It is a valuable tool that can help communities to operate their collection systems (as well as other assets) in an efficient manner, while maximizing their existing budgets and helping to keep rate increases at a minimum. Communities don't need to be intimidated by the costs of implementing such systems all at once or utilizing expensive and complicated software. There are options.

Asset Management can be implemented in smaller incremental steps that are more manageable with a limited budget. Common software such as spreadsheets in excel can be developed to provide much of the functionality needed to maintain your system. Many communities don't know where to begin. However, the only real mistake is not starting an Asset Management Plan at all.

The same principles apply whether you are implementing Asset Management in one giant project or incrementally building the database as time and budgets allow.

Let's start with the asset inventory. This is nothing more than assembling a list and location of the assets in the collection system. This would include every sewer segment, each manhole and all of the pump stations and their associated equipment. Each component will need to be assigned a unique identifier to enable associating data to it. There are a number of data sources that can be utilized to complete these lists.

For sewers, manholes and force mains, existing sewer maps or record/construction drawings where available, can serve as the main source of data. If these don't exist, quick field surveys can provide location data using GPS functions on tablets or smart phones. For pump stations, existing record/construction drawings can provide the base data, but a physical inspection and inventory can be conducted relatively quickly to obtain the base data for an inventory.

The next step is deciding how best to record and maintain this data that has been collected. Geographic Information Systems (GIS) are the popular choice for providing a user interface that visually displays the location of assets and can be linked to other data sources, such as spreadsheets, so that attribute data can be associated with the physical asset shown on a map. GIS software has evolved over the years, since it was initially quite expensive and required dedicated personnel to maintain. Today, basic versions are much more affordable and standardized data base structures are available for use that can minimize the need for dedicated GIS personnel.

Once you have determined what you have (Asset Inventory), the next step is to assess the condition of these assets (Condition Assessment). All of the assessment data can be recorded on standardized spreadsheets that can then be linked to the asset in GIS. The result is a map that can be color coded to show the user where potential problems exist in the collection system and where one may want to focus more detailed investigation. This entire process of condition assessment can be referred to as the Probability of Failure of an asset.

Once again, there are options available to complete this step. For sewers, the best method for condition assessment is a physical inspection, typically using closed circuit televisions (CCTV) or other internal inspection techniques and then developing ratings based on Pipeline Assessment and Certification Program (PACP) standards. PACP is a standardized rating system established by the National Association of Sewer Service Companies (NASSCO). It basically assures that sewer condition assessments are performed on a standardized scale from one reviewer to another. However, this inspection process involves significant expense and most communities struggle with the cost of this level of

condition assessment for their entire collection system all at once. An alternative is to use pipe material and installation date to make a determination of the sewer's "remaining useful life" based on accepted useful life expectancies for various pipe materials. A rating of 1 through 5 is assigned similar to the ratings used in the PACP reviews, where 1 represents a newer pipe and a 5 indicates that a pipe is nearing the end of its expected useful life As follows:

Score	% Useful Life Remaining
1	>70
2	51 to 70
3	21 to 50
4	1 to 20
5	<1

This is only used to help establish budgets by estimating when rehabilitation or replacement may be needed, and to prioritize which sewers should be inspected next. Physical inspection is the only condition assessment technique that should actually trigger remedial action. This alternate methodology should only be utilized while a community is systematically progressing through a condition assessment program of internal inspection.

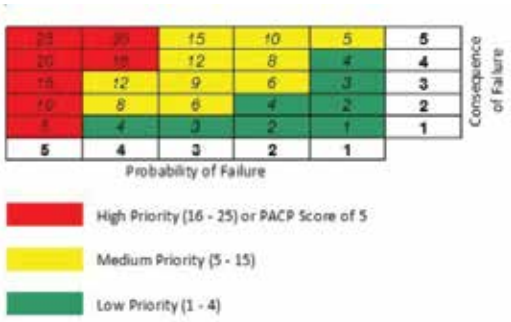
Similarly, manholes can be assessed utilizing several different methodologies. NASSCO has similar guidelines for manhole inspections with the Manhole Assessment Certification Program or MACP. These inspections can be performed in two ways: Level 1 inspections are performed from the surface of the manhole while the more detailed Level 2 inspections require an entry by either physically entering the manhole or using a camera that can be lowered into the manhole. Once again, an alternate methodology can be used temporarily until all manholes can be inspected to help establish budgets utilizing the manhole's material and installation date to establish a remaining useful life.

Pump stations generally require a physical inspection to assess the condition of their components. Depending on the size and complexity of the pump station, the assessment could be as simple as a single form rating various components and arriving at a single score for the pump station, or individually assessing important components within the pump station that are important enough to have their own score (i.e. pumps, electrical, etc.).

Armed with condition assessment data which provides the ability to see where the potential exists for failures in the collection system, the next step is to narrow our focus on the assets that are most important to the system. Typically, those are the assets that would cause the most significant disruption in service, be the most difficult to repair or cause the greatest disruption to the community. This is referred to as Consequence of Failure (COF) or sometimes as Criticality.

COF can include any number of factors, but for collection systems we typically utilize three components to develop a COF. Each component of a sewer or manhole is ranked 1 through 5, with 1 being the least critical and 5 being the most. The first is called Service Area Score. It reflects the make-up of the area served by the asset. For example, assets serving hospitals, major industries or critical commercial areas may receive a 5, while those serving sparsely populated areas may be assigned a lower score. The scoring for this needs to be tailored to each specific community based on their assessment of critical areas. The second factor is the size of the service area. We often simplify this by using the pipe diameter since larger pipes generally serve larger areas. This factor also needs to be specific for each community based on the range of pipe sizes in the collection system. This is referred to as the Pipe Diameter Score. The third factor is the Physical Location Score and is based on the difficulty that would be encountered performing repairs if the asset failed. Assets under rivers and streams, railroads and interstate highways will receive the highest Physical Location Score. These three factors are then averaged to obtain the overall COF.

Given the POF and COF, we can then multiply these two to obtain the asset's Business Risk Exposure (BRE). The BRE is basically a numeric indicator of the physical condition of each asset combined with it criticality to the collection system. Since POF and COF are both numbers ranging from 1 to 5, the product will range from 1 to 25 as shown below.



It's important to understand what the BRE is used for. The BRE is merely a number that can help to identify priorities for inspection, maintenance and rehabilitation functions. For example, when developing a program to perform internal inspection of the collection system pipes, sewer segments with higher BRE values should be scheduled before those with lower BREs. The same applies when scheduling preventative maintenance or rehabilitation tasks. The BRE's value is in providing a defensible methodology for prioritizing tasks associated with collection system operation. This can be valuable when presenting budgets and programs to administrative bodies that can better understand a number than the technical aspects.

Now that we know what we have (Asset Inventory)

and we know what condition it is in (Condition Assessment) and we have determined the importance of our assets through the calculation of the Business Risk Exposure, we can determine what Level of Service we are able to provide. Level of Service will address how often we internally inspect our pipes or perform other preventative maintenance tasks in our collection system. These options and their associated costs can be compared to the expected benefits to the customers as reflected by criteria such as fewer backups or water-in-basement occurrences.

These are the basic tools that can assist with the initiation of an Asset Management Program for your collection system. They are intended to provide communities with a base for developing their CIP budget, Operations and Maintenance Plans and eventually a review of their rate structures.

The important thing to understand is that every community can develop some version of this, whether it be a sophisticated program developed at once or one that is expanded over a number of years, utilizing simple spreadsheets to maintain and manipulate the data. Budgets will dictate how quickly a program can be completed, but if you don't get started at all, it will never be finished. Asset Management is crucial for the financial stability and resilience of a collection system and cannot be ignored. Consider what your community can afford and take the first step towards a sustainable system without delay.

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Developing a Plan for Collection System Improvements

by Tom Brankamp, P.E., Strand Associates Inc.®

I recently read an especially harrowing article in the May 2016 issue of *Water Environment and Technology* that discussed the U.S. Environmental Protection Agency's (USEPA) wastewater infrastructure funding deficit. This article shared that, according to USEPA, $271 billion is needed nationally in wastewater infrastructure funding, most of which is needed in the next five years. Relative to collection systems, funding needs totaled $51.2 billion for conveyance system repair projects and $44.5 billion for new conveyance systems. Let me share this figure another way: Of the funds needed for our nation's wastewater infrastructure, 35% would go toward collection system projects.

Of individual states, Ohio was reported as being among the states with the greatest needs nationally – $3.3 billion for conveyance system repair and $1.2 billion for new conveyance systems. These eye-opening estimates mirror similar sentiments reported by the Ohio Council of the American Society of Civil Engineers (ASCE) in its Infrastructure Report Card for the state. In that report, Ohio's wastewater infrastructure received a near-failing grade of D+. The report also states that operations, maintenance, and capital investments in wastewater treatment facilities are not keeping pace with the decaying infrastructure and the increasing demand placed on these facilities. In total, ASCE estimates that Ohio has $11.16 billion in wastewater infrastructure needs.

Asset Management

I am not writing about the infrastructure in Ohio and the nation to be discouraging. Instead, I share this information so we know that our peers in surrounding communities are struggling just like we are. Local and statewide coffers are not overflowing with cash, and we are all working hard to make sure that our collection systems function as well as they can. After all, aging infrastructure, limited budgets, and deferred maintenance are the buzzwords of our industry. In addition, more property and roadways than ever before are being threatened by eroding streambanks that undermine or expose these collection systems.

So what can we do? We can improve the way we manage our aging infrastructure (our assets), and we can take a more business-minded approach to operate and maintain important utilities from the end of installation to the end of their useful life. For a run of pipe, asset management is knowing how best to keep the pipe clean, flowing, and in good condition. The same is true for a manhole, a catch basin, and a pump station.

Asset management is appropriate for communities of any size, and is scalable for any size utility; all that changes are the methods used and how resources are allocated. Asset inventory and condition assessment are two key components of asset management that are especially scalable to the size of any budget and any community. As such, these are the two factors over which we have the most control. Asset inventory and condition assessment allow us to understand and document our existing systems given our resource constraints. By having a plan, using technology effectively, ensuring the accuracy of our collected data, and targeting our investigations, we can use the best available information to develop sound engineering solutions and operational decisions.

These better solutions and decisions translate into more targeted, timely, and cost-effective improvements to your systems. Purposeful planning pinpoints the greatest risks to your infrastructure and operations. In most cases, the resulting improvements address an issue before it turns into a major problem over time, before the costs for repairs escalate significantly.

Having a Plan

Many communities never have enough money to do fully comprehensive studies; instead, it is best to start with the information already available. After examining existing data, think about your particular community's vision and ask, "What are we going to do with the data after it is collected?" As utility operators and engineers, we re-use data for many reasons: infrastructure mapping, illicit discharge detection, preventative maintenance, computerized maintenance management systems (CMMS), regional master planning, watershed modeling, and design projects. What is the purpose of data collection in your case?

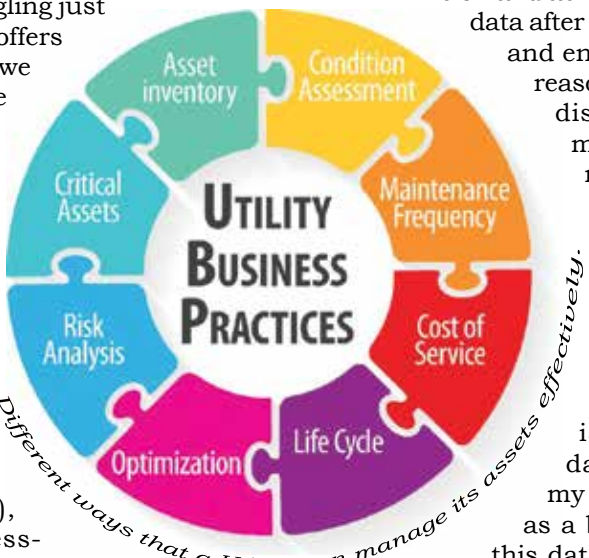

Figure 1. Different ways that a Utility can manage its assets effectively.

After determining how the data will be used, determine what data is needed. Ask yourself, "What data should I collect to support my intended purpose?" Secondarily as a back check, ask, "Why do I need this data? How is it going to support my cause?"

For example, for a basic inventory mapping project

to populate a geographic information system (GIS), we would determine connectivity and collect information about manhole locations, pipe inverts at the manholes, and pipe size and material. If the data collection was for a sewer lining project, the data collection effort would be extended to collecting pipe condition information, lateral sizes and locations, the manhole rim elevation, and dimensions of the manholes and their condition. If the data collection was to support an infiltration/inflow (I/I) study, we would perform smoke testing to identify potential illicit storm water connections and lateral issues before lining the sewer.

The goals for data collection projects center on collecting the right data correctly the first time. Budget-wise, most of the field data collection effort is getting the field crew to the structure, so it is imperative that the crew gets it right. Return trips to double-check data or to gather missed data will increase costs significantly. Reworking and re-evaluating a dataset also multiplies data management efforts and quality control efforts. By maximizing the effectiveness of the work by getting it right the first time, we minimize the overall effort.

As part of the data collection effort, be sure to collect only the data that addresses your planned needs. It may seem counter-intuitive, but this simple rule can save significant efforts and costs in the field and in the office. For example, it would be unnecessary to collect all of the information needed for the sewer lining project if your goal was to populate a GIS with basic system data.

Figure 2. Exposed manhole in eroding creek.

For condition assessments, make sure everyone working on the project views asset conditions the same way. Before the project begins, visit 15 to 20 structures and discuss how each person would rate the asset's condition. At the first few structures, everyone may have varying opinions about the condition of the asset, but it's amazing how by the twentieth structure everyone will assess the structure's condition similarly. Be sure to document the decisions made so others can replicate the results.

Also be sure to develop the digital or hardcopy "form" that best suits the project's needs. If you are using NASSCO's Manhole Assessment and Certification Program (MACP) as the basis for your manhole assessments, the information you need is probably Level 1+ (NASSCO has a Level 1 or Level 2). To reiterate, only collect the data needed, and don't feel pressured to fill in every blank on the form.

Equally important is that the field staff record detailed comments. Before the crews leave the structure, the recorded information should share a detailed narrative of any unique aspects of the asset. And take plenty of pictures! Digital images are easy to capture and manage these days, and they will complement the "story" of the structure.

Using Technology

I have done enough of these projects the old way, filling out paper forms, to appreciate the value technology brings to these projects. Depending on the size of your community, spreadsheets, databases, and GIS will allow you to streamline data collection and use the sorting and graphical capabilities to analyze the data and report the findings more quickly. Specifically, today's technologies

Figure 3. An example of graphical reporting.

enable us to standardize responses, increase data consistency with pick lists, facilitate field investigations more easily, review and make data available more quickly, and report results graphically.

Though technology can significantly decrease the amount of time spent on particular projects, we still need to account for potential challenges along the way. After all, electronics are not fail-proof. I recommend keeping spare equipment on hand, and backing up data often. In addition, test any data handling processes early in the project to be sure all of the processing steps work. Finally, do not overcomplicate the project simply because technology makes data collection easier and faster. Though it might be tempting to collect unnecessary data because the process is simple, you accrue additional costs from processing and maintaining the extra data. Simply put, more data means more effort and higher costs.

Ensuring Accuracy of the Collected Data

Before, during, and after field data collection we use several quality control processes to help ensure the collected data is of high quality. We set the bar for success on the project long before we begin data collection when we first determine our accuracies and tolerances. Accuracy is the percentage of the attribution that is correct when re-checked in the field. For most data collection projects for inventory and condition assessment purposes, 95 percent accuracy is the standard. Tolerances are the ranges within which each data point collected needs to fall in order to be considered "correct."

So the industry standard for accuracy is 95%, but what is it for tolerance? Well, that depends on the data being collected. When rechecking GPS location shots, for example, the checked value should be within 0.1 foot of the originally collected value; invert depths should also be within 0.1 foot. Conversely, there is no tolerance for measurements of pipe diameters; these measurements are either correct or incorrect. However, there are times when tolerances should be relaxed. For instance, if you are in a tree covered area or next to a building and you cannot get a good GPS signal, then plotting the asset location on an aerial map within 10 or 15 feet would be considered accurate. Also, for manholes 15-20 feet deep, you may relax the tolerance on the smaller pipe diameter (up to 24-inch diameter) to plus or minus one pipe diameter. Be sure to note in the dataset that the tolerances have been relaxed for these data points. Lastly, always make sure you have independent field checks included in your program to ensure you are getting good information.

Of course, any discussion about accuracy and tolerances only applies to objective data, which will not change over time, and the tolerances have to be achievable. An example of non-objective, or subjective data, is the depth of sediment or debris in a pipe, as it can change over time. Keep these elements in mind while completing data collection. If you are doing top-side inspections, you will be more challenged on accuracy than if you enter every manhole. Finally, make sure your field staff are not guessing. It is better for them to record "Cannot determine" or "Difficult to measure" rather than recording incorrect information. Remember, you will be counting on this data for a long time.

Targeting Your Investigations

Not many communities can take on a system-wide inventory or condition assessment project in 1 year. However, there are tools to help target the sanitary sewer sheds that should be studied. Smoke testing, flow monitoring, and hydromodification-based field investigations are all great methods to identify problematic sewer sheds. These methods can help determine which sewer sheds to study, and how to prioritize them. This will allow for correcting and repairing the most problematic areas first and provide a greater return on investment. Once these tasks are accomplished, you can develop a program to systematically analyze the entire sanitary sewer system over a longer period of time. For storm water systems, it is best to progress with condition assessments through the system in a methodical fashion.

Smoke testing can help on several fronts. With smoke testing you can characterize sanitary sewer system issues, and the results will tell where large inflow sources and private property sources exist. Smoke testing also shows indirect connections, broken pipes, and leaky joints that allow storm water and groundwater to enter the system below ground. This tool is the quickest and most economical of all investigative methods. In most communities you can smoke test about 8,000 to 10,000 feet of sewers per day.

Flow monitoring helps to address the amount of I/I entering a sanitary sewer system. Usually over a course of three to four months, you can identify very specific next steps in your investigations protocol. If inflow is dominant, large inflow sources and private property connections should be investigated. If infiltration is dominant, focus on sewer rehabilitation and replacement.

We are having increasing success with hydromodification-based field investigations. As streams continue to incise and widen, manholes, sewer lines, and other

Figure 4. Smoke testing on a driveway apron reveals a source of infiltration.

infrastructure located in and around streams are becoming threatened, exposed, or damaged. Walking the existing streams throughout your community to assess the location of your assets relative to eroding streams and stream banks can result in meaningful long-term cost savings. If you are able to identify a sewer crossing, or a sewer line running parallel to an unstable bank, before major damage or failure occurs, you can prioritize projects to protect these assets and stabilize the stream before it is too late. Protecting these assets before they become damaged, exposed, or fail is not only very cost effective, but also reduces the frequency of emergency repair situations.

Start Thinking About Next Year

Right now, most of us in the collection system world are neck-deep in repair, rehabilitation, and replacement projects. Though many of us are probably very involved with making ongoing necessary improvements to collection systems to improve the quality of life in our communities, remember that now is also the time to start planning for 2017. Decide which projects to undertake, and start developing budgets for projects in your community this autumn. Establishing a solid plan early for your upcoming infrastructure needs will alleviate some of the stress in putting together funding applications, and will show your community leaders that you are organized. But above all, be creative in finding solutions – remember, asset management can be scaled to any community and to any budget.

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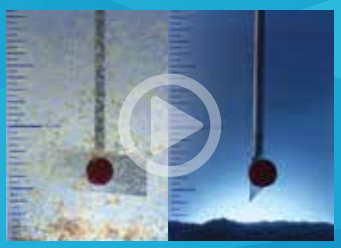

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Ohio EPA Update

by Robert C Ward, Environmental Manager Ohio EPA - Division of Surface Water

robert.ward@epa.ohio.gov

On July 11, the Ohio Environmental Protection Agency's - Division of Surface Water (DSW) made available through the Agency eBusiness Center, electronic submission of new and renewal individual NPDES permit applications, request for permit modifications and many of the reports required by an NPDES permit. Currently, the Surface Water Tracking, Reporting and Electronic Application Management System (STREAMS) has 17 Notice-of-Intent electronic applications for coverage under a master general permit and additional e-forms for general permit specific co-permittee and individual construction lot coverage. The service also currently provides applications for notice-of-termination, transfers and no-exposure certificate applications. By integrating the individual permits into STREAMS, the service affords facilities and permitted entities a convenient interface for correct and accurate completion of application forms, electronic application submission, and tracking of their application status.

The system utilizes "smart" forms to ensure that the minimum requirements of each field are met with respect to formatting and completeness. Additionally, as you work through the form, only the required sections of the application are made available based on how you have populated the application. This streamlines the permit application and the applicant is only required to populate the sections that pertain to the unique circumstances of their specific application.

If the applicant is submitting a renewal application, when the form is first initiated, the user will find that much of the form has been pre-populated from their previous application and only the necessary changes and updates will need to be made. Upon submission, the eBiz user is immediately emailed an invoice for any fees and may elect to immediately submit payment through the eBusiness Center e-Pay service.

Similarly, the facility may submit permit-required reports through the new system. The reports utilize the same form logic-driven approach and depending on the report, may compile submitted eDMR data into the forms. For more information and guidance, please see the Division of Surface Water Electronic Business Services webpage. (*http://epa.ohio.gov/dsw/ebs.aspx*)

The full list of forms available through STREAMS may be found below:

General NPDES Applications

- Bulk Petroleum Fuel Storage Facilities
- Coal Surface Mining Activities
- Construction Site Storm Water - Big Darby Creek Watershed
- Construction Site Storm Water - Olentangy Watershed
- Construction Site Storm Water
- Geothermal System Discharges
- Hydrostatic Test Water
- Industrial Storm Water
- Marina Storm Water
- Non-contact Cooling Water
- Pesticide Application Discharges
- Petroleum Related Corrective Action
- Small MS4
- Small Sanitary Discharges (No BADCT)
- Small Sanitary Discharges
- Temporary Wastewater Discharges
- Water Treatment Plants
- Co-permittee Permit Applications
- Construction and Small MS4 Co-permit
- Construction Lot Permit Applications
- Construction Lot permit
- Other Applications
- General, Notice of Termination
- Transfer of Ownership
- No Exposure Applications
- No Exposure Certification for Storm Water Permitting

Individual NPDES Applications

- Form 1 – General Information (EPA 3510-1)
- Form 2A – Publicly Owned Treatment Works (EPA 3510-2A)
- Form 2B – Concentrated Animal Feeding Operations (EPA 3510-2B)
- Form 2C - Manufacturing, Commercial, Mining & Silvicultural Operations (EPA 3510-2C)
- Form 2D – Discharge Process Water (EPA 3510-2D)
- Form 2E – Do Not Discharge Process Water (EPA 3510-2E)
- Form 2F – Storm Water Industrial Activity (EPA 3510-2F)
- Form 2S – Sewage Sludge (Biosolids) Treatment (EPA 4497)
- Application for Modification (EPA 4233)
- Application for Transfer (EPA 4234)
- Antidegradation Addendum
- Pretreatment Applications
- Indirect Discharge Application (EPA 4223)
- Indirect Permit Transfer Application (EPA 4116)

Various Reports

- NPDES Non-compliance Report
- NPDES Compliance Schedule Update Report
- NPDES Sanitary Sewer Overflow Annual Report
- NPDES Municipal Separate Storm Sewer System (MS4) Annual Report
- NPDES Unanticipated Emergency Overflow Report
- NPDES Annual Sewage Sludge Report
- Pretreatment Program - Annual Report
- Pretreatment Program - Quarterly Industrial Users Violation Report Certification
- Pretreatment Program - Generic Baseline Monitoring Report (BMR) For Categorical Standards
- Pretreatment Program - Priority Pollutant Report
- NPDES Biomonitoring Report Form Acute Toxicity Test
- NPDES Biomonitoring Report Form Chronic Toxicity Test

Western Lake Erie Tributary Water Monitoring Summary March 1, 2014 - July 31, 2014

Why is water monitoring done, and by whom?

Federal, state, and educational institutions conduct water monitoring for a variety of reasons.

The U. S. Geological Survey (USGS), along with its federal, state, and local partners, investigates the occurrence, quantity, quality, distribution, and movement of surface and ground waters and shares data with the public and other agencies involved with managing our water resources.

Ohio EPA conducts water monitoring for Total Maximum Daily Load development and to assess trends in impairment.

ODNR is interested in protecting recreation, fish, and wildlife water uses.

Educational institutions such as Heidelberg University's National Center for Water Quality Research do water testing to answer research questions.

What do we measure?

A large number of components are measured. This summary focuses on total phosphorus, dissolved reactive phosphorus, and nitrogen in the form of nitrate (NO_3) + nitrite (NO_2).

The amount of water in the rivers is measured by USGS at their streamflow gaging stations.

Why this summary?

This summary provides a simplified overview of nutrient loads and concentrations that have been shown to be highly correlated with harmful algal blooms in Lake Erie.

Summarizing the results of these water monitoring efforts provides critical information to agencies and the public. This summary is a tool for tracking annual changes and comparisons to water quality goals established by Annex 4 of the Great Lakes Water Quality Agreement and the Western Basin of Lake Erie Collaborative Agreement.

Where is the water monitored?

Ohio EPA, ODNR, USGS, and Heidelberg University have established many sampling stations in the Lake Erie watershed. Some of these stations are in the same locations to take advantage of USGS streamflow gage locations.

The stations in Figure 1 were chosen from a larger set to indicate the nutrient contributions upstream of the lake influenced sections of the rivers. Due to its large size, several tributaries to the Maumee River were also included.

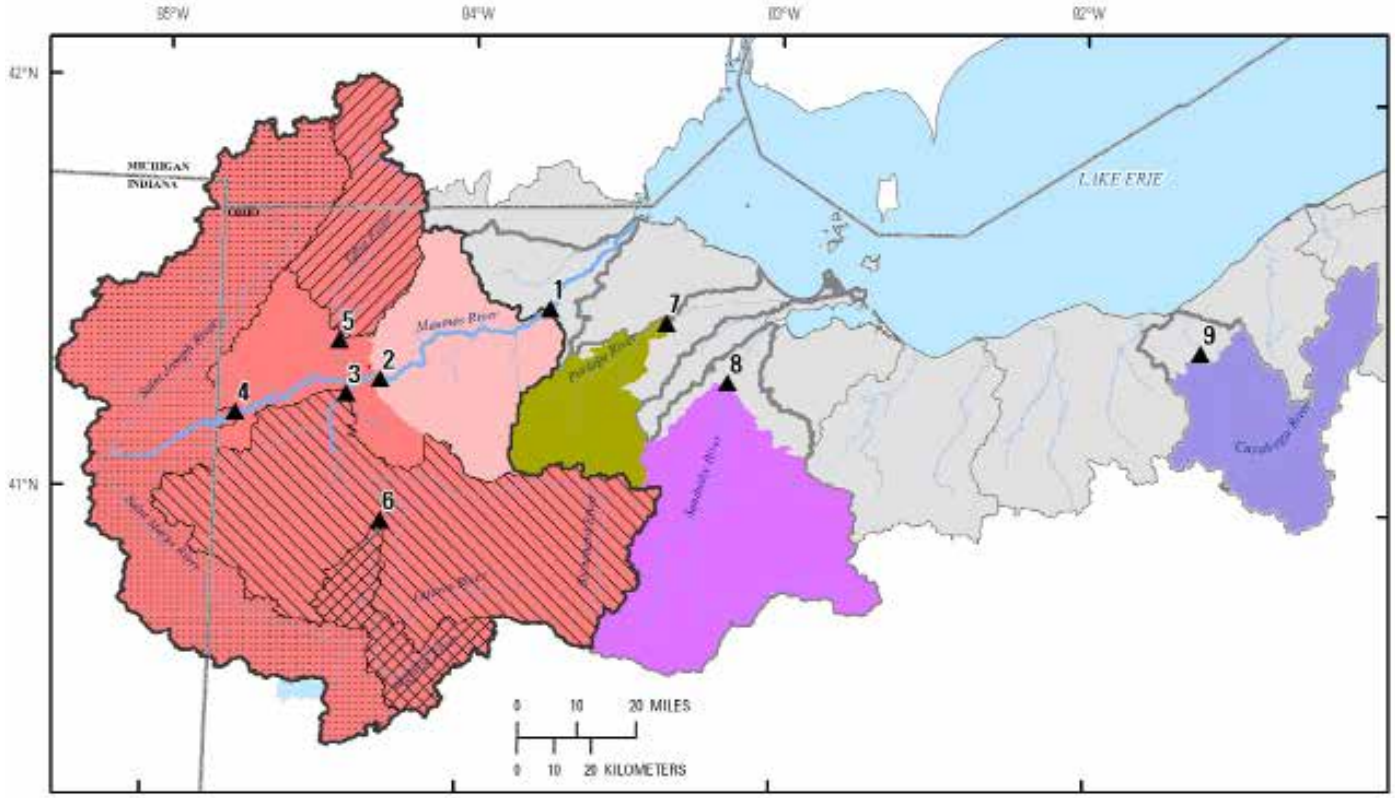

Figure 1: Sampling stations discussed in this report.

Station 1: Gage 04193500 - Maumee River at Waterville
Station 2: Gage 04192500 - Maumee River near Defiance
Station 3: Gage 04191500a - Auglaize River near Defiance d/s Dam
Station 4: Gage 04183500 - Maumee River at Antwerp
Station 5: Gage 04185318 - Tiffin River near Evansport
Station 6: Gage 04186500 - Auglaize River near Fort Jennings
Station 7: Gage 04195500 - Portage River at Woodville
Station 8: Gage 04198000 - Sandusky River near Fremont
Station 9: Gage 04208000 - Cuyahoga River at Independence

What were the nutrient levels for Spring 2014?

This set of charts compares nutrient levels at these stations for the spring months of March through July. This period is used because the Annex 4 subcommittee determined that phosphorus contributions in the spring correlate well with the occurrence of harmful algae blooms. Nitrogen is included because of its potential role in augmenting the blooms or their toxicity. The six Maumee River stations are grouped together to the left of the vertical line for ease of comparison, going roughly upstream to downstream from the left to right.

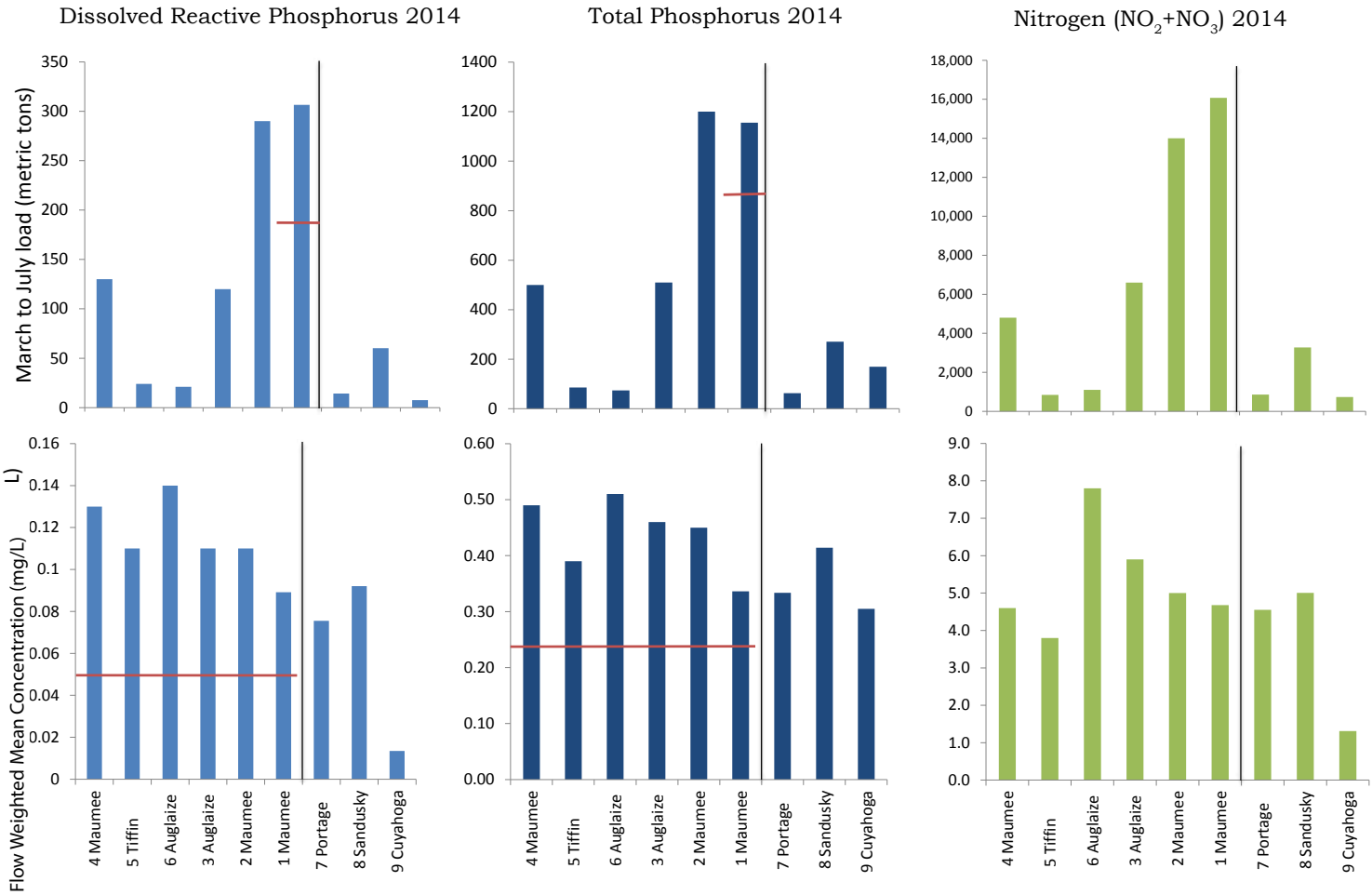

Figure 2: Side by side comparison of loads and flow weighted mean concentrations. Axis titles at bottom and left. Red lines indicate target levels at the points where they apply (not all targets are the same at all locations).

March-July Load (MT)

The three graphs across the top show that the two farthest downstream sites on the main stem of the Maumee River have the largest nutrient loads. The Portage, Sandusky, and Cuyahoga have a much lower contribution to the overall nutrient loading.

In 2014, the Annex 4 target loads were exceeded for both dissolved reactive phosphorus (64% over) and total phosphorus (28% over) as indicated by the red lines at the Maumee River near Waterville station where the target is applied.

Flow Weighted Mean Concentration (mg/L)

Dissolved reactive phosphorus ranged from 0.09 to 0.14 milligrams/liter (mg/L) in the Maumee River and compared closely to the Portage and Sandusky Rivers.

Total phosphorus flow weighted mean concentrations for all stations ranged from 0.30 to 0.50 mg/L.

The Auglaize River at Ft Jennings had the highest flow weighted mean concentration for all three constituents, but was less than 10 percent of the total load at the Maumee River at Waterville due to low flows.

In 2014, the Annex 4 target flow weighted mean concentrations were exceeded at all Maumee River stations for both total phosphorus and dissolved reactive phosphorus. This target applies throughout the watershed. It is a way of finding watersheds that may have low total load contributions, but high relative load contributions.

Nutrient levels in the Cuyahoga River were typically lower in part because the watershed is dominated by urban and forested land use rather than agricultural.

What is Flow Weighted Mean Concentration (FWMC)?

The FWMC represents the total load for the time period divided by the total discharge for the time period. FWMC standardizes the measure of phosphorus delivery from a tributary so that year-to-year and trib-to-trib performance can be compared despite different flows.

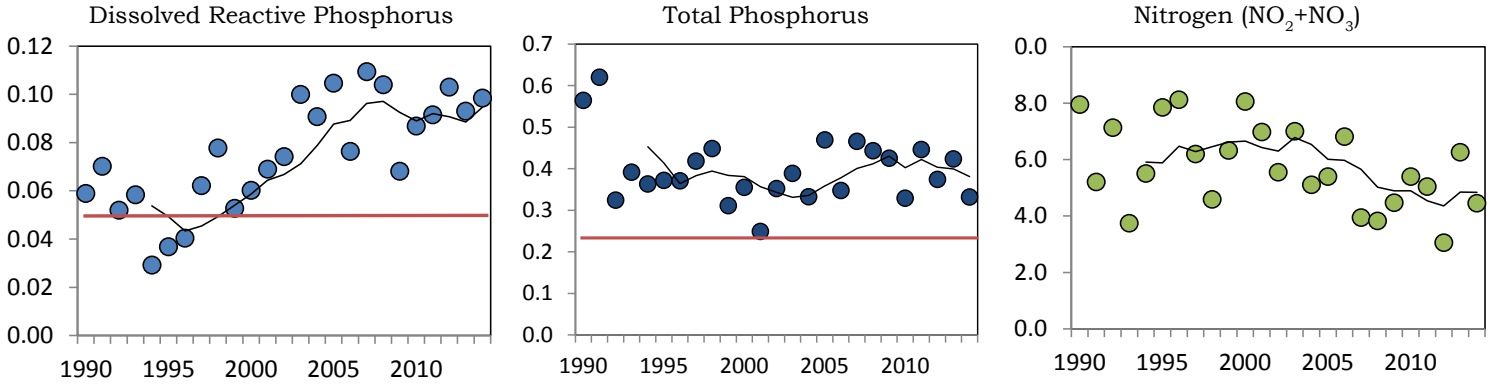

Figure 3: Annual nutrient flow weighted mean concentrations for the Maumee River at Waterville by water year.The five-year running average (black line) smooths out the annual variation and gives an indication of the trends. The red line indicates the Annex 4 target flow weighted mean concentrations.

How does 2014 compare to previous years?

Figure 3 shows that total phosphorus and nitrogen have been decreasing, and dissolved reactive phosphorus has been at about 0.09 mg/L since 2003, after increasing from its recent lows in the mid-1990s. Note that in the mid-1990s, the dissolved reactive phosphorus flow weighted mean concentrations were below the 0.05 mg/L Annex 4 target level, but more recently are nearly twice as high.

Where are the nutrients coming from?

This map shows the spatial distribution of dissolved reactive phosphorus flow weighted mean concentrations (triangles) superimposed on total phosphorus load (circles) across the nine stations. Dissolved reactive phosphorus was highest in the Maumee River at Antwerp: 0.13 mg/L (4) and the Auglaize River at Ft. Jennings: 0.14 mg/L (6), but the total phosphorus was highest on the Maumee River main stem at Defiance: 1200 MT (2) and at Waterville: 1100 MT (1). Thus, the load increased as watershed area increased, but dissolved reactive phosphorus concentrations decreased, possibly due to assimilation by aquatic plants and dilution as more water enters the system in the middle part of the watershed. The Sandusky River at Fremont (8) had higher dissolved reactive phosphorus concentrations than the Maumee at Waterville (1), but a lower total phosphorus load (260 MT). The Cuyahoga River (9) had the lowest dissolved reactive phosphorus concentrations (0.01 mg/L) and a lower load (150 MT) than either the Sandusky River at Fremont: 260 MT (8) or the Maumee River at Waterville (1).

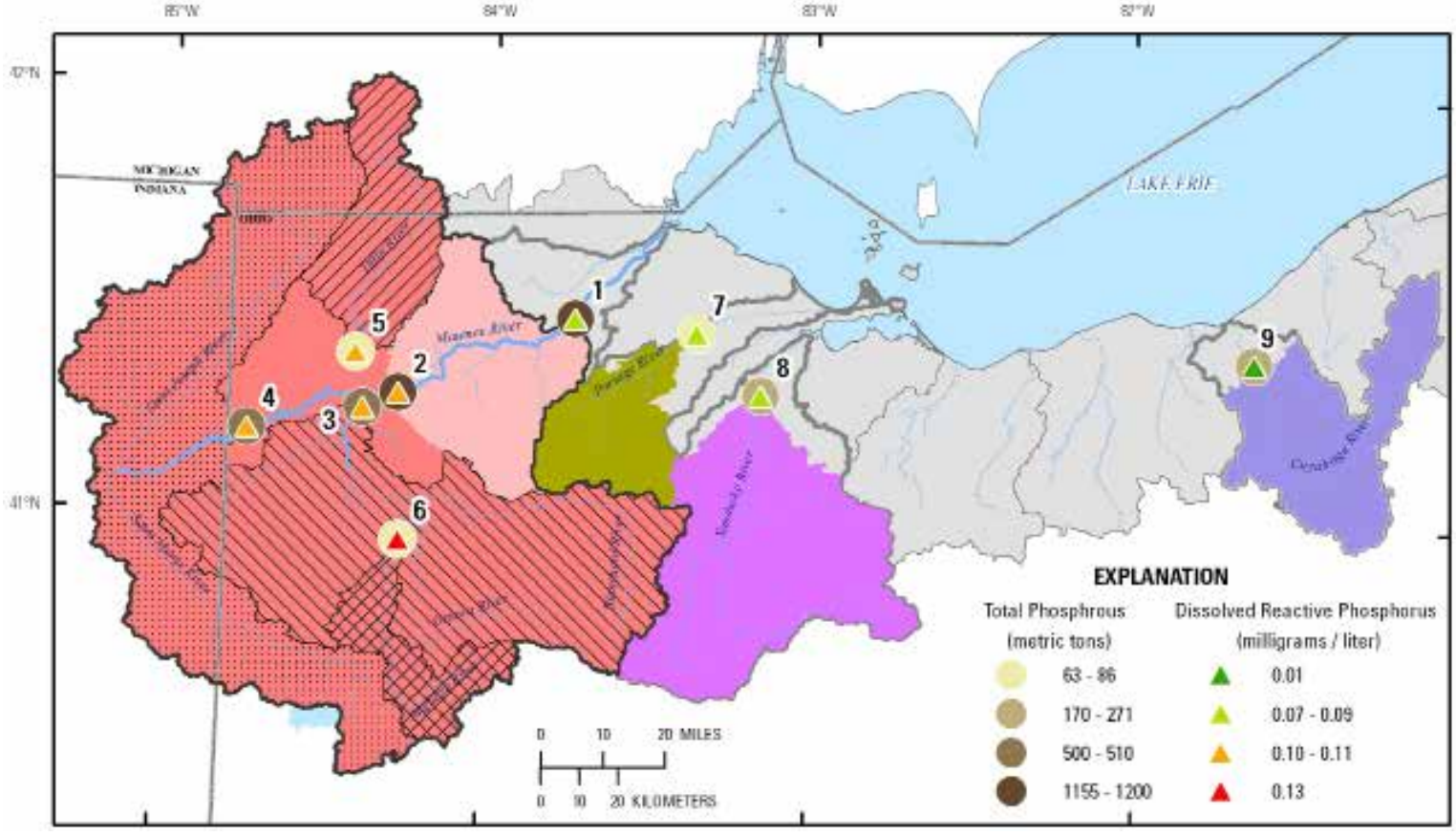

Figure 4: Phosphorus monitoring in the Lake Erie watershed. Data from March 1, 2014 - July 31, 2014.

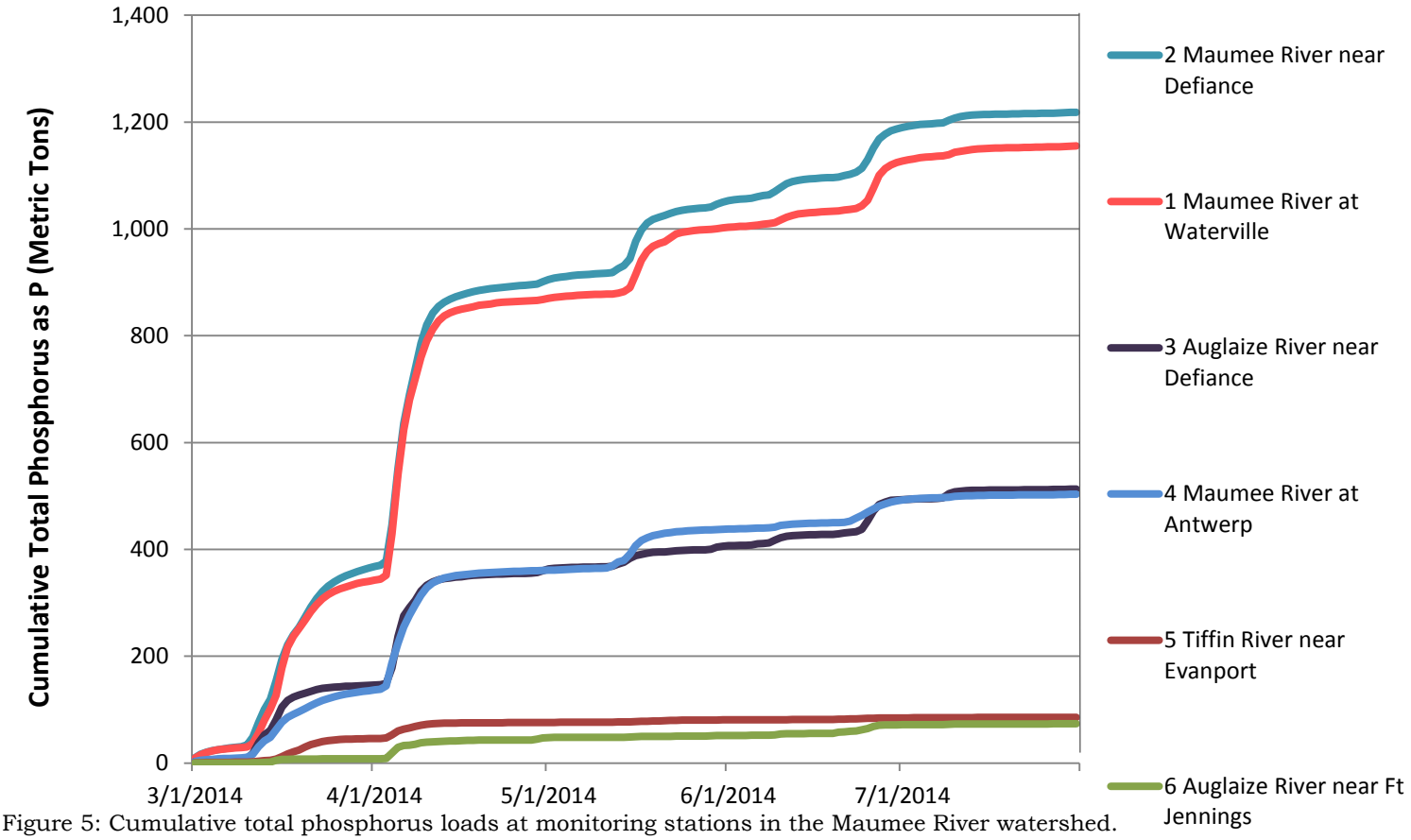

Figure 5: Cumulative total phosphorus loads at monitoring stations in the Maumee River watershed.

When does total phosphorus enter the rivers?

This graph shows a comparison of the cumulative load of total phosphorus at each of the Maumee River stations for March 1 to July 31, 2014. It is apparent that total phosphorus moves through the system closely coupled to the timing of rainfall in the spring.

Each day, the water carries additional load past the monitoring station which is summed to create the running cumulative total. When the amount of water moving through the river network increases dramatically due to rainfall, the load increases, as can be seen by the large jumps on the figure in mid-March and early April.

In 2014, rains in March and April increased the total phosphorus load in the Maumee River at Waterville above the 860 MT Annex 4 target load by the end of April. More rainfall through July led to a final total over 1100 MT, 28% above the target.

The cumulative total phosphorus loads were similar for sites with similar watershed areas: Maumee River near Defiance and at Waterville both have drainage areas over 5,500 square miles, Auglaize River near Defiance and Maumee River at Antwerp have drainage areas between 2,100 and 2,400 square miles, and Tiffin River near Evanport and Auglaize River near Ft. Jennings have drainage areas under 600 square miles.

While Tiffin River near Evansport has more square miles than Auglaize River near Ft. Jennings, 563 and 332 square miles, respectively, Tiffin River near Evansport had a lower flow-weighted mean concentration than Auglaize River near Ft. Jennings for total phosphorus, which calculates to a lower load.

The total load in the Maumee River at Waterville is not a simple sum of the loads from the five upstream stations. Transport is not instant. This may, for example, be due to particulates settling out along the way.

How wet was spring 2014 in comparison to spring in the target year of 2008?

The amount of flow for the period is a major factor influencing how much phosphorus and nitrogen moves down the river into the lake as runoff. For the period March 1-July 31, 2014, flow in the Maumee River at Waterville was 3.44 km^3. By comparison, flow for March 1-July 31, 2008 (base year for the target loads and concentrations) was 3.76 km^3. Flows at this station for these months for the period 2000-2014 averaged 2.93 km^3. So, 2014 was not as wet as the target year, but it was somewhat wetter than a recent typical year. The target year 2008 is a useful benchmark to demonstrate that even in a wet spring lower nutrient loadings can result in a smaller bloom.


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What is **Ohio WARN**?

by Ohio WARN Steering Committee

Ohio WARN (Water and Wastewater Agency Response Network) was formed in 2008. WARN was established for "utilities helping utilities," whether a natural disaster or some other emergency. We are a unique business and many times we need our similar partners to help instead of outside contractors. Ohio WARN is a free tool to be used by you the utility. WARN is a mutual aid system.

Ohio WARN's mission is to support and promote statewide emergency preparedness, disaster response, and mutual assistance matters for public and private water and wastewater utilities for natural and human-caused events.

What can WARN do for you?

WARN establishes a standardized mutual aid agreement for statewide use. This agreement decreases the amount of time it takes to provide relief to member utilities during emergencies, and:

- Enhances access to specialized resources
- Is consistent with the National Incident Management System (NIMS)
- Facilitates information exchange
- Highlights best management practices
- Can be utilized as a day to day resource for some thing as small as locating a hard-to-find repair part

OHWARN provides water and wastewater utilities with:

- A mutual assistance agreement and process for sharing emergency resources among water and wastewater agencies statewide
- A mutual assistance program consistent with other statewide mutual aid and assistance programs and NIMS
- A forum for developing and maintaining emergency contacts and relationships

Benefits:

- Increased planning and coordination
- A single agreement providing access to all member utilities statewide
- Access to resources during an emergency without pre-contractual limitations or retainer fees
- Expedited arrival of aid
- A pre-established relationship under which partners are able to share resources during an emergency at the discretion of each participating agency
- A list of emergency contacts and phone numbers
- Reduced administrative conflict
- Indemnification and workers' compensation provisions to protect participating utilities and, as needed, reimbursement of costs

Coordination:

The OHWARN Steering Committee exists under the umbrella of the Ohio Section of American Water Works Association and is available to all public or private, water and wastewater utilities. The Steering Committee coordinates with the Ohio Emergency Management Agency and the Ohio Environmental Protection Agency to prepare for emergency situations, assist with the sharing of emergency resources, and develop a strategy for releasing information. Members of the steering committee include large and small water and wastewater systems. OHWARN has a seat at the State Emergency Operation Center when activated.

Lessons learned from past disasters:

- Utility operations are specialized
- Utilities must be self-sufficient and fill the gap between disaster onset and arrival of other government aid
- Customers can live with power and phone interruptions, but not without water
- Water restoration provides hope

Participation

Participation is voluntary, membership is free (aid reimbursement is at cost). To become a member, just download and execute the member agreement and submit it. The WARN Mutual Assistance Agreement is available to all public and private water and wastewater utilities in the state.

Meetings

OHWARN Steering Committee meetings are open to all members and non-members, and held at 10:30 a.m. the first Monday of every even numbered month at:

City of Columbus
Department of Public Utilities
910 Dublin Road
Columbus, OH 43215

The OHWARN web site is located at:

www.OHWARN.org .

The mutual aid agreement can be accessed and downloaded there along with other emergency information. If you have other questions contact Darryl Key, NEORSD 216-641-6000 x2714 or at: *keyd@neorsd.org* .

Big Data Making Waves in **Utility** & **Investment** Communities

by Barry Liner, Ph.D., P.E.

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

Smart water infrastructure and big data are starting to attract funding both from investors and utilities after years of capturing the water sector's imagination. Automated Meter Reading (AMR) and Advanced Metering Infrastructure (AMI) have been around for decades, but improved sensors, advanced analytics, and visualization tools are now enabling utilities to better partner and interact with their customers.

Smart water infrastructure technology has the potential to reform delivery of services while raising the quality of life by helping to make cities more sustainable and resilient. The smart city movement encompasses many facets, such as smart buildings, energy management, transportation connectivity, information connectivity high speed data networks, and, of course, water management.

Opportunities from smart city programs are exciting to contemplate, but two factors really serve as the primary drivers for a city or community to implement smart city initiatives – achieving cost efficiency and sustainability. In terms of actual implementation, water utilities trail natural gas and electric utilities in the implementation of smart initiatives. About a third of all natural gas utilities and one quarter of all electric utilities report being engaged in a smart city initiative, while only 15 percent of water utilities claim to be.

While smart water practices are increasing in adoption, the barriers to implementation in the water sector are generally well known and include siloed communication within the utility and between infrastructure sectors, the need to justify ROI, lack of budget, and lack of resources and expertise. Additionally, at the municipal level, sometimes short-term, high-visibility smart infrastructure projects such as street lights, digital kiosks, and electric vehicle charging systems may gain funding approval more easily than water-related initiatives. Master planning efforts to integrate water, energy, communications, and transportation systems are complex and come with a longer time horizon, which might make them comparatively more difficult for decision makers.

Opportunities abound, however, such as the potential of cloud-based platforms to facilitate implementation of these big data solutions at utilities of all sizes. Small investments in hardware and software are required for cloud-based computing which aligns well with resource constraints of small and medium-sized utilities.

Utilities implementing smart water practices must consider six key aspects of a big data platform: integration, analytics, visualization, development, workload optimization, and security and governance. Integration is critical to have one platform managing the data, as separate silos of data only create separate silos of insight. An integrated solution has to be bigger than one technology. Analytics tools are used to analyze the data, providing more sophisticated, accurate, and actionable information. Visualization tools bring the information into a form that is understandable by decision makers, be they utility managers, government officials, or customers. Development tools are needed to enhance the analytical and visualization engines as well as support the overall platform. Workload optimization focuses on efficient processing and storage of the data. Security and governance are critical for maintaining the sensitive data that must be protected, which is especially important for public sector agencies including many water utilities.

As more and more utilities implement smart water practices, the opportunities to harness big data are growing rapidly. In March 2016, Imagine H2O announced the winners of its Water Data Challenge competition. These innovative startup companies provide an indicator of the momentum toward providing big data solutions. While water and many other resources have been called "the new oil," big data has earned this cliché moniker for nearly a decade as well. The big data analogy to oil is quite appropriate since oil has little value in its raw form, but when refined, it can power the world. The same can be said of big data. The water sector has a huge amount of data, but that data must be refined into information to spur utilities and customers to knowingly take action.

Sensors are one of the biggest sources of big data, and the water sector is particularly rich in sensor data. Smart metering, inventory management and asset tracking, fleet management, SCADA systems, and water quality instrumentation are major sources of sensor data.

The Nutrient Sensor Challenge exemplifies one effort to advance sensor technology. The Challenge is an innovation effort to accelerate the market for the development, adoption, and use of sensors to

measure nitrate and orthophosphate in water. The goal is to encourage development of sensors that are affordable (less than US$5,000 purchase price), reliable (unattended operation for 3 months), and can provide accurate real-time data. The Challenge, which seeks to accelerate these new technologies to commercial availability by 2017, is being sponsored by Alliance for Coastal Technologies (ACT). ACT is a partnership of research institutions, state and regional resource managers, and private sector companies, supported by US National Oceanic and Atmospheric Administration (NOAA) and Environmental Protection Agency funding, whose purpose is to develop, improve, and apply sensor technologies to study and monitor coastal environments.

Private investment from venture capital firms are helping companies that provide solutions associated with many aspects of big data platforms to advance at a rapid rate. For example, XPV Water Partners (Canada), one of the world's leading institutional water funds, counts the US firm FATHOM as one of their portfolio companies. Based in Phoenix, Arizona, FATHOM is a software-as-a-service, cloud-based, geospatial data integration platform helping to enable water utilities of all sizes to unlock the power of their meter and customer data in order to increase revenue, decrease costs, and delight customers. Emerald Technology Ventures (Switzerland) recently invested in Optimatics, an Australian firm providing infrastructure planning software that uses genetic algorithms to optimize capital investment for water and wastewater utilities.

Imagine H2O, a global water innovation accelerator, conducts water infrastructure challenges that produce companies advancing technologies for analytics, sensors, and visualization. From the analytics arena, 2015 winner Valor Water (San Francisco, California, USA) provides customer sales analytics software to water utilities to address revenue risk, affordability, and supply management. Finalists included FLOWatch (Wynnewood, Pennsylvania, USA), which provides integrated asset management software for water and environmental systems operators, and Dropcountr (Redwood City, California, USA), who uses data analytics and mobile apps to communicate water usage and metrics to consumers and utility staff. On the topic of sensors, finalist Lumense (Atlanta, Georgia, USA) is developing a real-time, continuous sensor platform for monitoring chemicals and biologicals in water, while fellow finalist Aquarius Spectrum (Israel) features a near real-time, automatic water pipe monitoring tool for leak detection based on acoustic sensing.

Like Imagine H2O, The BREW accelerator program at the Water Council in Milwaukee, Wisconsin, USA has seen an increase in big data-related participants from the city. The most recent class included Optiktechnik, which makes laser-based, optical sensors and instrumentation to improve monitoring and control of key particle processes in water and wastewater treatment. Radom creates instrumentation to identify toxic trace metals in water, wastewater, industrial processes, and food and drugs. Current Data is a watershed-focused water quality data collection and information system using a sensor array and mobile app with cloud storage and analysis tools to lower the costs of data collection and increase its use in critical water quality decisions. In the BREW's inaugural class, Meter Hero focused on water consumption data and social networking to drive conservation programs.

Drinking water and wastewater are not the only categories of water sector advances in big data. On the groundwater front, Wellntel, provides a real-time understanding of well and surrounding water table dynamics, provided through constant measuring and reporting of water levels. Both Imagine H2O and the Water Council's BREW program recognized this firm for its innovation. Managing stormwater in real time is the focus of both EmNet and OptiRTC, while companies like H2Ometrics provide cloud-based visualization tools to better plan stormwater and sewer operations.

Cloud-based solutions provided by innovators will help water utilities of all sizes advance smart water infrastructure. Smart water innovation has even emerged from firms better known for other IT sectors such as network giant CISCO or mobile devices leader Qualcomm. With innovations developed by entrepreneurial startups and large companies including IBM, GE, and OSIsoft, an exciting future is already underway for big data solutions in smart water infrastructure.

Authors Note: Barry Liner is the director of the Water Science & Engineering Center at the Water Environment Federation (WEF).

OUR PASSION

Water professionals have dedicated their careers to providing clean and safe water to protect everyone's health, planet and quality of life. The water sector constantly seeks innovative solutions to community and water system challenges. Water is our passion. We'd like it to be yours, too.

Did you know?

- There are more than 100,000 highly trained water professionals, more than 153,000 public drinking water systems, and more than 16,500 publicly owned treatment works in the United States.[1]
- Together, they provide water and sewer services to more than 300 million Americans and work tirelessly to protect public health and more than three million miles of rivers and streams, more than 40 million acres of lakes, more than 87,000 square miles of estuaries, 95,000 miles of coastal waters and marine waters.[2]
- There is a vast infrastructure—800,000 miles of water pipe and 600,000 miles of sewer line—right beneath your feet! These systems have worked silently for years, in some cases more than a century, to deliver and remove your water and wastewater.
- Treatment plants are highly regulated and can face a number of complex issues. Storms can cause flooding in sewers, water can become polluted, pipes can break, an ever-growing population can stress water supplies and new contaminants requiring additional regulations and treatment can emerge. Water professionals are responsible for handling all of these challenges, often with limited financial and staff resources.
- Clean water doesn't take holidays! Teams of water sector professionals and the infrastructure that supports our way of life work on-call, 24 hours a day, 7 days a week, 365 days a year to protect public health and the environment.

Why should you care?

- Our initial investments in U.S. water purification and treatment systems have all but eliminated the water-related diseases, such as cholera and dysentery, that threatened our communities just a century ago.[3]
- Next to surgical advances and other cutting-edge technologies, water and wastewater treatment might not seem as important, but the reality is that clean water and sanitation alone have likely saved millions—perhaps billions—of lives since these services were widely implemented in the 19th and 20th centuries.[4]
- Although Americans enjoy the benefits and protection provided by water and wastewater treatment, globally, water-related diseases still kill more people every year than all forms of violence, including war.[5]
- Every year, aging and under-funded water infrastructure spills 860 million gallons of untreated waste into America's waterways, including untreated or partially treated sewage, bacteria, parasites, synthetic hormones, pharmaceuticals and agricultural wastes. These spills are preventable, but funding for water infrastructure projects is at a historic low.[3]
- Water is good for the economy. It is estimated that fixing our stormwater and wastewater systems alone would generate nearly 1.9 million jobs.[3]

Small actions can make a BIG difference.

- Invest in your water infrastructure.
- Don't take water for granted. The water we have now is all that we will ever have. Use it wisely.
- Think before you flush. Everything you send down the pipe ends up at your local wastewater treatment plant. We are all part of the water cycle. We all live downstream.
- Educate yourself. Take a tour of your local water and wastewater treatment plant to learn what happens to the water that you drink and use.
- Read and understand your water and wastewater bill.
- Stay informed about the water quality issues facing your community by contacting your local municipality and attending public meetings.

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1. U.S. Department of Homeland Security and U.S. Environmental Protection Agency [DHS], [EPA]. (2010). Water Sector-Specific Plan: An Annex to the National Infrastructure Protection Plan. Retrieved on May 23, 2012 from http://www.dhs.gov/xlibrary/assets/nipp-ssp-water-2010.pdf 2. U.S. Environmental Protection Agency [EPA]. (2008). EPA Office of Water: You Can Make A Difference! Careers in EPA's Office of Water [Powerpoint presentation]. Retrieved on May 23, 2012 from http://water.epa.gov/aboutow/careers/upload/20070108_recruitment_presentation.pdf 3. Gleick, Peter, and Phaedra Ellis-Lambkins (2011). Jobs and Water for America (Oct. 5; http://www.forbes.com/sites/petergleick/2011/10/05/jobs-and-water-for-america) 4. Childs, Dan and Kansagra, Susan (2007). 10 Health Advances That Changed the World (Sept 20; http://abcnews.go.com/Health/TenWays/story?id=3605442&page=1#.T76BZu2KyxE) 5. World Health Organization [WHO]. (2004). Global Burden of Disease (GBD) Study. Retrieved on May 23, 2012 from http://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_part2.pdf

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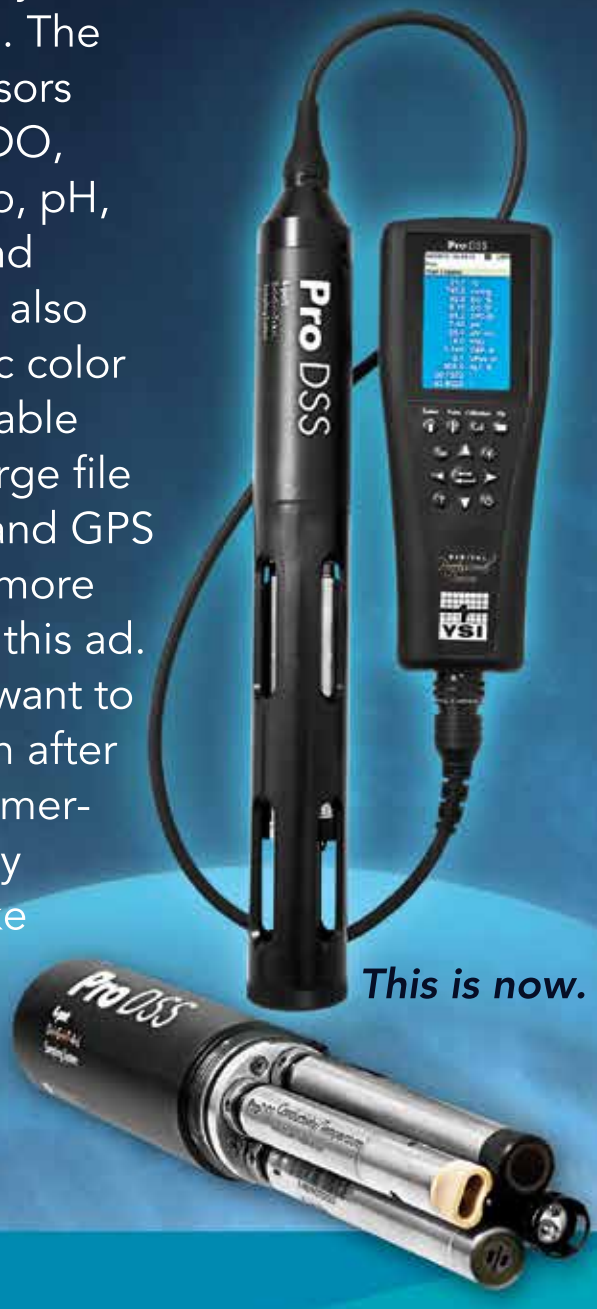

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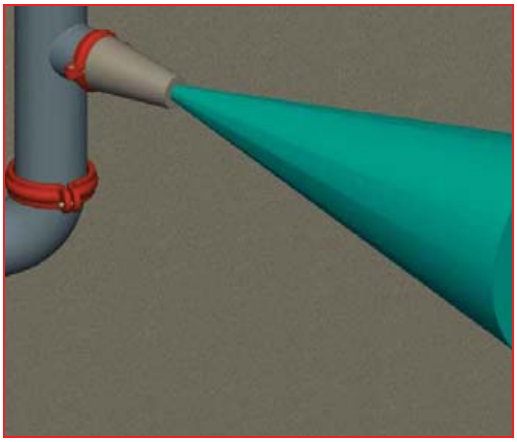

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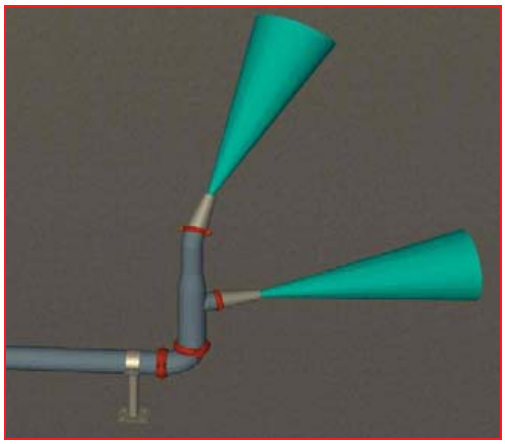

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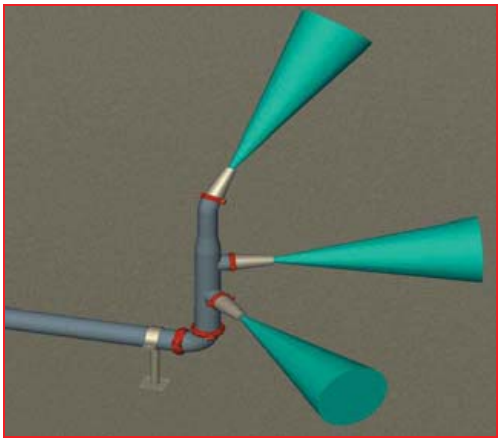

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