



# Buckeye Bulletin

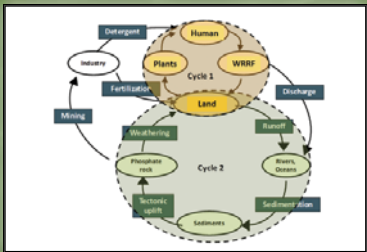
Ohio Water Environment Association | Volume 87:1 | Issue 1 2014



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2014 Government Affairs Workshop  
Thursday, March 13th *page 19*

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

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Check out OWEA's website, [ohiowea.org](http://ohiowea.org), for a complete listing of OWEA approved training.

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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.

OWEA needs your skill, experience, and energy. Contact OWEA at [info@ohiowe.org](mailto:info@ohiowe.org) or the chair of a committee that interests you for more information.



## OWEA ASSOCIATION NEWS

### OWEA Spring Intern

Charmi Patel is currently a senior at The Ohio State University with a major in Environmental Public Health. Charmi is also a student ambassador and a student representative of the Undergraduate Studies Committee for the College of Public Health. Upon graduating, Charmi hopes to work in the Public Health field and complete her masters in Health Administration.



### OWEA Outreach to County Commissions & Engineers

OWEA hosted a public information booth at the Winter Conference for the County Commissioners Association of Ohio/County Engineers Association of Ohio in December. We shared news about Ohio's water professionals, the "Top Ten Things Not To Flush," and the upcoming One Water | Ohio WEA-AWWA 2014 Technical Conference & Expo, August 26-29, 2014. OWEA's Judi Henrich and Amy Davis staffed the booth.



## Career Opportunities

The "Careers" page is the most visited page on OWEA's website.

- ◆ **No charge for job seekers.**
- ◆ **No charge to post a position** if you or a fellow employee are an OWEA/WEF member.
- ◆ **\$128 for a 30 day posting** if not a member.
- ◆ **\$128 for a Professional Membership**  
We encourage you to join OWEA and reap all the benefits of membership. Same price as a posting!

Click on the Careers tab at [www.ohiowea.org](http://www.ohiowea.org) or contact OWEA (614.488.5800 or [info@ohiowea.org](mailto:info@ohiowea.org)).



### February 2014

- 13 SE Section Meeting
- 20 NESOWEA Industrial Waste Seminar
- 25 OWEA "Water's Worth It" Legislative Event
- 27 SEOWEA Section Meeting

### March 2014

- 12 NWOWEA Section Meeting
- 13 Government Affairs Workshop
- 19 OWEA Executive Committee Meeting

### April 2014

- 1 Articles and Ads Due for May Buckeye Bulletin
- 7-9 National Water Policy Forum & Fly-In
- 10 SEOWEA Section Meeting

### May 2014

- 1 Collection Systems Workshop
- 9 OWEA Executive Committee Meeting
- 14 NWOWEA Section Meeting
- 15 NESOWEA Section Meeting
- 15 SEOWEA Section Meeting
- 21-22 Plant Operations/Laboratory Analysis Workshop

### June 2014

- 26 OWEA Executive Committee Meeting
- 26 OWEA Annual Business Meeting

### July 2014

- 1 Articles and Ads Due for August Buckeye Bulletin

### August 2014

- 1 NWOWEA Section Meeting
- 26-29 One Water - Ohio WEA/AWWA Joint Conference
- 29 OWEA Executive Committee Meeting

### September 2014

- 27-10/1 WEFTEC | New Orleans

### October 2014

- 1 Articles and Ads for November Buckeye Bulletin

### November 2014

- 5 OWEA Executive Committee Meeting

### December 2014

- 11 Biosolids Workshop

## 2014 Membership Rates

Rates include membership in the Ohio Water Environment Association and the Water Environment Federation.

- ◆ Professional & Academic.....\$128
- ◆ Operations.....\$73
- ◆ Young Professional .....\$61
- ◆ Student.....\$25
- ◆ Executive.....\$322
- ◆ Corporate .....\$400

Membership information may be found at:  
<http://www.ohiowea.org/memberships.php>

I cannot remember a winter where it has been this cold. Probably not since 1978, when I was a young lad living in New England, do I remember it being this cold. The snow has seemed to be without end this season too. The stories I have heard from operators, maintenance personnel, and collection and distribution system workers, in my recent travels around Ohio make this well worth mentioning. I cannot fathom the odd hours they are called to arms fixing broken pipes and water mains or just doing their normal routine without fail; in the harshest of elements in literally breathtaking cold temperatures. I have a profound respect for our members who are tasked with these responsibilities and my hat goes off to them all. These people truly are unsung heroes! Sadly, they do not get near enough press as the jobs that they do are, by in large, taken for granted by the customers that they serve. Our front line members are the best kept secret in town. While the OWEA does a tremendous job in educating ourselves, I feel that we need to do a better job in educating the general public and their elected officials. We are in the throes of doing just that and we are going to do a whole lot more.

I just finished reading Bill O'Reilly's *"Killing Jesus."* I felt compelled to read it as I already had read his other two works, *"Killing Lincoln"* and *"Killing Kennedy."* I found the latest installment of his series a little bit bloviated (to use one of O'Reilly's own "Word of the Day"). But I digress. There was an excerpt in this work that caught me as relevant to my message here. O'Reilly articulated how amazingly the evangelization of Jesus' message of love and peace eventually reached billions of people while his ministry had no funding, no infrastructure, and only a handful of followers at the time of his horrid death. In contrast, our OWEA has adequate funds thanks to our generous sponsors; we have a professionally staffed office, a great interactive website, this very informative quarterly periodical, a tremendous annual conference, and excellent workshops. Unfortunately it feels that we are only reaching the same 2,000 or so folks, year after year after year.

In an effort to expand our outreach in support of our members and their communities, we are hosting our first ever OWEA **"Water's Worth It"** Legislative Meet and Greet in the Ohio Statehouse Atrium in Columbus on February 25th. The goal is to share OWEA's message and call attention to water health matters and the need for support of infrastructure funding with the representatives and senators from all corners of the State of Ohio. Hopefully this will be a successful annual endeavor as we bring further value to our members by putting all water matters on the forefront of our elected leaders' considerations.



Dan Sullivan  
OWEA President

The OWEA leadership is also working to revive WEF Student Chapters at colleges and universities throughout the state. The intent here is to help make students aware of the importance of water infrastructure and the water health industry as a vocational option that deems consideration as they pursue their studies. If you would like to assist us in this regard, please feel free to contact your section president or delegate. In the area of public outreach, I would like to challenge all section leadership right up to the executive committee to take one day out of their normal routine and visit an elementary or high school in their own community to make a presentation about the wastewater industry.

If you visit the OWEA web page and select the "committees" tab and go to the Public Education page, you will find a link entitled "Public Education Information Page". There you will find numerous resources such as videos and presentation materials; which you can use for varied audiences in helping us spread the message about the importance of our industry. We have a great message folks and plenty of materials at our disposal to send this message across the State. Together, many hands make light work and will truly make a difference. Together, we can "bring the mountain to Mohammed."

In closing I would like to call attention to the WEF Utility Partnership Program (UPP) which is designed to assist Ohio utilities in joining WEF and OWEA while creating a comprehensive membership package for designated employees. This program allows utilities to consolidate members within their organizations into a single account and have the flexibility to tailor the appropriate value packages based upon the needs of that employee. Please visit [www.ohiowea.org/utility\\_partnership\\_program.php](http://www.ohiowea.org/utility_partnership_program.php) for additional information. This is another example of value added programs that are available to municipalities to make the most of their WEF membership and OWEA experience.

So, my friends and fellow water professionals, please keep warm as these woeful winter months begin to wane into spring and bring the rains, which present a whole new set of challenges to our front line members. My hope for the future is that consumers will come to appreciate who we are, what we do, and what we stand for - long before they are inconvenienced by a broken force main on their street in sub-zero weather at 3:00 in the morning. I hope the guys and gals that respond to the emergency get the proper recognition they all so largely deserve. Help us spread the dirty little secret.

Dan Sullivan, OWEA President  
[dan@sullivanenvtec.com](mailto:dan@sullivanenvtec.com)

### Are You Using the Term Water Resource Recovery Facility?

The Water Environment Federation is encouraging the use of the term "water resource recovery facility" instead of "wastewater treatment plant." WEF changed the terminology to better focus on the products and benefits of treatment rather than the waste coming into such facilities.





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 UPP 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 5 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.

**Contact OWEA at 614.488.5800 or [info@ohiowea.org](mailto:info@ohiowea.org) and we'll help your utility with enrollment!**

**Nominations for OWEA Vice-President and Secretary-Treasurer 2014-2015 due APRIL 1, 2014**

Per OWEA Rules and Regulations, Section 6.7.2, nominations for OWEA Vice President and Secretary-Treasurer for the 2014-2015 business year must be received no later than 60 days prior to the annual business meeting, normally held during the annual conference. Due to the One Water joint Technical Conference & Expo (August 26-29, 2014), the OWEA annual business meeting will be held on June 26, 2014 at Mohican State Park Lodge and Conference Center from 11 am to 1 pm. To insure timely compliance with our procedures, nominations for Vice President and Secretary-Treasurer are proceeding on the normal planned schedule.

The person voted in as Vice President will be on an automatic track to become President-Elect, then President, and then Past President in the subsequent 3-year period, with voting rights and responsibilities on the Executive Committee. The Secretary-Treasurer is for a one-year term, and is currently held by Jane Winkler, also having voting rights on the Executive Committee.

If interested, please send an email with nomination information by **April 1, 2014** to:  
Dale Kocarek, Chair, Nominating Committee, at [dale.kocarek@stantec.com](mailto:dale.kocarek@stantec.com).

**Notice of OWEA's 2014 Annual Meeting - Thursday, June 26, 2014**

As OWEA is collaborating with OAWWA to hold the One Water | Ohio WEA-AWWA 2014 Technical Conference & Expo in August 2014, we will not be holding OWEA's traditional Annual Conference in June. The 2014 Annual Business Meeting will be held in June at a nonconference location to allow state and section officer, and committee chair transitions to occur in the traditional time frame.



**Event:** OWEA 2014 Annual Membership Meeting  
**Date:** Thursday, June 26, 2014  
**Time:** 11 a.m. to 1 p.m.  
**Location:** Mohican Lodge and Conference Center  
 PO Box 429, 1098 Ashland County Road 3006  
 Perrysville, OH 44864

Lunch will be provided for members in attendance.

Members will be notified when the 2014 Annual Meeting registration link is available at [www.ohiowea.org](http://www.ohiowea.org)



## A TWIST OF FATE

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

### Connection to Our Past

I have always liked the study of history, and in fact consider it to be one of my favorite things. This should not be surprising that this is my “hobby” as we all have different interests. Some prefer motorcycles, others gardening, and yet others like sports. I like history.

I am partial to United States History as opposed to World History, but for the most part, I like both. In 1973, when I was in 11th grade history, my teacher, Mr. Fuller, helped history “come alive.” Prior to 11th grade, I felt that things which happened in the past were ordained through large majorities and decided in unison through impassioned discourse. Decisions made at the time were by no means certain, and success following a decision was not always guaranteed. It was in this class that I finally understood that history can be considered a study in human drama.

One of my most favorite shows on TV this past year was “*Who Do You Think You Are?*” This was a show tracing the genealogy of different celebrities. The research process was shown in detail, and at the end, findings were presented to the person who was being researched. Most of the stories were very interesting, and helped answer questions and solve mysteries. For me the climax of the season involved the genealogy of model Cindy Crawford. After tracing her ancestry to medieval England, it was later found that she was a direct descendant of Charlemagne, King of the Holy Roman Empire between 800 and 814 AD.



Cynthia A Crawford  
(1966 - )

Based on her reaction in the show, it was apparent that Ms. Crawford had no idea that she was a direct descendant of one of the most influential figures in world history. While Charlemagne died centuries ago, Cindy Crawford is a living person. The reason why I like this show is that it helps demonstrate relevance and connectivity to our past.

### Beginning of a Great Movement

Some of the excitement experienced by Ms. Crawford has also been experienced in reviewing the history of public sanitation. The rest of this article is devoted to the beginnings of one of the most influential movements in the world of public sanitation featuring my own City: Columbus, Ohio.

One of the central figures in this story is Ohio Senator Marcus A. Hanna. He was a very successful industrialist and businessman from Cleveland, Ohio from the last quarter of the 19th Century. Upon making a sizable fortune, he became influential in the Republican politics of Ohio. Unfortunately, it may be what happened after his illness and death from typhoid fever in 1904 for which he may be best remembered.

### The Rise of Marcus A. Hanna

Marcus A. (Mark) Hanna was born in Ohio in 1837 and moved to Cleveland in 1852, and later served briefly in the Civil War. As an industrialist Hanna worked in the coal and iron mining industry and in ship building for freight transport on the Great Lakes. He later turned to banking and publishing.

In the 1890s, Hanna turned his attention and a political skill to help elect his friend, William McKinley, to the office of President of the United States. Hanna felt that McKinley was an honorable and good man deserving of the office. Through his personal efforts and financial backing, Hanna helped position McKinley to run for US President in 1896 against popular Democrat Williams Jennings Bryan.



Marcus A. Hanna  
(1837-1904)

### The Election of 1896 – a Turning Point in American History

During the election of 1896, the US economy was similar to today, coming off an economic downturn, called the Panic of 1893. The Panic was actually a serious economic depression created by overbuilding and speculation in the railroad industry and a run on gold held in banks. By 1896, the worst of the Panic was over, but the memory was fresh.

The election of 1896 pitted two rival philosophies: the old establishment versus the populists. McKinley represented the old guard, supported by industrialists and bankers including Rockefeller, Carnegie, and Morgan. Conversely, Bryan was viewed as a hero of the common man. Ultimately, William McKinley was elected the 25th President of the United States. He began his turn in March 1897 and was the last person elected president that served in the Civil War.

### Fate Intervenes

Mark Hanna was offered a position in McKinley’s cabinet but declined. He opted instead to join the Senate in 1897 as an elected official. Hanna maintained a close relationship with McKinley throughout his presidency. Historians report that Hanna expressed interest in being president himself after McKinley left the office in 1905. However, fate intervened. While touring the Pan American Exhibition in Buffalo in September 1901, McKinley was shot and died eight days later. McKinley’s Vice President, Theodore Roosevelt became the 26th US President. Roosevelt was 42 years old at the time, and the youngest US President in history.

Hanna and Roosevelt maintained a cordial relationship after McKinley’s death; however, it was not a close personal one. In part, this was due to the 20 year age difference in the two men. Also, McKinley looked longingly back to the 19th Century, while Roosevelt was only interested in the future. However, in deference to McKinley’s wishes, Roosevelt did carry out most of McKinley’s wishes, which pleased Hanna.

### Hanna’s Illness and Death

Mark Hanna remained a larger than life figure in the US Senate for the remainder of his life. He helped create one US President and had influence with another. This all came to an end in early 1904. When Hanna was staying at the Arlington Hotel in Columbus, Ohio on January 30, 1904, he reportedly drank unboiled water from the Scioto River and contracted typhoid fever. Shortly afterwards, and despite being ill, Hanna returned to Washington, DC, where he died on February 15, 1904. Despite others dying from either cholera or typhoid fever - two of the most common ailments of the time, Hanna’s death shocked the nation.



*Hanna Mausoleum  
Lake View Cemetery, Cleveland*



### **A New Movement Begins**

Mark Hanna was a favorite son and a figure on the national stage. At the time of his death in 1904, the memory of the McKinley assassination was recent. Both men, who were close friends in life, were united again in death.

According to excerpts from **The Great Columbus Experiment** by Comrade C. Hinds, (History Press, Charleston SC, 2012) newspapers blamed the City's water supply. Public awareness of Senator Hanna's illness and death evolved into a call for action to construct new water purification and sewage treatment in the City of Columbus. Prior to that time, few cities in the world had centralized water purification or wastewater treatment facilities. Columbus became one of the first. Columbus then, as today, was a growing city and wanted to do the right thing and do it well. Further recounting of the efforts undertaken by the City of Columbus to meet these challenges may be obtained by reading this excellent publication.

### **Was This Inevitable?**

Like most things in history, one is left to wonder if the life and death of Mark Hanna was the main driver behind the public sanitation movement, or alternatively, times being what they were, had scientific and public thinking evolved to the point that this was poised to happen anyway. My personal opinion is that while this singular and tragic death of Senator Hanna was significant, it was likely going to happen anyway. Consider these facts:

- ◆ Since discovery by Dr. John Snow of contamination of the Broad Street Pump in London in 1854, establishing a direct link between pollution and cholera, the knowledge of public health and disease prevention grew significantly during the last half of the 19th century. Countless scientists and researchers, included Lister and Pasteur, were ultimately part of this movement.



*Broad Street Pump, London*

Between the time of the US Civil War and end of the 19th Century, a mere 40 years later, the role of cleanliness and disease was widely known.

- ◆ While Mark Hanna succumbed to typhoid fever, other notable persons died of typhoid or other water borne disease in the United States in the 19th Century. Fortunately most outbreaks were small.
- ◆ As population in large cities grew, there was increasing interest by city leaders to institute ordinances to control growth, improve form, function, utility, and beauty and reduce widespread damage due to fire such as what occurred in Chicago in 1871, which burned down much of the City. Fire control required a reliable public water supply. This began the influence on city planners and landscape architects including Frederick Law Olmsted (1822-1903).
- ◆ Experiments in Great Britain by researchers Ardern and Lockett led to the discovery of the activated sludge treatment process in 1914 to combat similar and very serious sanitation problems in England. Prior to that time, the methods of treating sanitary wastewater were limited to physical processes.
- ◆ While Mark Hanna was an unfortunate victim, new movements aimed at protecting our food and natural resources were emerging anyway. Theodore Roosevelt helped improve public health through the Food and Drug Act signed into law in 1904, the same year Hanna died. One of Roosevelt's inspirations for this law was Upton Sinclair's book *The Jungle*. Public awareness continued to grow.

### **In Closing**

I grew up in the greater Cleveland area and officially moved to Columbus in 1980 to attend graduate school at the Ohio State University. Since that time, I am proud to have called Columbus my home (*skyline photo below*). I take great satisfaction that my city was considered a pioneer in the field of public sanitation a century ago. There is no doubt that the good example set by Columbus to others in the United States and abroad, saved thousands, if not tens of thousands of lives, and created a legacy for others to follow.

Dale E. Kocarek, PE, BCEE  
Chair, Government Affairs Committee  
WEF Delegate  
Stantec Consulting Services, Inc.  
[dale.kocarek@stantec.com](mailto:dale.kocarek@stantec.com)

*Photo Source: WikiCommons*





Mark Livengood

As I write this ditty in early January, the heat wave (26F) has arrived in Dayton. What a week of weather. By the time this magazine arrives in your mailbox, visions of Spring Break will be dancing in our heads. I would like to remind everyone to thank our employees and staff for the excellent work they do, no matter the weather. It comes to us in a pipe, and we have to accept it - no matter what. At least we can say we help warm the river and lake water a little bit.

As for WEF, registration for WEFTEC14 in New Orleans opens March 31st. The WEF Board of Trustees (BOT) and committee leaders are meeting for their "mid-year" event on January 31-February 1 in New Orleans. WEFTEC13 in Chicago was a huge success, and this year's event will hopefully build upon the success we had last year.

The House of Delegates (HOD) is under the leadership of Speaker of House Janet Cann (Spartanburg, SC). The HOD members sit on one of several Work Groups formed to gather/develop information for WEF and Member Association (MA) use and support. The Work Groups this year are MA Leadership Development, MA Sustainability, HOD Strategic Planning, and Non-Dispersibles. The OWEA Executive Committee has been or will be responding to surveys sent out by these workgroups to formulate guidance on their topics. As you can see, three of the four work groups deal with 'soft' people-issues, not treatment or technical issues. Supporting our industry leader's personal and professional growth will help insure the water environment is protected and improved in the future.

WEF sponsors springtime regional meetings targeted at Member Association leadership. In 2014, the WEFMAX (WEF Member Association eXchange) meetings are scheduled as follows:

March 26-28	Weehawken, New Jersey
April 16-18	Whitefish, Montana
April 30-May 2	Grand Rapids, Michigan
May 21-23	Charleston, South Carolina

Executive Committee members and OWEA staff are splitting up to attend one of these meetings. Information learned from them will be communicated via the Buckeye Bulletin.

Lastly, I will be completing my last year on the HOD in October at WEFTEC. The Executive Committee is accepting nominations to choose a new House of Delegates representative from Ohio. Nominations are due by April 1. Please read the official nomination notice in the Buckeye Bulletin for further details.

*Delegate Update provided by Mark Livengood*



Dale Kocarek



Doug Clark

Mark Livengood, Senior WEF Delegate, [livengoodm@mcoho.org](mailto:livengoodm@mcoho.org)

Dale Kocarek, Junior WEF Delegate, [dale.kocarek@stantec.com](mailto:dale.kocarek@stantec.com)

Doug Clark, Junior WEF Delegate, [douglas.clark@bgohio.org](mailto:douglas.clark@bgohio.org)

## WEF Delegate Vacancy 2014-2017

The OWEA Executive Committee will be appointing a new WEF Delegate to represent OWEA on the WEF House of Delegates in June 2014. This appointment is open to any current WEF/OWEA member in good standing. The successful candidate would be one who has shown past interest in positively supporting OWEA and WEF by serving on committees, serving on an Ohio Section Executive Committee, serving on OWEA's Executive Committee, or other relevant service. The position would require a 3-year commitment to serve on the WEF House of Delegates, beginning in October 2014, serving through WEFTEC in 2017. Attending a regional WEFMAX meeting and WEFTEC HOD meetings each year are an expected minimum time requirement, as well as serving on at least one HOD Workgroup as they are created each year.

The successful candidate will replace Mark Livengood. Dale Kocarek and Doug Clark are currently OWEA's other WEF Delegates. To learn more about WEF Delegate responsibilities, please contact Mark Livengood.

If interested, please send an email with appropriate supportive information to WEF Delegate, Mark Livengood by April 1, 2014. [livengoodm@mcoho.org](mailto:livengoodm@mcoho.org)





## WATER FOR PEOPLE REPORT

by Alicia Adams, Co-Chair

2013 proved to be an AMAZING year for Water For People! The year total sent to Water For People was \$50,716.13!

We cannot say thank you enough to those of you dedicated individuals who assisted in the planning and execution of the various fundraising events that happened all across Ohio. Moreover, hundreds of thank-yous are due to all of you that participated in the events and the organizations that generously sponsored their success.

If you are not familiar with the Water For People organization, if you have ever wondered how the money is used, or have forgotten just how privileged we living here in the US are - I want to share with you a story of how Water For People changed one village in Honduras. See story below.



water for people

The next time you go to the drinking fountain or the kitchen sink to pour a beautiful, clean, refreshing glass of water, reflect back onto the story of Yani and ask yourself, "What can I do to be part of the next success story?"

### Inspired?

If you would like to volunteer, donate, or get more information, please contact:

Alicia Adams, [alicia.adams@stantec.com](mailto:alicia.adams@stantec.com)

Doug Borkosky, [doug@hlbaker.com](mailto:doug@hlbaker.com)

"In the past, Yani Madrid, a 37-year-old mother of three children, walked every morning before dawn to the nearest, unsafe, water source in the Honduran district of San Antonio de Cortés.

"Every day was the same thing. I carried two buckets to fill with water so we could have water at home to drink and cook," she says with a soft laugh.

Filled to the brim, the 60-pound buckets of water hammered her shoulders as she walked two hours, sometimes multiple times a day. Yani's children, two boys and a girl, drank the water, ignoring that the water was contaminated and was sure to make them ill with diarrhea.

Sadly, for people who often resort to contaminated water, diarrhea is so normal that they do not visit a health center for treatment. It's just a fact of life.

This story was true for Yani's friends and neighbors until Water For People began working with the district of San Antonio de Cortés to ensure that **Everyone** has access to water **Forever**. Like so many mayors we've met, the mayor was unyielding in his goal to end water poverty. The result is today they have a protected water source and metering to ensure that the resource is long-lasting. This system is fully managed by a local Water Board who charges a monthly fee of \$2.50 per subscriber in order to maintain a sustainable and lasting project through generations.

"Children suffered diarrhea at all times, before. Now they are not getting sick because the water we have at home is drinkable," Yani said. "The Water Board charges us a monthly fee that I willingly pay because it means the water will last, be safe and flow constantly for my children. Now, I can spend more time taking care of them, help them with their homework and do my home chores," she said."

*Water for People, by Elias Assaf*



Wayne County Fairgrounds  
 Wooster, Ohio  
 Thursday, April 10, 2014  
 8:30 A.M. – 3:00 P.M.



## 31st Annual Northern Ohio AWWA Ohio Water and Wastewater Exposition

Consultants-Manufacturers-Suppliers

**FREE** attendee registration!  
**FREE** lunch with advance registration!

**Educational Tours**  
**Meter Madness Competition**  
**Door Prizes**

Please Register in Advance!  
 There is no charge to attend the Expo

**Kevin Givins, Expo Chair**  
 City of Wooster, Utilities Manager  
 1020 Old Columbus Rd  
 Wooster, Ohio 44691  
 Phone: 330.263.5285  
 Fax: 330.263.5291  
 E-mail: [kgivins@woosteroh.com](mailto:kgivins@woosteroh.com)

[www.northernohioexpo.com](http://www.northernohioexpo.com)

Thursday, April 10, 2014

TITANIUM



PLATINUM



GOLD



SILVER



BRONZE



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MANY THANKS to OWEA's 2014 Annual Association Sponsors.

Is your company listed above? There is still time to join OWEA for a great year in 2014!



# Become a 2014 OWEA Sponsor

Sign up at [www.ohiowea.org](http://www.ohiowea.org) or contact OWEA at 614.488.5800, [info@ohiowea.org](mailto:info@ohiowea.org)

Level/Price/ Points	Benefits
Titanium \$7,500.00 60 Points	Website Banner Name on sign at ALL OWEA Registration Tables Thank you in all 4 issues of BB Headline Sponsor Opportunities
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Points	Description
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1	Sustaining Sponsor Certificate
4	Golf Foursome for 1/2 Price
6	Golf Foursome
8	Premier Golf Sponsor (1 Foursome, 1 Sign)
3	Biosolids Attendance
3	Government Affairs Attendance
3	Collections Attendance
3	AM or PM Break Sponsor for 1 Workshop
6	Lab/Operations Attendance
13	Premier Specialty Conference (Attendance for all 4, 1 Break)
2	Conference Tues or Wed Eve Networking Event
2	Conference Thur Eve Networking Event
4	Full Conference for 1/2 Price
6	Full Booth for 1/2 Price
7	Full Conference Registration
12	Full Booth Registration
4	Wednesday Only for Conference
4	Thursday Only for Conference
3	Friday Only for Conference
4	1/8 Page ad in Spring or Summer BB
8	1/4 Page ad in Spring or Summer BB
12	1/2 Page ad in Spring or Summer BB
16	1 Page ad in Spring or Summer BB
1	Ticket to Water for People Fundraiser Wine Tasting

Interested in adding a **One Water | Ohio WEA-AWWA 2014 Technical Conference & Expo Sponsorship**? See page 38 for the joint conference sponsorship details.

Check out the benefits of OWEA's Plus+ Sponsorship. We'll use part of your OWEA sponsorship to pay for your One Water Sponsorship.

Make plans now to select your company's 2014 Sponsor Level. Contact Ted Baker or OWEA for more information.

Ted Baker, OWEA Sponsorship Committee Chair  
440.829.8405, [kingsnu@aol.com](mailto:kingsnu@aol.com)

Ohio Water Environment Association  
614.488.5800, [info@ohiowea.org](mailto:info@ohiowea.org)



I hope the holidays provided you with time for being with loved ones as well as time to reflect on 2013. My reflections helped me identify the good and the bad.

## SEOWEA

*Matt Boone, President*

Overall, I had a good year and have thanks for many opportunities, but I also recognize that I have areas requiring improvements. As we move through our water environment careers, it is important to recognize our strengths and our weaknesses. If you haven't found time to reflect on 2013, you should make time before we get too far into 2014. Not only is this good for you, it will be good for your employer, co-workers, and those you serve. I am hoping that one of my strengths is identifying my weaknesses. Otherwise, I might be in denial.

Our SEOWEA meeting on October 31, 2013 was a success. The meeting was held at the Fawcett Center on the Ohio State University Campus. The meeting included a tour of the on-going Olentangy River Stream Restoration project near the Ohio State University Campus. The presentations included various topics related to water quality improvements with stream restoration projects as well as a presentation about Ohio State's vision of reconnecting campus to the river by removing the embankments along the river, which are not flood walls.

With the bitter cold spells of 2014, we have planned our next meeting to include a tour in a warm and moist environment. Our next SEOWEA Section Meeting will be in Columbus on Thursday, February 27, with a tour of the Anheuser-Busch production facility where Budweiser and Bud Light are brewed. We will email SEOWEA members a meeting announcement as soon as the details are finalized. On April 10, we will be having a section meeting in Logan, Ohio. Please mark your calendars for these two meetings.

As part of the OWEA annual conference, all sections typically provide a \$1,000 donation to support the conference. This year OWEA indicated that they wanted us to keep the funds and use them for outreach. Our outreach is going to be for funding ten operators to attend the OWEA annual conference (<http://onewaterohio.org>). We are finalizing the details for this opportunity that will award the ten operators with a one day admission to the conference. Please start thinking about wastewater operators that would benefit from attending the conference for one day who wouldn't typically be able to attend. We would really like to have ten operators from our section area and they do not have to be members of OWEA.

I would like to thank all of you for supporting our Section. As we look forward, I encourage you to invite someone new to an upcoming Section meeting. You can visit the OWEA website for updates on our Section events.

Matt Boone, [matthew.boone@arcadis-us.com](mailto:matthew.boone@arcadis-us.com)



*Photos from October 31, 2013 Section Meeting*

Happy 2014! The Northeast Section is ready to start the New Year with several meetings. We are looking forward to Biosolids and Watershed Workshops this March and April in addition to the annual Operations and Industrial Waste Seminars. The webpage will have more information on these upcoming events.

## NEOWEA

*Mary Ann Driscoll, President*

The Section held its November Section Meeting at the Salem WWTP and Community Center. We had 84 people in attendance for the meeting that included tours of the Salem WWTP and the pretreatment facility at the Fresh Mark food processing facility. Speakers provided background on the WWTP and upcoming improvements, along with solutions for inflow and infiltration issues in the collection system. Attendees were also able to learn about the improvements to the Fresh Mark pretreatment system and witness the good spirit of cooperation between municipalities and industry to solve problems. Many thanks to the City of Salem, Fresh Mark, and Jeff Zimmerman and his staff for making the event successful and memorable!

On December 6th, the Executive Committee held its annual Christmas Luncheon for the Committee, Committee Chairs, and Past Presidents in Akron. The gathering was a great mix of new and familiar faces. We had a great turnout, 19 past section presidents were in attendance. It is always nice to celebrate the holiday with old and new friends!

*continued on page 15*



*NESOWEA Annual Christmas Luncheon on December 6, 2013*



NESOWEA Section Tours the Salem WWTP

The Section hosted its annual Operations Seminar at the Days Inn in Richfield on January 23rd. The seminar focused on conventional activated sludge, nitrification and denitrification, chemical and

biological phosphorous removal, total nitrogen removal, and biological nutrient removal selector processes. Sidney Innerebner, PhD, PE, from Indigo Group Water was able to spend the day offering an activated sludge workshop. Several other speakers were able to provide additional discussion and training on the use of other processes for nutrient removal. The speakers were provided an example plant requiring an upgrade and asked to evaluate the adequacy of existing equipment, propose new equipment, and provide modifications to equipment configurations. Each presenter was able to highlight their technology and it offered attendees a look at multiple ways to solve a problem in one meeting.

On February 20th, the Section's Industrial Waste Committee will hold its annual Industrial Waste Seminar at the Days Inn in Richfield. There will be a variety of speakers and exhibitors in attendance. For information on this training session, please visit [www.ohiowea.org](http://www.ohiowea.org) or [www.nesowea.org](http://www.nesowea.org).

Mary Ann Driscoll, [maryann.driscoll@burgessniple.com](mailto:maryann.driscoll@burgessniple.com)

The Southwest Plant Operations Committee continued to have good attendance at the October 2013 Operator Education Day at the office of Montgomery County Water Service. The Plant Operation Education Day is planned for April 2014. These continue to be a low cost (\$10 that covers the cost of donuts and a pizza lunch) opportunity for operators preparing to take the OEPA Wastewater Class 1, 2, 3, or Collection exam, to work through a sample exam with instructor provided solutions.

## SWOWEA

Bob Beyer, President

The 12th Annual Plant Operations Seminar and Section Meeting were held on November 14, 2013 at a new location: The Manor House in Mason, Ohio. The Seminar was well attended, with over 100 attendees obtaining 5.5 contact hours and meeting with exhibitors during the breaks and lunch. The evening of November 13th was the first **Meet and Greet the Vendors**, with 25 attendees. The evening was a great way for networking and meeting the vendors one-on-one.

The Plant Operation Committee organized a 2-day specialty workshop November 20 and 21, 2013 in Dayton. The workshop was a hands-on classroom training session in laboratory and treatment plant issues, plus practice using a microscope to help understand the biological treatment processes. The next workshop is schedule for April 2014. The class size is limited. Check [www.swowea.org](http://www.swowea.org) for registration and update. I would like to extend to the Sponsors and Exhibitors a big thank you for helping us keep costs down for the members.

The December 13th SWOWEA Past President's Luncheon at Parmizanno's in The Dayton Marriott continues to be well attended. This is an annual event to recognize the great contributions from our past presidents. The event is coordinated with our Executive

Committee in the morning. In addition, OWEA President Dan Sullivan, Executive Manager Judi Henrich, and Executive Assistant Amy Davis, attended to provide OWEA updates.

The 25th Annual Industrial Waste Seminar and Section Meeting was held at the Sharonville Convention Center on January 23, 2014 where the Karl G. Voelkel Industry Award was presented. This award is given to an industrial facility in the Southwest Section for outstanding environmental achievement.

The Lab Analysis Committee (LAC) has scheduled the 2014 meeting. The first of four meetings will be Thursday, February 13th at Montgomery County Environmental Service. These meeting are well attended and will fill up fast. Keep an eye out for the LAC flyer and [swowea.org](http://swowea.org) website for details.

For more details about these and other upcoming events, please visit the SWOWEA website at [www.swowea.org](http://www.swowea.org) or view our latest Southwest WAVE.

Bob Beyer, [bbeyer@masonoh.org](mailto:bbeyer@masonoh.org)



SWOWEA Past Presidents Meet for Annual Luncheon in December

### Did you know OWEA has more than 25 committees?

Are you looking for a way to be more involved in Ohio's water quality community?

Visit the OWEA Committee page at <http://www.ohiowea.org/committees.php> and let us know what your interests are and we'll match you up with a committee. Call us at 614.488.5800 with any questions.



The Northwest Section remains busy planning our events for 2014. Our late winter Section meeting will be held in Leipsic, Ohio on March 12, 2014. This meeting is typically an Industrial Pretreatment/Waste themed meeting and this will be the case in Leipsic. We are hopeful to tour the PRO-TEC facility, which is a world leader in advanced and ultra-high-strength steel coatings for the automotive industry. We are also planning a spring Section Meeting, which includes our annual Golf Outing and will be held on May 14, 2014.

We will also be looking for volunteer judges to assist with Ohio District Science Days. NWOWEA provides two judges for three events held in Northwest Ohio (University of Toledo, OSU Marion, Ohio Northern) as well as a cash prize for the winner in the category of wastewater treatment. Events are typically

## NWOWEA

*Josh Wehring, President*

held on Saturdays in March. More information is available at [www.ohiosci.org](http://www.ohiosci.org). We also provide judges and a cash prize for Heidelberg's science fair, which is also typically held in March. If you are interested in being a judge please contact Joe Tillison, our Vice President. It is a great way to encourage young people interested in our field.

I encourage you to keep track of upcoming events by visiting [www.ohiowea.org](http://www.ohiowea.org). Upcoming events and registration details are posted regularly. Information on past meeting and technical presentations will also be posted as they become available. Always feel free to contact me should you have any questions concerning the Northwest Section.

I'm confident we have an exciting 2014 planned for all of our members and I look forward to seeing you at not only our Northwest Section meetings, but all OWEA events.

Josh Wehring, [jmwehring@fremontohio.org](mailto:jmwehring@fremontohio.org)

## YOUNG PROFESSIONALS

*by Nick Bucurel, YP Co-Chair*

### 2014 One Water Joint Conference

The YP Committee is working with the Ohio AWWA YPs to plan events for the joint annual conference in 2014 and volunteers are needed! Please contact Alicia Adams ([Alicia.Adams@stantec.com](mailto:Alicia.Adams@stantec.com)) if you're interested in assisting with this event.

### Student Chapter Developments

The YP Committee is committed to building relationships with other professional organizations for the common cause of clean water and continues to look for opportunities to provide value for the OWEA. Recently the OWEA YPs joined the Ohio AWWA YPs to start a new joint student chapter at Cleveland State University. A kickoff event to highlight the various water careers linked to both organizations and advertise the benefits of membership was held in November. The event was successful with 30 students and 15 YPs in attendance. Students were invited to attend the Northeast section YP Committee planned event in February to get a glimpse into the organization and to provide networking opportunities.

Many local entities are starting to feel the pinch of the departure of long-term employees. Identifying, securing, and retaining qualified employees are major concerns for our industry. To help fill the void, we have developed a new program in partnership with Cleveland State University to create a pipeline for the next generation of water related, career-minded leaders. Led by Paul Solanics and Nick Bucurel, OWEA is working with Cleveland State University administrators to develop a Water Workforce Internship Program that includes the following components:

- ◆ Matching students with an interest in the water industry to the public and private agencies with this need
- ◆ Providing mentorship to provide insight related to career advancement and holistic view of the industry
- ◆ Experience and education in project management skills to develop the next generation of leaders



OWEA YPs joined OAWWA YPs at a kick-off event for a new joint student chapter at Cleveland State University in November 2013. 30 students and 15 YPs attended.

If you're interested in learning more, please contact Paul ([PSolanics@solonohio.org](mailto:PSolanics@solonohio.org)) or Nick ([nbucurel@BrwnCald.com](mailto:nbucurel@BrwnCald.com)).

### Notable Happenings

The Northeast YP Committee is holding quarterly meetings on the 3rd Tuesday of the months of January, April, July, and October. These events will typically include a plant tour or other technical event and then a social meeting afterwards. The next event is planned for February 2014 – a tour of Cleveland's Great Lakes Brewery! Please contact Ashley Williston (information below) for details.

Contact your Section YP representative to become more involved in the Young Professionals Committee:

**Northwest Section:** Walter Ariss  
[walter.ariss@epa.state.oh.us](mailto:walter.ariss@epa.state.oh.us)

**Northeast Section:** Ashley Williston  
[awilliston@ctconsultants.com](mailto:awilliston@ctconsultants.com)

**Southwest Section:** Kelly Kuhbander  
[kelly.kuhbander@strand.com](mailto:kelly.kuhbander@strand.com)

**Southeast Section:** Alicia Adams  
[alicia.adams@stantec.com](mailto:alicia.adams@stantec.com)

Special thanks to all the committee volunteers who make the YP committee vibrant! As always, if you have any suggestions or questions, please contact Nick Bucurel at: 216.606.1323, [nbucurel@BrwnCald.com](mailto:nbucurel@BrwnCald.com).



# One Water

Ohio WEA-AWWA 2014 Technical Conference & Expo

[www.onewaterohio.org](http://www.onewaterohio.org)

## 2014 STUDENT AND YP AWARDS

The Young Professionals (YP) Committee is pleased to announce an opportunity for selected YPs and Students to receive free admission to OWEA & OAWWA's Joint One Water Conference in August 2014, as well as a one night free stay at the Hilton Columbus Downtown Hotel during the conference.

Due to the joint conference, the YP Section and Student awards are slightly changed for this year. The **Young Professional Award** and **Student Award** requires the following:

To enter this competition, submit a one-page abstract on an interesting project you worked on. For operators this might be a piece of equipment or process you optimized. For students this might be a topic you studied or were involved with. For other YPs it might be a model or challenging project you worked on. Eight winners will be selected: 4 YPs and 4 Students.

In order to be considered for the award, you must meet the following criteria and/or guidelines:

- ◆ You must either be a young professional (35 years or younger or with less than 5 years in the industry) active in the water or wastewater industry as an engineer, scientist, plant operator or mechanic, designer, regulator, etc.,
- ◆ or a student currently enrolled in school or graduated within the past year;
- ◆ Prepare and submit a presentation abstract (approximately one page) for a topic related to Water **by April 18th, 2014**. If selected for the award, you agree to provide a 30 minute presentation or develop a poster at the One Water Joint Conference in August.

If you have already submitted an abstract for the 2014 One Water Conference, please submit the same abstract for consideration for the YP Award. To be considered for this award you must be either a WEF/OWEA or AWWA member.

Please submit abstract electronically at: [www.onewaterohio.org](http://www.onewaterohio.org)

If you have any questions, please contact:

Alicia Adams, OWEA YP  
[alicia.adams@stantec.com](mailto:alicia.adams@stantec.com),  
 740.627.0431

Sierra McCreary, OAWWA YP  
[mccrearysb@bv.com](mailto:mccrearysb@bv.com)  
 614.473.0921

Membership Information:

WEF/OWEA  
[www.ohiowea.org](http://www.ohiowea.org)  
[www.wef.org](http://www.wef.org)

AWWA/OhioAWWA  
[www.oawwa.org](http://www.oawwa.org)  
[www.awwa.org](http://www.awwa.org)



- Are You an Instructor?
- Do You Work with College Interns?
- Employ College Students?
- Know a Student Interested in a Water Quality Career?
- Eligible Students can join OWEA/WEF Free for One Year!

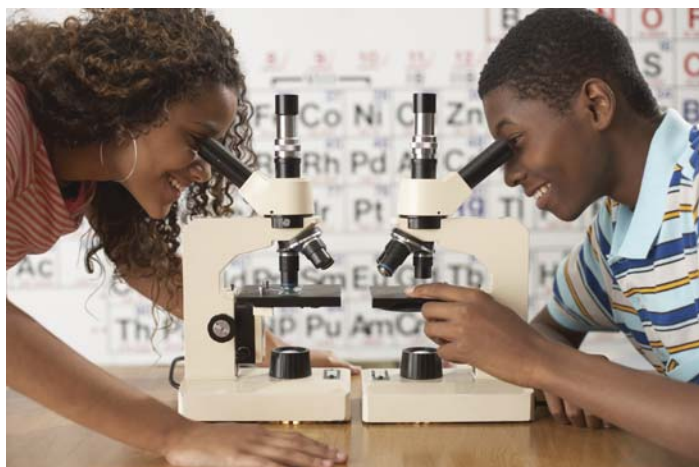
Designed for the specific needs of students - offering a solid foundation on which to build careers and gain credibility with water quality leaders.

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

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

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

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



## STOCKHOLM JUNIOR WATER PRIZE AND OHIO STATE SCIENCE DAY

Help OWEA select the Ohio winner of the State Stockholm Junior Water Prize. Be an OWEA Judge at the Ohio State Science Day. If you are interested in science and education, we can use your help. For more info call 614.488.5800 or visit [http://www.ohiowea.org/public\\_education.php](http://www.ohiowea.org/public_education.php)



## GOVERNMENT AFFAIRS COMMITTEE UPDATE

by Dale Kocarek, P.E., Chair

As we enter a new year, I would like to report on several things of interest to our members.

### **Nutrient Survey for Senate Bill 150**

As you may be aware, in cooperation with OAMWA, OWEA has asked our members to complete a survey on the existing and anticipated future costs to meet possible effluent limits for nutrient removal. The survey was sent out through multiple e-blasts in early December 2013. The end date for (this round) of the survey was January 7, 2014. I intend to ask the OWEA Executive Committee to continue this survey until our Government Affairs Workshop on March 13, 2014.

The purpose of the survey was to ask our members - mostly municipal point source dischargers - to provide fact based data on current or anticipated future costs for compliance associated with nutrients - namely total inorganic nitrogen and total phosphorus. Questions for the survey were carefully thought out to elicit important cost information but not place an undo burden on those completing the survey. The questions and format for the survey were developed by Elizabeth Toot-Levy and Guy Jamesson. I was pleased with the survey questions and format.

As we mentioned in prior notifications, we believe that it is critical for those in our community most impacted by future regulations the most, be an active and engaged party in intelligent discussions on the direction that our industry will be taking in Ohio regarding nutrient control, and for us to tell our side of the story. This will give us the voice that we wish, but also it will educate our legislators with more information to provide a balanced point of view. To be certain, the agricultural community provides ammunition through data funneled through the Ohio Farm Bureau and other organizations to define their position.

### **Ohio EPA, Water Quality Standards for Nutrients, Technical Advisory Group (TAG)**

The purpose of the Nutrient TAG is to establish a framework that allows interested groups to work in a collaborate manner with the Ohio EPA in developing a protocol for evaluating the need for and beneficial impact of nutrient controls on non point and point source discharges on Ohio's streams. The group hopes to develop a common sense approach based on good science to determine if the environmental response to lower effluent limits will be worthwhile.

Since the last issue of the Buckeye Bulletin, the Nutrient TAG has held three meetings. The kick off meeting was held on November 19, 2013, and the second meeting was held on December 10, 2013. A third all day meeting occurred January 9, 2014. The group

plans to meet monthly for the next year to identify a proposed plan of action for the Ohio EPA to take and develop rules. Based on conversations to date, it is anticipated that the Ohio EPA should go to rulemaking in 2015.

The composition of the Nutrient TAG is balanced between different factions, and persons representing all major interest groups are included. Members represent the agricultural, point source technology, small community systems, large community systems, and green technologies. The composition of the committee includes members, alternates, and interested parties. I was named as an "alternate" to Guy Jamesson for point source technology. Not only does my background as a former regulator, professional sanitary engineer, and wastewater operator qualify me for this role, but it also allows me the opportunity to chronicle the Nutrient TAG for our members.

Most of the first two meetings were wisely spent in general discussion and building a common understanding for terminology. The Ohio EPA led several excellent discussions on the Trophic Index Criteria (TIC).

The TIC is a quantitative tool used by the Ohio EPA to determine compliance with in stream water quality standards. The TIC is a composite numerical score that considers benthic assemblages, dissolved oxygen (DO), benthic algae, and nutrients. TIC scores range from 0-38. Lower scores tend to represent streams that exhibit loss of forest canopy, lack of benthic assemblages, and high DO fluctuation due to the photosynthetic behavior of benthic algae, and quantitatively measurable nitrogen and/or phosphorus present. If the streams are determined to be impaired, they are placed on the Ohio EPA's "303 (d)" list of impaired waters.

### **Government Affairs Workshop**

The Government Affairs Workshop will be held March 13, 2014 at the Northpointe Conference Center in Lewis Center, Ohio. Over the past several years, the workshop has been one of the better attended workshops. The agenda includes a wide range of topics. Workshop information is available on the next page.

### **The National Water Policy Forum & Fly-In**

The Government Affairs Committee plans to participate in the Fly-In to Washington DC again in April. The Water Environment Federation (WEF), National Association of Clean Water Agencies (NACWA), and the Water Environment Research Foundation (WERF) are teaming up for Water Week 2014 this year. More on the Fly In will be presented at a later date.

Dale Kocarek, P.E., BCEE

[dale.kocarek@stantec.com](mailto:dale.kocarek@stantec.com), 614.486.4383

**Featured Government Affairs Workshop Speakers (l-r):**  
 Craig Butler, Interim Director, Ohio EPA  
 Tyler Linton, Ph.D., Great Lakes Environmental Center  
 Jeff Reutter, Ph.D., Ohio Sea Grant, OSU



Earn up to 6.25 Contact Hours

Register online at [www.ohiowea.org](http://www.ohiowea.org)

- 7:30-8:00**    **Registration, Continental Breakfast, Visit with Exhibitors**
  
- 8:00-8:15    Welcome and Opening Remarks  
 - Dale Kocarek P.E., BCEE, Committee Chair  
 - Dan Sullivan, President, Ohio WEA
  
- 8:15-9:00    Ohio EPA Update  
 - Craig Butler, Interim Director, Ohio EPA
  
- 9:00-9:45    Ohio EPA Division of Surface Water Update  
 - Brian Hall, P.E., Assistant Chief, OEPA/DSW
  
- 9:45-10:00**    **Break in Exhibit Area**
  
- 10:00-10:45    Overview of New US EPA Ammonia Criteria  
 - Tyler Linton, Ph.D., Great Lakes Env. Center  
 - Lisa Huff, US EPA, Health & Ecological Criteria Division
  
- 10:45-11:30    Lake Erie: Current and Future Nutrient Issues  
 - Jeff Reutter, Ph.D., Director, Ohio Sea Grant, Ohio State University
  
- 11:30-12:45**    **Lunch Buffet in Conference Dining Room Visit with Exhibitors**
  
- 12:45-1:30    US EPA Update  
 - Tinka Hyde, Water Director, US EPA Reg. V
  
- 1:30-2:15    Ohio EPA Nutrient Criteria Development (T.I.C)  
 - Guy Jamesson, P.E., BCEE, City of Columbus  
 - Elizabeth Toot-Levy, NEORSD
  
- 2:15-2:30**    **Break in Exhibit Area**
  
- 2:30-3:15    New Ohio Home Sewage Rules  
 - Rebecca Fugitt, Ohio Dept. of Health
  
- 3:15-3:45    Environmental Career Ambassador Network  
 - Carolyn Watkins, Chief, OEPA Office Environmental Education
  
- 3:45-4:15    SRF Loan Program Status and Direction  
 - Alauddin Alauddin, Chief Ohio EPA, DEFA
  
- 4:15**    **Closing Remarks**

**Exhibitor Opportunities Available**

Workshop Sponsored by



March 13, 2014

NorthPointe Hotel and Conference Center

9243 Columbus Pike  
 Lewis Center, Ohio 43035  
 866.233.9393



Register online at [www.ohiowea.org](http://www.ohiowea.org)

or by phone at 614.488.5800

Registration Fee	
<input type="checkbox"/> OWEA/WEF Member <i>(or with new membership added)</i>	\$125
<input type="checkbox"/> Nonmember	\$175
<input type="checkbox"/> Member plus Exhibit Table <i>(or with new membership added)</i>	\$300
<input type="checkbox"/> Nonmember plus Exhibit Table	\$400
<input type="checkbox"/> Add Professional Membership	\$128
<input type="checkbox"/> Add PWO Membership	\$ 73
<input type="checkbox"/> Add Young Prof Membership	\$ 61
<b>Total Due</b>	
Enter OWEA/WEF #	
<input type="checkbox"/> I have read & agree to the OWEA refund policy	
Badge Name:	
Company:	
Address:	
Email:	
Phone:	
Method of Payment	
<input type="checkbox"/> Check #	
<input type="checkbox"/> P. O. #	
<input type="checkbox"/> Credit Card - you will be emailed a secure link to enter your credit card payment or you may call the OWEA office with your credit card number.	

**License/Certification Held?**

- Certified Operator                       Both
- Professional Engineer                     Neither

**Sector/Field?**

- Public Facility                               Manufacturer or Rep
- Private Facility                              Regulatory
- Engineering/Consulting                  Other



## LABORATORY ANALYSTS COMMITTEE

by Denise Seman, Chair

Hi Everyone!

Hope you had a great holiday, and your year is off to a fantastic start!

Save the Date for the Joint Operations/Lab Workshop. The workshop will be held May 21st & 22nd at the NorthPointe Hotel and Conference Center, 100 Green Meadows Drive South, Lewis Center, OH 43035. Follow Lab Munkee on Facebook and Twitter for upcoming events, and possibly some new games/challenges as we approach the state events. (@LabMunkee)

The LAC will be participating in the Ops Challenge Event that will be held at the annual conference in August. We will be looking for judges for this event, so please let me know if you are interested in helping out. (Photo - Lab Event at 2013 Ops Challenge)



### SW LAC – Jim Davis and Karen Tenore

In 2013 the Southwest Lab Analyst Committee held four meetings spread across the district. Sites included Dayton, Xenia/Greene County, Yellow Springs and Fairfield. We offered 12 contact hours with 196 people attending the meetings.

Our meetings for 2014 will be:

February 13th Montgomery County  
 April 17th Butler County  
 July 17th Hobart Bros. in Troy  
 October 16th YSI in Yellow Springs

To inquire about being added to our email list or to get information about attending, hosting, sponsoring or presenting at a future LAC meeting please contact:

Jim Davis, Montgomery County Water Services  
 DavisJi@mcoho.org, (937) 496-7051

Karen Tenore, City of Dayton  
 Karen.Tenore@daytonohio.gov, (937) 333-1845

Committee Members:

Darrin Honious, YSI  
 Lynette Hodnicki, City of Fairfield  
 Lori Kyle, Greene County  
 Greg Mitchell, City of Sidney  
 Roger Rardain, City of Fairborn  
 Teresa Shinkle, Greene County

### NE LAC – Bev Hoffman

Thank you to everyone that participated in making 2013 a successful year. The NESLAC offered 5.5 contact hours in 2013 with 65 people attending the meetings.

Our first NESLAC meeting for 2014 will be on March 7th at EnviroScience Inc. The meeting will include a tour of their new

laboratory facility and a presentation on bioassay, TIE/TRE, and a short discussion on invertebrates.

We will be planning our next meeting for May or June, so if anyone has a topic they would like to have presented or knows someone who would like to present a topic, please let me know. If you would like to be added to the NESLAC membership directory and receive automatic email updates for training events and other news, please send your contact information to Beverly Hoffman at NESOWEALAC@gmail.com.

Committee Members:

Beverly Hoffman nesowealac@gmail.com

Marie Simon marie@northcoastlabs.com

Lisa Feigle lisaf@gcdwr.org

Amy Starkey ajstarkey@co.stark.oh.us

### SE LAC – Melodi Clark

Welcome 2014!! This year is a big year for OWEA. Our state conference is a joint conference this year with AWWA the first one of its kind for us. I hope to see many of you there. It is going to be huge!!! On the lab front, for our Southeast section I have three meetings that are on the burner. We are looking at touring the City of Columbus Compost Facility, along with *quasar* this first quarter. Another meeting will be at the YSI facility and the other meeting BI Roxane has agreed to host here in Columbus. When dates and times are decided, details and online registration will be posted at [www.ohiowea.org](http://www.ohiowea.org). I still have room for one more meeting this year so any input or ideas or requests are greatly appreciated. This year is going to be an exciting one. Don't forget to put in an abstract for the State conference, as we want the Lab to be well represented. I am very excited for 2014. I think it is going to be a great year with some very interesting LAC meetings. I hope to see many of you there.

Melodi Clark, [MLClark@columbus.gov](mailto:MLClark@columbus.gov)

### NW LAC – Bridget Shiets

We postponed January meeting due to unpredictable weather. We are currently planning a spring meeting, topics Using Excel to calculate MDLs and Creating Control Charts with Excel.

If you have any topic ideas or presentations you may want to present at future meeting please email [wwtplab@cityofbellevue.com](mailto:wwtplab@cityofbellevue.com).

Bridget Shiets, [wwtplab@cityofbellevue.com](mailto:wwtplab@cityofbellevue.com).

### Lab Analysts Committee Contact Information

#### State Chair

Denise Seman, 330.742.8820, [dseman@cityofyoungstownoh.com](mailto:dseman@cityofyoungstownoh.com)

#### Northeast Chair

Beverly Hoffman, 440.446.4228, [nesowealac@gmail.com](mailto:nesowealac@gmail.com)

#### Southeast Chair

Melodi Clark, 614.645.1239, [mlclark@columbus.gov](mailto:mlclark@columbus.gov)

#### Northwest Chair

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#### Southwest Chairs

Karen Tenore, 937.333.1501, [karen.tenore@cityofdayton.org](mailto:karen.tenore@cityofdayton.org)

Jim Davis, 937.496.7051, [davisji@mcoho.org](mailto:davisji@mcoho.org)

## LABORATORY ANALYST CERTIFICATION BOARD

by Kathy Richardson, Vice Chair

**Congratulations** to all those who passed the fall round of the Voluntary Laboratory Certification Exams! 2013 was a very good year with the addition of 33 new or advancing Certificate holders.

**Class I**

- Maria Black
- Susan Brickner
- Nathan Doyle
- Stacie Hark
- Heather Kirkpatrick
- Lindsey Koplou
- Trey MacDonald
- Jennifer Macre
- Amanda Mikolajski
- Megan Muhar
- Jeremy Neill
- Brian Porter
- Kathleen Rish
- Carolann Sterkenburg
- John Witherell

**Class II**

- Jonathan Newman
- Jennifer Rossi
- Nichole Schafer
- Paul Skerl

**Class IV**

- Charles Plummer II

**Want to See Your Name Listed?**

The dates for the 2014 exams have been set!

- Spring exam date: Friday, April 25
- Application deadline: Friday, March 14
- Fall Exam date: Friday, October 24
- Application deadline: Friday, September 19

Applications at [www.ohiowea.org](http://www.ohiowea.org) on the Certification tab.

Thank you to the 400+ Certificate holders that renewed this past December & January! Remember that we are on a two-year cycle, so these certificates are valid until December 2015. The one month grace period has elapsed for renewing certificates expiring in 2013. If you missed the deadline, the fee is now \$95. Renewal applications can be found online.

If you have questions regarding exams or renewals, contact:

Kathy Richards, [certification@ohiowea.org](mailto:certification@ohiowea.org)

## COLLECTION SYSTEMS COMMITTEE

Bill Horst, Chair

The Collection Systems Committee met on January 16, 2014 at the OWEA Office. If you are interested in joining this active committee, contact Chair Bill Horst at [horstb@mcOhio.org](mailto:horstb@mcOhio.org). The committee will be holding the Collection Systems Specialty Workshop in May and planning for the four fall Hands-On Collection Workshops, held in each Ohio section.

Back l-r: Mark Buchenic, Don Gallimore, Bill Horst  
Front l-r: Dan Johnson, Judi Henrich, Afaf Musa



presented by



### Collection Systems Committee

NorthPointe Hotel and Conference Center  
9243 Columbus Pike  
Lewis Center, Ohio 43035  
866.233.9393

[www.northpointecenter.com](http://www.northpointecenter.com)

## 2014 COLLECTION SYSTEMS SPECIALTY WORKSHOP

Thursday, May 1, 2014

**6 Contact Hours / PDH's**

Online Registration will open in March  
[www.ohiowea.org](http://www.ohiowea.org)  
or call **614.488.5800**

**Interested Exhibitors**

Contact Afaf Musa  
[MusaAB@cdmsmith.com](mailto:MusaAB@cdmsmith.com)





## RESIDUALS COMMITTEE

by Jamie Gellner, Chair

Welcome to 2014! Recent news and our upcoming activities include the following:

**Biosolids Workshop** - The 2013 workshop was held on December 5, 2013 at NorthPointe Conference Center. We had a fantastic turnout, including over 140 registered participants. We sincerely thank our speakers and members of the committee that volunteered to help. A special thanks to Steven Reese for serving as moderator for the event. Also a big thank you to Judi and Amy for coordinating the venue and registration for this event.

For calendar year 2014, the Residuals Committee will be working on the following initiatives:

- ◆ Development of new promotional materials for biosolids - We will be building on a great year last year at the Farm Science Review to further develop our educational materials related to benefits of beneficial use of biosolids.
- ◆ Continue our working relationship with neighbor associations in IN and MI - During the past year, Rob Smith and Steven Reese have led our efforts in reaching out to Residuals Committees in Indiana and Michigan. We have had several conference calls and have exchanged a large amount of information. We'll continue this throughout 2014 and beyond.
- ◆ Alternate locations for our Residuals Committee meetings - We will be holding our other meetings at various locations in central Ohio this year, including some at treatment plants with contact hours for tours. If you have any ideas for possible venues for future meetings or would like to help coordinate these locations, please let me know. Please keep an eye on the OWEA website for updates on scheduled meetings.

- ◆ Review / discussion of P management requirements under revised land application regulations - As a committee, we are exploring ways to constructively evaluate and review the requirements for management of phosphorus in land applied biosolids. The revised regulations went into effect in July 2013 and will reduce the amount of land application possible in some areas. As a committee, we will strive to objectively review, discuss, and continue to inform you, the OWEA membership on the latest issues.
- ◆ Verify member list / update contacts - If you haven't received any correspondence from me and you would like to receive the correspondence related to committee activities, please send me an email (see contact information below). Please also drop me an email if your contact information has recently changed so that we can include you in upcoming activities.

We would love to have you as part of our committee. The Residuals Management Committee is focused on serving the OWEA membership through education, promotion of effective biosolids management, technical information on biosolids, and interface with OEPA on regulatory issues. We always welcome new membership and we would love to see you at our next meeting. If you are interested in getting involved or if you have any questions about the committee, please contact me.

Jamie Gellner

513.317.0337, [jgellner@hazenandsawyer.com](mailto:jgellner@hazenandsawyer.com)



Speakers and attendees at OWEA's December 5, 2013 Biosolids Workshop

Find OWEA on your favorite social network





## SAFETY COMMITTEE REPORT

by James Graham, Co-Chair

### DON'T GET CAUGHT OUT IN THE COLD WHEN IT COMES TO COLD WEATHER BASICS

#### How Cold is Too Cold?

Three factors contribute to cold stress: cold temperatures, high or cold wind, and dampness. Cold air, water and snow all draw heat from the body, and a cold environment forces the body to work harder to maintain its temperature. Wind chill - the combination of air temperature and wind speed - also has an influence on cold stress. For example, when you are outside in an air temperature of 30° F and a wind speed of 20 mph, your skin is exposed to conditions equivalent to an air temperature of 17° F. A wind chill calculator can be used to determine wind chill if the air temperature and wind speed are known.



While it is obvious that below-freezing conditions combined with inadequate clothing may bring about cold stress, it is important to understand that it can also be brought about by temperatures in the 50s coupled with rain and wind.

#### Your Body's Reaction to Cold

When in a cold environment, most of your body's energy is used to keep your internal temperature warm. Over time, your body will begin to shift blood flow from your outer skin and extremities - your hands, feet, arms and legs - to your chest and abdomen. Any exposed skin and your extremities will cool rapidly and the risk of frostbite and hypothermia will increase.

#### Hypothermia

Hypothermia is a potentially serious health condition that occurs when the body has fallen to a subnormal temperature. It often develops when someone is in a cold environment and body heat is lost faster than it can be replaced. Onset typically begins when the body temperature drops below the normal 98.6° F to around 95° F. The person affected begins to shiver and move the body in order to generate heat. As their body temperature continues to fall, the person will stop shivering and begin to demonstrate slurred speech, lack of coordination, and memory loss. Once the body temperature falls to around 85° F, the person may become unconscious. At 78° F, the person could die.

#### Who Is at Risk?

Cold stress is a risk for anyone working in a cold environment. However, older people may be at greater risk than younger adults since older people are not able to generate heat as quickly.

#### Preventing Cold Stress

When you are going to be working in cold weather, planning is your most important defense. Wearing appropriate clothing and being aware of how your body will react to the cold are instrumental in the prevention of cold stress. Avoiding alcohol, certain medications, and smoking can also help minimize risks.

#### Protective Clothing

Wearing the right clothing is the best way to avoid cold stress. The type of fabric you choose makes a big difference between keeping you warm and allowing you to get too cold. Cotton loses its insulation value when it becomes wet. Wool, on the other hand, retains its insulation even when wet.

The following are clothing recommendations to remember when you're working in cold environments:

- ◆ Wear at least three layers of clothing: A outer layer to break the wind and allow ventilation; a middle layer of wool to absorb sweat and provide insulation even when wet; and an inner layer of cotton or synthetic weave to allow ventilation.
- ◆ Wear a hat. Up to 40 percent of body heat can be lost when the head is exposed.
- ◆ Wear insulated boots or other cold weather protective footwear.
- ◆ Keep a change of dry clothing available in case your work clothes become wet.
- ◆ Do not wear tight clothing. Loose clothing allows better ventilation.

By incorporating these cold weather basics into your routine and working a good plan, you will keep yourself warm, dry, and above all, **SAFE** from the harmful effects cold weather can have on you!

James Graham, Safety Co-Chair  
jgraham@bgo.ohio.org

**This year's Ohio winter has provided many days  
when Cold Weather Basics were needed  
to stay safe when working outdoors.**



Photo by Southerly Wastewater Plant Operator Nick Fillipelli, NEORS  
These open-air aeration tanks inject air bubbles into the wastewater during the treatment process at the Southerly plant. As temperatures fell, nearing almost 40 degrees below zero with the wind chill, the surfaces froze, but water continued to bubble through holes in the ice.

## OHIO EPA RESOURCES AIM TO IMPROVE UNDERSTANDING AND COMPLIANCE

by Elizabeth Wick, P.E., Ohio EPA, NWDO, Division of Surface Water

When people think of Ohio EPA, they probably think first of our role as regulators and enforcers. But there is a lot of work that goes on behind the scenes to collect and analyze data about environmental conditions, as well as provide information, education and technical assistance.

As we move into 2014, here are a few things that Ohio EPA is working on to help make all of our jobs easier.

### Preparation of 2014 Integrated Report is Underway

Under Section 305(b)(33U.S.C. 1315) of the Federal Clean Water Act, U.S. EPA requires Ohio EPA to update the Integrated Water Quality Monitoring and Assessment Report (also called the Integrated Report) every two years in even-numbered years. The report describes the general condition of Ohio's waters and lists those that are currently impaired and may require Total Maximum Daily Load (TMDL) development in order to meet water quality standards. This list of impaired waters is referred to as the 303(d) list. The public notice of the draft 303(d) list should have been issued in mid-January with the final list to be issued in late February or early March. The report will be submitted to U.S. EPA in April 2014. More information about the Integrated Report can be found on Ohio EPA's web page at <http://epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx>.

### Electronic Records Searches

Under Ohio's public record laws, citizens have the right to view most Ohio EPA documents upon request. Ohio EPA's eDocument Search is designed to improve efficiency, reduce costs and greatly improve the public's ability to access Ohio EPA's public records from anywhere without copying costs. Currently, the system contains noncompliance documents issued since Jan. 1, 2007. Available documents include: any Agency letter citing violations of authorizing actions, laws or rules; any Agency letter documenting a corrected violation that was sent to the violator; unilateral and consensual director's final findings and orders; and Ohio Attorney General's orders on behalf of Ohio EPA. The database can be searched by document type, date range, facility name, county, program, secondary ID or any word or phrase that appears in a document. Ohio EPA will add many more documents over the next several years. Each time a new document type is

made available online, the eDocument Search page will be updated to inform users regarding what is available online. Any public records that cannot be found using the eDocument Search can be requested through the Agency's public records request process. More information is available here: <http://epa.ohio.gov/dir/publicrecords.aspx>.

### Revised "Greenbook"

In 2013, the Division of Surface Water published a revised draft version of the document, Sewage: Collection, Treatment & Disposal Where Public Sewers Are Not Available, otherwise known as the Greenbook. This document, last revised in 1993, is now titled, Division of Surface Water Design Standards: Wastewater Treatment Plants and Collection Systems Less Than or Equal to 100,000 GPD. The updated version can be found at [http://epa.ohio.gov/Portals/35/documents/greenbook\\_2013.pdf](http://epa.ohio.gov/Portals/35/documents/greenbook_2013.pdf).

The Greenbook provides guidance for Ohio EPA permit staff, design engineers, owners and operators of wastewater treatment plants. It addresses provisions to be considered for the treatment of domestic wastewater or wastewaters similar in strength and composition to domestic wastewater. Its emphasis is to outline Ohio EPA's recommendations for the extended aeration activated sludge treatment process. The intent of the Greenbook is to address requirements that will lead to approvable plans and specifications for wastewater treatment plants.

Although the guidance document is not regulation, the technical expertise and regulatory requirements in the guidance document will provide consistency with design and review across the State of Ohio. Throughout the Greenbook, several helpful hints are provided to give unique, experience-based perspectives with respect to wastewater treatment plant design. These tips are intended to provide an operational perspective to the engineer for incorporation into the design of treatment systems.

#### Helpful Tip #14:

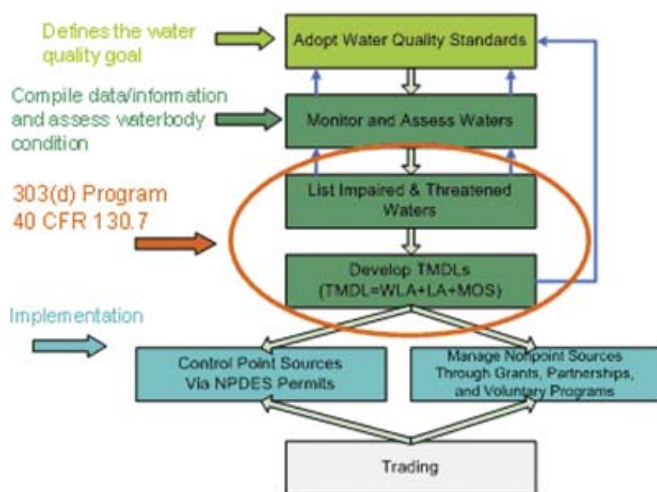
Standby blower(s) should be manifolded and valved so that independent operation of aeration tank air and air lift pumps can be configured. For instance, if the blower for an aeration tank is being operated with a timer in order to match aeration to the organic loading, the blower cycle might not be what would be required by the airlift sludge return pump. Being able to operate the airlift return pump independently from the aeration would allow the operator to provide the necessary air for both processes independently.

*An example of a Helpful Tip from the revised Greenbook.*

### Biosolids Program

By the time this article is published, every NPDES permittee should have submitted their annual biosolids report. It was due Jan. 31. If you need information about the biosolids program, see this section of Ohio EPA's web page: <http://www.epa.ohio.gov/dsw/sludge/biosolid.aspx>.

Starting July 1, 2013, Ohio's sewage sludge rules required beneficial users of biosolids to apply at the most limiting of either the nitrogen agronomic rate or the phosphorus agronomic rate in order to protect waters of the state from additional nutrient loadings. To assist facilities and biosolids beneficial users, the biosolids program developed a new Agronomic Rate Calculation



Water Quality-Based Approach of the Clean Water Act. (Taken from U.S. EPA website: <http://water.epa.gov/lawsregs/lawguidance/cwa/tmdl/intro.cfm>)



*If the fields near you look like this, it is frozen and snow covered.  
No land application can take place.*

worksheet. It can be found on the Compliance Tools tab of the biosolids program web page. The Agronomic Rate Calculation Worksheet serves to ensure compliance with Ohio Administrative Code Chapters 3745-40-08(A)(2)(b) and 3745-40-08(A)(3). This worksheet will automatically calculate the nitrogen agronomic rate, the single-year phosphorus agronomic rate, the multi-year phosphorus rate and the phosphorus index.

#### **Oil- and Gas- Related Fact Sheets**

Ohio EPA recently published two new fact sheets:

1. Storm Water Permitting for Oil- and Gas-Related Operations (<http://www.epa.state.oh.us/Portals/0/general%20pdfs/StormWaterPermittingforOilandGasRelatedOperations.pdf>)
2. Horizontal Directional Drilling for Utility Line Installation (<http://www.epa.state.oh.us/Portals/0/general%20pdfs/HorizontalDirectionalDrillingforUtilityLineInstallation.pdf>)

The first fact sheet clarifies the intent of the National Pollutant Discharge Elimination System (NPDES) storm water exemption and identifies which activities are exempt and not exempt from NPDES construction and industrial storm water permitting. The second fact sheet describes disposal of horizontal directional drilling wastes and protection of water resources.



#### **Compliance Assistance**

The Division of Surface Water's best kept secret is our Compliance Assistance Unit (CAU) made up of Keith Kroeger, Jon van Dommelen, Richard Smith and Victor Reverendo. These four CAU members help bring wastewater treatment plant (WWTP) facilities into compliance and/or to maintain compliance. They travel all over Ohio helping smaller communities with wastewater treatment plants of less than 5 MGD identify their performance-limiting factors and create cost-effective solutions to bring them back into compliance. Many communities are operating in compliance at the same or lower operating cost than prior to participation in the assistance program. In many cases, the cost for compliance is also more economical than paying a penalty for noncompliance. Implementing preventive maintenance programs and identifying energy savings are the methods most used to reach a cost-effective result.

Many of the small package plants in Ohio have trouble consistently meeting permit effluent limits and end up in significant noncompliance. In order to help more entities attain and maintain compliance, the CAU developed a process control flow chart and trained several staff in the Northwest and Central District Offices on the basics of compliance assistance. The staff uses the flowchart, aquarium ammonia test kits, alkalinity test kits, settleometers, core samplers and a centrifuge to assess WWTP conditions. Recommendations for operational adjustments are made to the operator based on the results of the analysis. This increased outreach has helped operators of several small plants develop tools to achieve compliance.

For more information about the CAU, see [http://epa.ohio.gov/dsw/compl\\_assist/compasst.aspx](http://epa.ohio.gov/dsw/compl_assist/compasst.aspx).

Ohio EPA's mission is to protect the environment and public health by ensuring compliance with environmental laws and demonstrating leadership in environmental stewardship. We are here to regulate facilities, but as can be seen by the information above, we are also here to assist facilities. As we move into the challenges of the future, let Ohio EPA know if there is a topic on which you would like more information. Ohio EPA and OWEA can partner on educating those involved in protecting Ohio's water resources.

*"Never doubt that a small group of thoughtful,  
committed, citizens can change the world.*

*Indeed, it is the only thing that ever has." - Margaret Mead*

Elizabeth Wick P.E.  
Ohio EPA, NWDO  
[Elizabeth.Wick@epa.ohio.gov](mailto:Elizabeth.Wick@epa.ohio.gov)

#### **Ohio EPA Announces Alternative Water and Wastewater Operator Certification Examinations**

The State of Ohio has approved the Association of Boards of Certification (ABC) as a third party examination provider. Beginning January 20, 2014 operators may choose to take an ABC examination and then seek State of Ohio certification for all levels except Class IV. ABC examinations will be offered in Cleveland, Cincinnati, Columbus, Dayton, and Toledo. To schedule an examination or find out more about the ABC certification program, please visit ABC's Ohio Certification website at [www.abccert.org/Ohio\\_EPA/certification\\_process.asp](http://www.abccert.org/Ohio_EPA/certification_process.asp). Ohio EPA will continue to offer paper and pencil examinations in Columbus in the spring and fall of each year. If you have any questions, feel free to contact the operator certification unit at 1-866-411-OPCT (6728) or by email at [opcrt@epa.ohio.gov](mailto:opcrt@epa.ohio.gov).





**“WITH ROOTX, IT’S JUST MIX, POUR, AND YOU’RE GOOD TO GO.”**

Jerry Weimer,  
Metropolitan Sewer District,  
Cincinnati, OH

### REDUCE COSTLY SSOs

Jerry Weimer and the crews in Cincinnati used to contract out their root control work. Then they found an easy-to-use, more affordable option: RootX. Today, they do all of their root control work with their existing equipment and crews, on their schedule.

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## ROLL CALL



**Guy Jamesson, PE**, has accepted a position with the City of Columbus, Division of Sewerage and Drainage. Guy will be working on a part time basis as a Project Engineer with an emphasis on water quality and compliance issues, as well as advising on process related matters for the City's treatment facilities. Guy previously worked 39 years as a consultant, assisting numerous municipal and industrial clients with wastewater treatment process and regulatory compliance matters.



**Tom Merritt** has recently been appointed Vice President, Business Operations of H.R. Gray - a Columbus, Ohio-based firm providing program management and construction management services and a division of The Haskell Company. For the last 10 years, Merritt has directed the firm's communications, marketing, advertising and media strategy development, human resource and financial initiatives as director of business development. In his new role, Merritt will work closely with members of senior leadership at H.R. Gray and The Haskell Company to align people and business strategies while executing and growing business operations. In December 2012, H. R. Gray was acquired by Haskell – one of the nation's leading design-build firms, headquartered in Jacksonville, Fla. Since joining the H.R. Gray team in March 2003, Merritt served in many capacities overseeing administration, marketing, and business development.



**Jeff Olsen, PE**, is carrying out the role of the recently added position of Branch Manager to RJN's Cincinnati office. Mr. Olsen is a Professional Engineer with over 20 years of progressive technical and management experience and an established reputation in southern Ohio and northern Kentucky. Mr. Olsen has been responsible for over \$550 million in constructed projects, including serving as project manager for an award-winner sewer tunnel that was completed 6 months ahead of schedule and \$30M under budget. In addition, he was responsible for developing the first alternative delivery project by an Ohio county sewer district.

As Branch Manager, Mr. Olsen will be focused on branch operations, business development and client relationships.

Mr. Olsen is a past president of the southwest section of OWEA and served as 2013 OWEA Annual Conference co-chair, which set records for attendance.



**Erik Torgersen, P.E.**, has joined Delaney and Associates, Inc. as a Sales Associate for water and wastewater treatment equipment for southern Ohio. Erik has nearly 20 years of experience in the design and construction of water and wastewater treatment facilities. Erik previously worked in the Cincinnati area as a consulting engineer for Malcolm Pirnie/ARCADIS and for Advanced Treatment Sciences.

Erik is a registered Professional Engineer in Ohio and received his bachelor's degree in civil engineering from the University of Dayton. He has been a WEF and OWEA member since 1999 and is a member of the Southwest OWEA Plant Operations Committee.

*OWEA members may submit brief announcements with photo for publication in the Buckeye Bulletin.*

*Complete the Roll Call form at*

*<http://www.ohiowea.org/memberships.php>*

*or email [info@ohiowea.org](mailto:info@ohiowea.org).*

*All requests subject to editorial review.*

## WELCOME NEW MEMBERS

*who joined OWEA from October to December 2013*

Mike Abraham

Brian D Alger

Theodore Bennett

Rachit Bhayani

Corin Bonnett

Jeremy Bowser

Tim Calvin

Matt Carpenter

Neal E Chamberlain

Tiffanie A Cole

Pam Cornish

Abigail Cronin

George Elmaraghy

Michael Foster

Todd A Garwick

Steven George

Jessica Glowczewski

Achal Grag

Jon Groff

Mike A Haught

Judy M Heiser

Rachel Jarman

William A Kasberg

Edmund Kolodziej

Mark Landers

Michael W Ledford

Terrence M Lyons

Richard Makiuchi

William McReynolds

Bruce Metz

Larry Montgomery

Steve Morris

Steen Nissen

Michael A Panno

Michael George Paschka

Brett Patterson

Jeff Pocisk

Ron Polen

Larry Reeder

Joseph Romano

Nicole Rubenstein

Mark Sheley

Mike Taylor

Sandra Vozar

Mark Warren

Gary Yelenosky

Corey Yugulis

**Thank you for joining the Ohio Water Environment Association.**

**We welcome your contribution to preserving and enhancing Ohio's water quality environment.**

**REFER A NEW MEMBER TODAY** Help grow Ohio's best water professional association.





Ohio WEA-AWWA 2014 Technical Conference & Expo

www.onewaterohio.org



Ohio Water Environment Association

Ohio Section American Water Works Association

Hilton Columbus Downtown

August 26-29, 2014

Greater Columbus Convention Center

## Make Plans to Attend the First Ever Joint Ohio Water Professionals Technical Conference and Expo

### History - How the Joint Conference Came to Be

Ohio's water professionals have long realized that there really is only "One Water." You may treat it for drinking, home, and industrial use or you may treat it after it has been consumed by people, used in homes, businesses and industry, or run off our streets and buildings, but we are all working with a finite resource.

The membership of the Ohio Water Environment Association and Ohio Section of the American Water Works Association attend many of the same conferences, work for the same utilities or consulting firms, and serve the same public and clients. OAWWA and OWEA have collaborated to attend Government Affairs Fly-Ins to discuss water issues with our country's legislators. The associations' sections and committees have worked together to hold meetings, encourage students to consider professions in the water field, and raise money for Water for People. It made complete sense to hold a joint water professionals conference.

In the summer of 2011, the conversation began. After several meetings, a Memorandum of Understanding was signed by the two organizations in early 2012. The sites of the Hilton Columbus Downtown and Greater Columbus Convention Center were selected in the summer of 2012.

And then the planning began. A Conference Committee of nearly 60 volunteers, equally representing both organizations, is working to bring you an educational and memorable conference experience.

### You Are Invited to Attend

We hope you will take advantage of this unique opportunity to network with and learn from the best in Ohio's water quality community. An excellent technical program, expansive exhibit expo, and multiple networking events will await you.

Kurt Smith, Chair, Ohio AWWA  
kurt.smith@arcadis-us.com

Mike Spriggs, OAWWA Conference Co-Chair  
maspriggs@columbus.gov

Jill Taptich, OAWWA Conference Co-Chair  
jetaptich@columbus.gov

Dan Sullivan, President, Ohio WEA  
dan@sullivanenvtec.com

Rob Herr, OWEA Conference Co-Chair  
rcherr@columbus.gov

John Newsome, OWEA Conference Co-Chair  
jgnewsome@columbus.gov



@OneWaterOhio

#### TECHNICAL TRACKS

- Drinking Sourcewater
- Energy Sustainability
- Green Technologies Lab
- Maintenance
- Operations
- Regulatory
- Residuals/Recovery
- Stormwater
- Utility Management
- Wastewater Collections
- Wastewater Treatment
- Water Distribution
- Water Treatment
- Workforce Development

Bringing more Ohio water professionals together than ever before

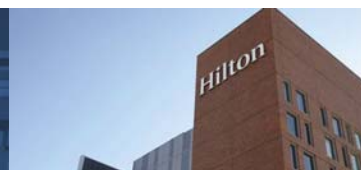
ONE TIME ONE PLACE  
ONE WATER OHIO



The two premier Ohio water associations are teaming up and working together to hold a joint water professionals conference in 2014.

The joint conference will be held August 26-29, 2014 at the new **Hilton Columbus Downtown** and **Greater Columbus Convention Center**, which are connected by a stunning glass skywalk.

Information and registration at [www.onewaterohio.org](http://www.onewaterohio.org)



**Diamond Sponsor**



**Emerald Sponsor** - none to date

**Ruby Sponsor**



**Sapphire Sponsor**



**Golf Hole Sponsor**

ACLARA   American Cast Iron Pipe Company   DN Tanks, Inc.   GRW Engineers, Inc.   Star Pipe Products

**One Water Sponsorship Levels:**

Diamond.....	\$3000
Emerald .....	\$1500
Ruby .....	\$1000
Sapphire .....	\$500
Golf Hole .....	\$250

**Sign-Up options:**

Online: [www.onewaterohio.org](http://www.onewaterohio.org)

Phone: 614.488.5800

If you prefer to mail or fax a form, printable sign-up forms are available online.

Email: [info@onewaterohio.org](mailto:info@onewaterohio.org)

Fax: 614.488.5801

\* Sponsors Committed as of 2/2/14

**We Invite Your Company to Join Us in Supporting the First Ever Joint Ohio Water Professionals Technical Conference and Expo**  
Sign Up Online at [www.onewaterohio.org](http://www.onewaterohio.org) or call 614.488.5800

**Sponsorship Recognition**

- ❖ Event Signage
- ❖ Conference Program
- ❖ Conference Web Site
- ❖ OWEA & OAWWA pre- and post-Conference Magazines
- ❖ One Water Social Media



## TUESDAY, AUGUST 26

8:30 a - 5:00 p	Golf Outing - Foxfire Golf Club
7:00 a - 10:00 p	Registration - Hilton <i>sponsored by ARCADIS</i>
10:00 a - 4:00 p	Management Development Seminar
10:00 a - 4:00 p	Emerging Issues for Source Water Workshop
10:00 a - 4:00 p	One Water Facilities Tours - Water & Wastewater
10:00 a - 4:00 p	One Water Maintenance Tour
9:00 a - 4:30 p	Spouse/Guest Program
6:00 p - 9:00 p	Exhibitor Setup - Conv Center Hall C
6:00 p - 10:00 p	Welcome Gathering - Barley's

## WEDNESDAY, AUGUST 27

6:00 a - 7:00 p	Registration - Hilton <i>sponsored by ARCADIS</i>
7:00 a - 9:00 a	Exhibitor Setup - Conv Center Hall C
7:00 a - 9:00 a	Kick-Off Breakfast & Awards - Hilton
9:00 a - 4:00 p	Technical Sessions - Two Tracks in C-Pod
9:00 a - 5:00 p	Exhibit Exposition Open - Conv Center Hall C
9:00 a - 5:00 p	Exhibit Tours ( <i>earn Contact Hours Times TBA</i> )
9:00 a - 5:00 p	OAWWA Tapping, Top Ops, Taste Competitions
9:00 a - 5:00 p	OWEA Ops Challenge <i>sponsored by OVIVO</i>
9:00 a - 4:30 p	Spouse/Guest Program
12:30 p - 2:00 p	Box Lunch in Expo Hall - Conv Center Hall C
5:00 p - 7:00 p	Expo Social & Awards <i>sponsored by Brown and Caldwell</i>
5:00 p - 7:00 p	OAWWA Meter Madness
7:00 p - 11:00 p	Meet & Greet - Brothers <i>sponsored by CT Consultants</i>

## THURSDAY, AUGUST 28

7:30 a - 6:30 p	Registration - Hilton <i>sponsored by Hazen and Sawyer</i>
7:00 a - 8:30 a	Continental Breakfast <i>sponsored by Stantec</i>
8:00 a - 11:45 a	Tech (6 Concurrent Sessions) - Hilton
9:00 a - 4:30 p	Spouse/Guest Program
11:30 a - 1:30 p	Lunch - Conv Center Hall C
1:30 p - 4:30 p	Technical Sessions (6 Concurrent Sessions)
4:30 p - 6:00 p	OAWWA Business Meeting & Awards - Hilton
4:30 p - 6:00 p	OWEA Membership Meeting & Awards - Hilton
6:30 p - 10:00 p	One Water Gala, Awards, & Entertainment - Hilton

## FRIDAY, AUGUST 29

7:00 a - 12:00 p	Registration - Hilton <i>sponsored by Hazen and Sawyer</i>
7:00 a - 8:30 a	Continental Breakfast <i>sponsored by Stantec</i>
7:00 a - 8:30 a	OWEA 5S Breakfast <i>sponsored by Jones &amp; Henry</i>
7:00 a - 8:30 a	OAWWA Award Winners & Past Presidents Breakfast
8:00 a - 11:45 a	Tech Sessions (3 Concurrent Sessions) - Hilton
10:00 a - 12:00 p	OAWWA Governing Board Meeting - Hilton
10:00 a - 12:00 p	OWEA Executive Committee Meeting - Hilton
12:00 p - 1:00 p	Joint Board Meeting Lunch - Hilton

### Registration options:

Online: [www.onewaterohio.org](http://www.onewaterohio.org) Phone: 614.488.5800

If you prefer to mail/fax a form, printable registration forms available online

Email: [info@onewaterohio.org](mailto:info@onewaterohio.org)

Fax: 614.488.5801



Ohio Section American Water Works Association

[www.onewaterohio.org](http://www.onewaterohio.org)



American Water Works Association



Ohio Water Environment Association

Attendee Registration Fees	Early Rates End Aug 11	Late Rates Begin Aug 12
Tuesday Preconference Workshops (includes Lunch)	\$ 85.00	\$ 110.00
Tuesday Preconference Tours (includes Lunch)	\$ 85.00	\$ 110.00
Preconference Workshop Student	\$ 30.00	\$ 55.00
Full Conference Member	\$ 295.00	\$ 345.00
Full Conference Nonmember	\$ 395.00	\$ 445.00
Full Conference Member Retired (not working)	\$ 200.00	\$ 235.00
Full Conference Student (ID required)	\$ 50.00	\$ 75.00
Wednesday Only Member	\$ 170.00	\$ 195.00
Wednesday Only Nonmember	\$ 220.00	\$ 245.00
Thursday Only Member	\$ 170.00	\$ 195.00
Thursday Only Nonmember	\$ 220.00	\$ 245.00
<i>Budget Options - No Food, Beverage, or Events Included</i>		
Wednesday Technical Program/Expo Only	\$ 75.00	\$ 100.00
Thursday Technical Program/Expo Only	\$ 75.00	\$ 100.00
Friday Half Day Technical Program	\$ 50.00	\$ 75.00
Full Technical Program Only	\$ 200.00	\$ 275.00
Guest Ticket Kick-off Breakfast Hilton Wed	\$35.00	\$35.00
Guest Ticket Wed Brother's Reception	\$60.00	\$60.00
Guest Ticket Upscale Reception Hilton Thur	\$65.00	\$65.00
Spouse/Guest Program + 3 Event Guest Tickets	\$195.00	\$245.00
Spouse/Guest Program Activities Only	\$140.00	\$190.00
Exhibitor Registration Fees	Early Rates End Jun 26	Late Rates Begin Jun 27
Exhibitor (includes Conference Registration for Primary Exhibitor)	\$ 875.00	\$ 975.00
Extra Booth Attendant	\$ 85.00	\$ 85.00
Extra Booth Attendant Limited no Food/Bev	\$ 30.00	\$ 30.00
Golf Outing Fees		
Golf Registration Foursome		\$300.00
Golf Registration Individual		\$75.00
Sponsorship Levels		
Diamond Sponsor		\$3000.00
Emerald Sponsor		\$2000.00
Ruby Sponsor		\$1000.00
Sapphire Sponsor		\$500.00
Golf Hole Sponsor		\$250.00

### Hotel Information

**Hilton Columbus Downtown**  
401 North High Street  
Columbus, Ohio 43215  
614.384.8600

One Water lodging rate available Aug 25, 26, 27 & 28, 2014.  
Rates from \$142/night + tax  
Make your reservations via the link at [www.onewaterohio.org](http://www.onewaterohio.org)  
or Contact the Hilton Columbus Downtown directly  
**Cutoff date for reservations is Monday, August 11th.**

### Convention Center Information

**Greater Columbus Convention Center**  
400 North High Street  
Columbus, OH 43215  
614.827.2500





# Calling all Water & Wastewater Operators!

## Don't Miss the First Ever Joint OWEA & OAWWA Conference

August 2014 - Columbus, Ohio  
Register online at [www.onewaterohio.org](http://www.onewaterohio.org)



More training and continuing education opportunities than ever!  
**OVER 18 HOURS AVAILABLE**



### Over 18 Water & Wastewater Hours Available

**Tuesday, 8/26**

- Preconference
- Workshops and Tours
- One Water Facilities Tours - W & WW
- One Water Maintenance Tour
- Management Development Seminar
- Emerging Issues for Source Water

Possible CH/PDH: 5 hrs

**Wednesday, 8/27**

- Expo - 150+ Exhibitors
- Exhibitor Tours
- Technical Sessions
- WW Operations Challenge
- Water Competitions

Possible CH/PDH: 5 hrs

**Thursday, 8/28**

- Expo - 150+ Exhibitors
- Technical Sessions
- 6 Concurrent Tracks
- Water, Wastewater & Both
- Contact Hours/PDH's available

Possible CH/PDH: 5.5 hrs

**Friday, 8/29**

- Technical Sessions
- 3 Concurrent Tracks
- Water, Wastewater & Both
- Contact Hours/PDH's available

Possible CH/PDH: 3 hrs

Registration options are available to fit any training or continuing education need, from full conference, preconference workshops, or single day technical sessions.

Register online at [www.onewaterohio.org](http://www.onewaterohio.org)



@OneWaterOhio



Attendee Registration Fees	Early Rates End Aug 11	Late Rates Begin Aug 12
Tuesday Preconference Workshops (includes Lunch)	\$ 85.00	\$ 110.00
Tuesday Preconference Tours (includes Lunch)	\$ 85.00	\$ 110.00
Preconference Workshop Student	\$ 30.00	\$55.00
Full Conference Member	\$ 295.00	\$ 345.00
Full Conference Nonmember	\$ 395.00	\$ 445.00
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Wednesday Only Nonmember	\$ 220.00	\$ 245.00
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Thursday Only Nonmember	\$ 220.00	\$ 245.00
<i>Budget Options - No Food, Beverage, or Events Included</i>		
Wednesday Technical Program/Expo Only	\$ 75.00	\$ 100.00
Thursday Technical Program/Expo Only	\$ 75.00	\$ 100.00
Friday Half Day Technical Program	\$ 50.00	\$ 75.00
Full Technical Program Only	\$ 200.00	\$ 275.00

Contact **One Water Ohio** if you need assistance or information  
614.488.5800 or [info@onewaterohio.org](mailto:info@onewaterohio.org)

## 150+ Exhibitors, Contact Hour Tours, Lunch Wed & Thur, Wed Expo Social, OWEA & OAWWA Competitions

**Exhibitor Registration**  
Expo: August 27 & 28, 2014  
Register Online at [www.onewaterohio.org](http://www.onewaterohio.org)



Bringing more Ohio water professionals together than ever before  
**ONE TIME ONE PLACE ONE WATER OHIO**

@OneWaterOhio

@OneWaterOhio is following our exhibitors. Are you?

**Exhibit Expo**  
Wednesday, Aug 27, 2014  
❖ Open 9 am - 5 pm  
❖ Lunch in Expo Hall  
❖ Expo Social/Awards 5 - 7 pm  
Thursday, Aug 28, 2014  
❖ Open 9 am - 2 pm  
❖ Lunch in Expo Hall

**Exhibitor Recognition**  
❖ Conference Program  
❖ onewaterohio.org  
❖ OWEA & OAWWA Publications

**Exhibitor Registration:**  
Includes Full Conference Registration for Primary Exhibitor  
Exhibitor (until June 26) .....\$875  
Exhibitor (beginning June 27).....\$975  
Extra Booth Attendant.....\$85  
Extra Booth Attendant Limited no Food/Bev.....\$30

**Registration options:**  
Online: [www.onewaterohio.org](http://www.onewaterohio.org)  
Phone: 614.488.5800  
If you prefer to mail or fax a form, printable registration forms are available online.  
Email: [info@onewaterohio.org](mailto:info@onewaterohio.org)  
Fax: 614.488.5801

Registered Exhibitors as of 2/2/14

- |   |  |   |
|---|--|---|
| <p>ACLARA<br/>AllMax Software, Inc.<br/>Alloway<br/>American Cast Iron Pipe Company<br/>Association of Boards of Certification<br/>Badger Meter<br/>Boerger, LLC<br/>Brentwood Industries<br/>Cambridge Brass, Inc.<br/>CB&amp;I Constructors, Inc.<br/>Chesley Associates, Inc.<br/>Covalen<br/>DN Tanks, Inc.<br/>Duke's Root Control, Inc.</p> | <p>E &amp; I Corporation<br/>EnviroScience, Inc.<br/>Gray Matter Systems<br/>GRW Engineers, Inc.<br/>H.R. Gray<br/>HOBAS Pipe USA<br/>Integrity Aquatic, LLC<br/>Jacobs Associates<br/>M Tech Company<br/>Mississippi Lime Company<br/>Nelson Environmental Inc.<br/>Odle Inc. Coating &amp; Painting<br/>Ohio RCAP<br/>OHWARN</p> | <p>Parkson<br/>Pure Technologies<br/>Reed Manufacturing Company<br/>Rockwell Automation<br/>Spectrashield Liner Systems<br/>Sullivan Environmental Technologies, Inc.<br/>T&amp;M Associates<br/>The Bergren Associates, Inc.<br/>The Henry P. Thompson Co<br/>Trumbull<br/>UGSI ChemFeed, Inc.<br/>Waterworks Systems &amp; Equipment, Inc.<br/>Zenner USA</p> |
|---|--|---|

## Water and Wastewater Competitions and Challenges

### OAWWA Water Competitions

Water Tapping Contest  
Water Taste Test Competition  
Tops Ops Contest  
Meter Madness

### OWEA Operations Challenge

Process Control (*Tuesday*)  
Laboratory  
Safety  
Collections  
Maintenance

**See Teams in Action Wednesday, Aug 27!**

### OAWWA Water Competitions

**Pipe Tapping** contest is a competition of skill in which three workers and a coach from each participating utility work against the clock to mount a tapping machine on a pressurized ductile iron pipe, tap a hole, insert a corporation stop, and attach a length of copper to a meter setting with a curb stop set at the correct angle in the middle. Each team will have 2 chances. One team from each Men's and Women's division with the best time overall with or without penalties wins.

**Top-Ops** is a fast-paced contest that pits teams of operators from different utilities against each other with questions in the area of water treatment. The winning team in each round will advance to the next level until a champion is determined.

**Meter Madness** challenges contestants to put together a completely disassembled meter against the clock. To make the contest more interesting, three to six miscellaneous parts are included in the bucket of meter components. Once the meter is assembled, it must operate correctly and not leak.

### OWEA Operations Challenge

All teams will compete in all events. Each event will be judged and scored separately against established criteria.

**Maintenance.** Teams will be required to perform a variety of maintenance functions on a pump. There is a new pump this year and this will be the first time many of the teams will be competing on this pump.

**Collection Systems.** Teams will cut out a "cracked" section of gravity PVC sewer pipe with water circulating through it. Drill a hole in a piece of PVC pipe on a separate stand. Install a saddle connection with gaskets and two straps to represent a house connection. Cut and install the section with saddle and install the section with "flexible" repair couplings. The water tightness of the repair will be evaluated.

**Safety.** Teams will respond to an unconscious worker overcome by an unknown chemical in a manhole requiring rescue.

**Process Control.** Teams will solve problems including process control "story" problems and multiple choice theory and math.

**Laboratory.** The lab event will be a performance based seeded BOD set up. The proper steps for pH, seeding, labeling, DO on and results calculations of a seeded set will be judged on performance and speed. The steps will need to be performed from memory.

Each event will be timed separately and all team members are expected to participate.

OAWWA Water Competitions Contact:  
Pat Crumley, [pmcrumley@columbus.gov](mailto:pmcrumley@columbus.gov)

OWEA Operations Challenge Contact:  
Kim Riddell, [kim@go-smith.com](mailto:kim@go-smith.com)



### Spouse/Guest Program

**Significant Others** travelling to the 2014 One Water Technical Conference & Expo are invited to participate in our fun-intensive One Water Spouse/Guest Program! We are planning an excursion to the world-class Easton Town Center for a fulfilling day of unlimited quality shopping. Also planned is a wonderfully relaxing day at a Spa, complete with an exquisite selection of delightful pampering to choose from! Transportation provided to and from these excellent destinations and more exciting events that we have planned.

Come along with us to One Water to join the adventures. Experience Columbus in all of its glory!





## GOLF OUTING

Tuesday, August 26th - 10 a.m. Shotgun Start at Foxfire Golf Club

Where: The Foxfire Golf Club  
10799 Ste Rt 104  
Lockbourne, OH 43137  
614.224.3694

Times: 8:30 a.m. Registration Open  
8:30 a.m. Driving Range Open  
10:00 a.m. Shotgun Start

Keg *sponsored by Thermal Process Systems*  
Lunch *sponsored by CH2M Hill*



\$300 Foursome/\$75 Individual includes:  
Coffee/Pastries/Lunch/Beverages, Green Fees and Cart,  
Driving Range, Awards Ceremony/Appetizers

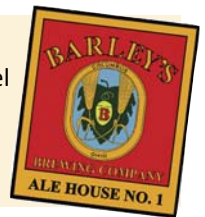
Register online at [www.onewaterohio.org](http://www.onewaterohio.org)

Foxfire Golf Club boasts 36 holes of championship golf, the Foxfire and the Players Club. The layout is a deft combination of traditional American golf and traditional British links design that provides the perfect complement to the original.

## WELCOME GATHERING

Tuesday, August 26, 6 to 10 pm at Barley's/Lower Level

Meet up with your fellow water professional colleagues from around the state and plan your conference experience. Appetizers provided. Beverages on your own.



## KICK-OFF BREAKFAST

Wednesday, August 27, 7 to 9 am at the Hilton

Bring your appetite and your appreciation for the first set of 2014 OAWWA & OWEA award winners to the Kick-Off Breakfast. You will be welcomed to the City of Columbus for this first ever joint water professionals conference.



## EXPO SOCIAL

Wednesday, August 27th - 5 to 7 pm Convention Center C-Hall

Take time to visit with more exhibitors, show your appreciation for the second set of 2014 OWEA & OAWWA award winners and find out who won the day's competitions. *sponsored by Brown and Caldwell*



## MEET & GREET

Wednesday, August 27th, 7 to 11 pm at Brothers

Live music by "The Slang", plenty of delicious "made from scratch" specialties and beverages, all in the fun environment provided by Brothers. Connect with new friends in the water industry or rekindle old friendships. Any late scoring results from the day's competitions will be announced at the Meet & Greet. *sponsored by CT Consultants*



## ASSOCIATION MEETINGS

Thursday, August 28th, 4:30 to 6 pm at the Hilton

One of the few times the conference crowd will divide up as OWEA & OAWWA meet with their association members and hand out additional awards.



## ONE WATER GALA

Thursday, August 28th, 6:30 to 10:00 pm at the Hilton

Enter the grand Hilton Ballroom for a fine evening of entertainment, food, and festivities. The Hilton Chefs will create a sumptuous sampling to please every palate. The final slate of OAWWA & OWEA award winners will be acknowledged for their excellence in the water quality field. Watch for an update from the Conference Committee on the evening's live entertainment!

AWARDS



@OneWaterOhio



## Register Online at [onewaterohio.org](http://onewaterohio.org)

First Name <i>(for name badge)</i>		Last Name	
Company Name			Title
Address			
City		State	Zip
Email:		Tel #:	
Member? <input type="checkbox"/> OAWWA <input type="checkbox"/> OWEA <input type="checkbox"/> Both # _____		Spouse/Guest Name <i>(if attending)</i>	

Conference Registration	Registration Type	by Aug 11	Begin Aug 12	Row Total
<b>Full Conference includes:</b> Technical Sessions, Expo Events, Kick-Off Breakfast, Wed/Thu Lunches, and Evening Networking Events	Full Conference Member	\$295 <input type="checkbox"/>	\$345 <input type="checkbox"/>	
	Full Conference Nonmember	\$395 <input type="checkbox"/>	\$445 <input type="checkbox"/>	
	Full Conf Member Retired <i>(not working)</i>	\$200 <input type="checkbox"/>	\$235 <input type="checkbox"/>	
	Full Conference Student <i>(ID Req'd)</i>	\$50 <input type="checkbox"/>	\$75 <input type="checkbox"/>	
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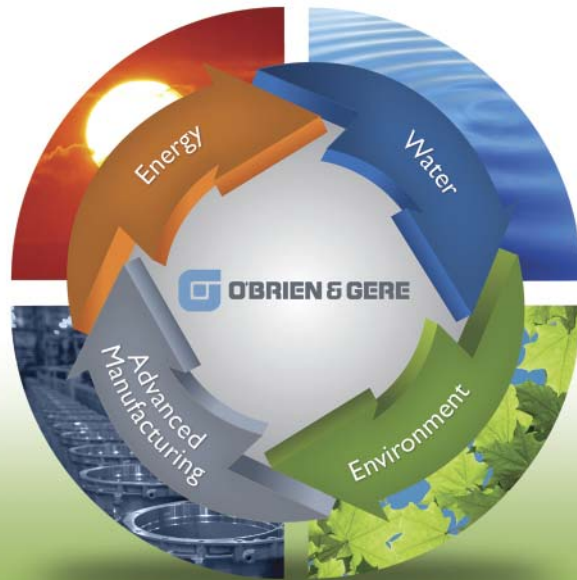
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## USING A STREAMING CURRENT MONITOR IN WASTEWATER TREATMENT

by Jason Grooms, Plant Operator; Dave Wilson, Plant Supervisor;  
Jarrod Yost, Engineering Technician 3; and Chris Bingham, Engineering Technician 3  
Metropolitan Sewer District of Greater Cincinnati

### **Abstract**

The Metropolitan Sewer District of Greater Cincinnati (MSDGC) conducted a pilot study in 2013 on their Chemically Enhanced High Rate Treatment (HRT) unit located onsite at the Sycamore Creek wastewater treatment plant (WWTP) in northeastern Hamilton County, Ohio. The purpose of the pilot study was to determine if a streaming current meter could help lower chemical costs and increase the treatment efficiency of the HRT unit. Using a meter designed for use in clean, consistent flow streams like that of drinking water plants proved to be somewhat challenging, as MSDGC desired to use the streaming current meter in the very turbid waters of wastewater treatment. MSDGC staff and HACH discussed and implemented modifications to the meter's filtering system to provide the meter a clean sample, while minimizing clogging. During the trial, the streaming current monitor aided the MSDGC staff in the discovery of the HRT coagulant pumps under-dosing. Expected cost savings did not materialize with increased chemical use from the new pump settings, but this find was very valuable for the staff was able to increase the quality of the HRT effluent by properly dosing chemicals. This trial allowed the MSDGC staff to discover and correct process control problems and gain a wealth of knowledge about the plant's high rate treatment process.

### **Introduction**

MSDGC operates the Sycamore Creek treatment facility in the northeastern portion of Hamilton County, Ohio, treating an average daily flow capacity of 9 million gallons per day (MGD) with a peak flow of 50 MGD. The actual treatment plant was designed to treat a peak of 18 MGD, with the excess flow being sent to an ACTIFLO® High Rate Treatment (HRT) system located onsite. The HRT system has two treatment trains that are designed to treat 16MGD each with a total design flow of 32 MGD.

The ACTIFLO® HRT unit is a ballasted floc compact clarification system that was constructed during the facility's most recent expansion to treat excess flow brought on during wet weather. The HRT system utilizes microsand-enhanced flocculation with lamellar plate settling to achieve rapid settling with high overflow rates. The total treatment time through one train is approximately 6.5 minutes at 16 MGD.

Influent flow enters the treatment plant through preliminary treatment, which consists of fine screening and grit removal, before flowing into the influent pump station. The influent pump station houses four raw sewage pumps rated at 9 MGD each and four excess flow pumps that are rated at 10.7 MGD each. Raw sewage pumps deliver the conventional treatment plant's daily flows. Once the conventional treatment plant's peak flow of 18 MGD is reached, the plant staff uses excess flow pumping to activate the ACTIFLO® HRT unit.

### **Factors Affecting High Rate Treatment**

The installation of the HRT system has been a great addition for increasing Sycamore Creek's total flow capacity, giving the plant staff the ability to treat more flow during wet weather. Even though the system has helped increase the plant's capacity, the operating

staff has encountered many challenges during its operation. Some of the major challenges have been a slug of septic water generated in the HRT's influent force main when it is offline, the "First Flush" of the collection system, and an industrial discharge by the treatment facility's only major industrial user.

A first push of septic water is a very common problem when it comes to operating the HRT unit. Since the process is only in operation during wet weather, the influent force main to HRT will sit full of raw sewage from the previous time it was online and become septic. The influent force main is a 36-in by 910-ft long pipe that holds approximately 48,000 gallons of water. Because of the septic nature of the water, coagulant and polymer have little effect when trying to treat any solids that may have been in the pipe during start-up – making this initial slug load on the process very difficult to treat. In addition, there is the "First Flush" factor, where all of the solids that have built up in the collection system rush into the plant at one time because of heavy flow. This creates a heavy solids load on the plant processes during start-up and within a short period can taper off to very low influent turbidities. Because of the extreme turbidity fluctuations, it is difficult for the operating staff to maintain the proper chemical dose; as soon as the dose rate is set for the higher solids loadings, it has to be readjusted.

Another influence on HRT can be an industrial discharge while the process is online. Due to the characteristics of industrial waste, it cannot be treated by the HRT process. With the cooperation of the industrial discharger, MSDGC created a notification program that alerts the industrial user each time the HRT process is online. However, there are some occasions when waste can no longer be stored and the industrial facility has to discharge. One of these events happened during the trial on May 5, 2013, and the streaming current monitor was able to give the staff some useful data.

### **Discovering Streaming Current**

The operating staff, continuously searching for ways to improve the HRT process, stumbled across streaming current meters being used in water treatment plants in study material in the plant's library.<sup>1</sup> While extensively researching on the internet about streaming current, the plant staff discovered the AF7000 Streaming Current Monitor manufactured by HACH. The Sycamore Creek staff thought the meter could potentially aid them with operating their HRT process more efficiently, with the potential to save money in chemical costs. Plant staff then presented the possibility of streaming current working in a wastewater treatment plant to HACH. A pilot study was conducted beginning in February 2013 and ending in July of the same year.

### **HACH AF7000 Streaming Current**

A streaming current monitor (SCM) is an online instrument that measures the overall charge of ions in the diffuse layer of a colloidal particle.

A HACH AF7000 is based on the effect where the walls of the capillaries through which the colloidal material flows quickly gain a coating of particles and take on the surface charge characteristics of these particles. The streaming current sensor consists of a piston and a close-end chamber. A narrow gap, an



annulus 200-500um wide, exists between the piston and the walls of the chamber. The piston is driven up and down at a fixed frequency, typically 4-5 strokes per second, forcing sample water in and out of the chamber through the annulus.

As the piston and chamber surface are coated with charged particles, the water flowing rapidly up and down through the annulus results in displacement of the counter-ions. The SC signal measured by electrodes in the annulus is proportional to the water velocity and therefore alternates in time with the piston. This signal is typically in the range of 0.05uA to 5uA, depending on the particular condition.<sup>2</sup>

A common use for streaming current monitors is the control of coagulant dosing for the coagulation flocculation process at water treatment plants. By measuring the outer charge of colloids in solution, coagulant dosing can be adjusted according to instrument readings. If the streaming current meter is showing that the liquid has a negative charge, dosing can be increased to try to neutralize the liquid. This also works when the meter is showing that the liquid is positive, meaning that the dose of coagulant is potentially too high and needs to be decreased.

**Using the Meter in a Wastewater Stream**

An AF7000 Streaming Current Monitor was received February of 2013, and the trial was conducted until July of 2013. This was decided to be the best time for the trial, since the HRT system is only used during wet weather and this is typically when the most rainfall is seen for the Ohio area. The SCM was installed with a metering pump outside of the high rate treatment system’s influent wet-well, where the influent and coagulant are mixed before entering either

treatment train. This location was determined to be optimal, because the sample must be taken within 30 seconds after the coagulant is fully mixed at all expected flow rates.

Streaming current monitors are designed for a much cleaner sample stream. This presented a few challenges when the operating staff first installed it at their HRT facility. The most challenging part about operating the meter was keeping the filtering system from clogging, which caused it to need frequent cleaning. During the first time the meter was deployed, the filter would become clogged with in minutes of start-up. This made the meter almost inoperable; it created an extra workload that the operators were not prepared for, and almost stopped the trial before it began.

After challenges with the standard supplied filter, HACH proposed using a larger size filter, and the plant staff designed a pre-filtering system to prevent some of the larger debris from entering the meter’s piping system. The pre-filtering system consisted of a long piece of PVC pipe that was capped on the end to prevent debris from entering through the bottom. On that same end, there were several rows of 1/8-inch holes drilled around the pipe; the pipe also included a shield to prevent any rags or large solids from entering while still allowing water through. Although not perfect, the addition of the pre-filtering system did change the cleaning frequency from every 5-10 minutes to roughly every 30-60 minutes.

Once the pre-filtering system proved to be effective, another challenge arose with the configuration of the meter. In a typical water treatment plant, raw water is typically consistent and the ballasted floc system operates for longer duration compared to the Sycamore HRT system. This allows the staff time to perform a jar test and the results from the test can be used as a starting point on which to zero the SCM. Since Sycamore Creek’s HRT facility is only operated during wet weather and influent characteristics change rapidly, there is not much time for staff to run jar tests to find a zero point for the meter. Therefore, the staff decided to operate the meter using the default settings. Adjustments were made based on the theory that if the SCM’s reading were negative the coagulant dose would need to be increased, and if the reading were positive the coagulant dose would need to be decreased. After adjustments were made, the staff would watch the effluent for improvements. The meter proved valuable when the streaming current reading would change even though the staff had not made any operational changes.

*continued on page 44*



*Figure 1: These pictures show the PVC pipe used as a pre-filter (Left) and the end of the pipe with the 1/8 inch holes and rag shield. (Right)*





Figure 2: These pictures are of the high rate treatment system's influent (left) and effluent (middle and right) when adjustments were made after discovering the coagulant pumps were under-dosing with the help of the AF7000 Streaming Current Meter.

continued from page 43

This information told the operator that adjustments needed to be made before the effluent started to deteriorate. The meter allowed staff to eliminate the coagulant as a possible cause and focus on adjusting the polymer dose or adding more microsand to the system.

### **What Was Learned**

During the trial, a few things were discovered that improved performance of the HRT facility. Two of the more significant discoveries were coagulant under-dosing, and plant influent turbidity being significantly lower than the HRT influent turbidity.

Sycamore Creek's coagulant pumps have several parameters controlling their dosing rate: the plant's influent turbidimeter, flow rate, and the chemical dosing set points. Early in the trial, it was discovered that the coagulant pumps were significantly under-dosing. As the flow of the process was slowly dropping off, the effluent turbidity began to increase gradually. At this point, no adjustments had been made to the chemical dose, and in the past, plant staff had contributed the increased turbidity to coagulant overdosing. Fortunately, with the AF7000 SCM online, the staff was able to see that the meter was displaying a negative reading. According to streaming current theory, if they were over-dosing the reading should have been in the positive range. Watching the SCM display, the staff slowly began increasing the coagulant dose until the reading became positive on the streaming current meter. At this time they had increased the coagulant dose from 30mg/l to 200mg/l, 170mg/l above the normal operating dose. After adjusting

the chemical dose rate to 200mg/l, the solids in the HRT influent wet-well began to flocculate better than they ever had before and effluent turbidity dropped below 1 NTU.

With some investigation, the plant found that as the flow was dropping down to minimum, the coagulant pump speed also decreased. When the minimum flow was reached the pump was almost shutting down completely, causing the under-dosing of coagulant. By increasing the dose the pump returned to normal operating speed, allowing the correct amount of chemical to be fed to the HRT process.

Differences between influent turbidity into the plant and the HRT system were also found to be an issue during the trial. The MSDGC staff noticed that the plant influent turbidity would decrease as the rain event would go along, but when comparing it to the excess flow it is visually clear that HRT's influent is significantly more turbid. This is suspected to be because the plant's drainage system drains into the main pump station downstream of the influent turbidimeter. Any type of solids from processes like the tertiary filter backwash, waste activated sludge thickener weir overflow, or the holding tank supernatant can enter the main pump station without being detected by the turbidimeter. To correct this problem, the staff is in the process of installing a turbidimeter at the influent of the HRT facility and setting the coagulant pumps to be controlled by the new turbidimeter. This will allow the pumps to dose properly, and it should help the pumps maintain the proper dosing speed during all flows.

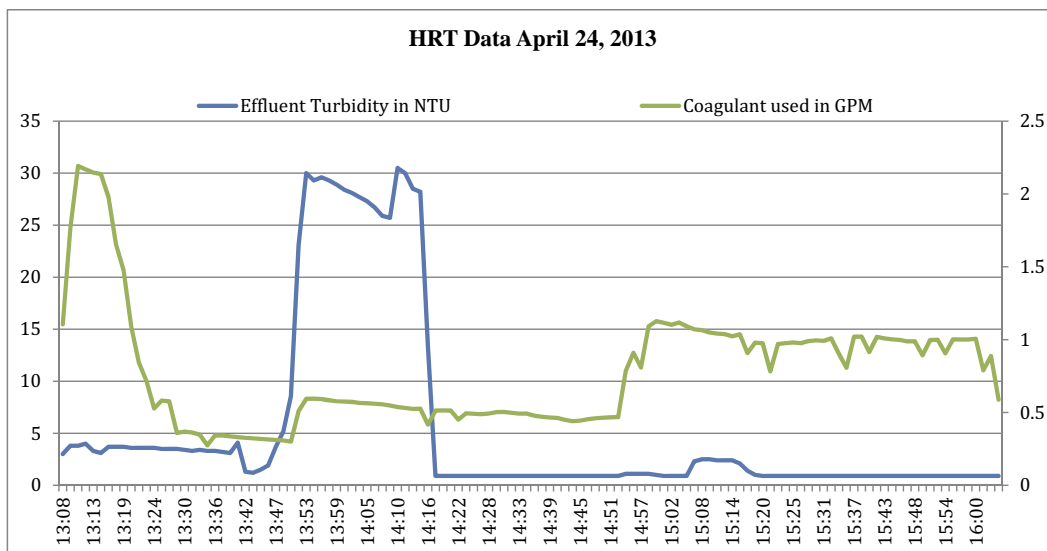


Figure 3: This chart shows a sharp increase in effluent turbidity (blue) after the drop in coagulant dosing (green) and then shows the adjustments made to get normal effluent turbidity back.

Date	Coagulant used gallons per hour	Polymer used gallons per hour	Coagulant cost per hour	Polymer cost per hour
03/23/2012	10.33	108.23	\$13.74	\$3.79
05/13/2012	19.74	240.15	\$26.25	\$8.41
06/01/2012	34.09	330.03	\$45.34	\$11.55
01/13/2013	17.35	174.31	\$23.08	\$6.10
01/30/2013	14.12	158.46	\$18.78	\$5.55
Average	19.12	202.23	\$25.44	\$7.08
04/19/2013	117.29	276.92	\$155.99	\$9.69
04/24/2013	46.33	42.58	\$61.62	\$1.49
05/06/2013	80.03	73.98	\$106.44	\$2.59
05/11/2013	123.81	185.70	\$164.66	\$6.50
07/06/2013	118.16	321.79	\$157.15	\$11.26
Average	97.12	180.19	\$129.17	\$6.31

Figure 4: This chart shows chemical use and costs for five HRT runs before the SCM and the five HRT runs with the meter.

**Conclusion**

The AF7000 Streaming Current Monitor demonstrated that it could be a very useful tool by giving the MSDGC operating staff a wealth of knowledge during this trial. Using the meter revealed some equipment and process issues and aided the operating staff in operating the HRT facility to optimal performance by producing the best quality effluent that has ever been through the process.

There were also a few conclusions drawn from the trial that did not favor the staff’s expectations. One of them was that the chemical savings did not turn out to be what was anticipated. Once the plant staff discovered the coagulant pumps had been under-dosing, the coagulant usage actually increased. On the other hand, after adjustments were made to achieve the proper coagulant dosing, the polymer usage decreased dramatically. Even though polymer usage

was down, savings from decreased polymer usage were offset due to the higher per-gallon cost of coagulant. The lack of savings cannot be attributed to the meter in this case, because if it were not for the trial the coagulant pump issue may never have been discovered.

The meter’s grit filtering system needs to be modified before it can be used in a wastewater stream. Since the meter is designed for potable water treatment, the filter cannot handle the large amount of debris that is typically in a wastewater influent stream, creating an extra workload on the operating staff who must manually clean the filter. There were some positive results as plant staff and HACH worked together to make improvements to make the system functional. The pre-filter system (Figure 1) that was fabricated shows that the filtering system could potentially be reconfigured to work in wastewater treatment.

Although there were some challenges, using the AF7000 Streaming Current Monitor provided the MSDGC operating staff with the ability to better control the ACTIFLO® HRT process. The data collected from the trial has created the possibility for using streaming current technology in the wastewater industry.

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**References**

<sup>1</sup> Kerri, Kenneth. *Water Treatment Plant Operation (A Field Study Training Program)*. 6. 1. Sacramento, CA: University Enterprises, Inc., 2008.

<sup>2</sup> Edney, Daniel. “Introduction to the Theory of the Streaming Current Meter.”

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## DID YOUR LTCP ACCOUNT FOR RIVER WATER INTRUSION?

by Tiffany Maag, P.E., URS Corporation and Michael Frommer, P.E., URS Corporation

As Long Term Control Plans (LTCP's) are being implemented throughout the State of Ohio, many communities are now realizing that river water intrusion (RWI) is a significant problem that was not considered during original development. The impacts of RWI can be severe from both cost and performance standpoints. In the 1990's, RWI was identified as a potential problem for many combined sewer communities throughout the State of Ohio through annual compliance inspections conducted with the Ohio EPA and system operators.

An initial strategy used by several communities to mitigate this concern was installation of backflow prevention devices at or near their combined sewer overflow (CSO) outfalls to stop river water from entering the combined sewer system. Types of backflow prevention devices included flap gates, in-line check valves, and tideflex backflow preventers. Flap gates were the oldest technology and had operational issues and were eventually replaced by tideflex backflow preventers which were a new technology in the 1990's.



Tideflex Check Valve

In the late 1990's the Federal CSO Control Policy was starting to be enforced by the EPA in Ohio. As small and medium sized communities (population less than 30,000) started to prepare their LTCP's to control or eliminate CSO's, the assumption was that RWI was already addressed by the initial backflow preventer installations. Additionally, minimal flow monitoring or modeling efforts were performed that would identify the presence of RWI. Many times sewer separation was the desired outcome because the community received a brand new sanitary sewer system while achieving elimination of overflow events. This was a "win-win" solution for the municipalities and regulatory agencies.

As LTCP's are being implemented, several communities are now realizing that sewer separation is not as successful as originally anticipated and the costs are much higher than estimated. Some

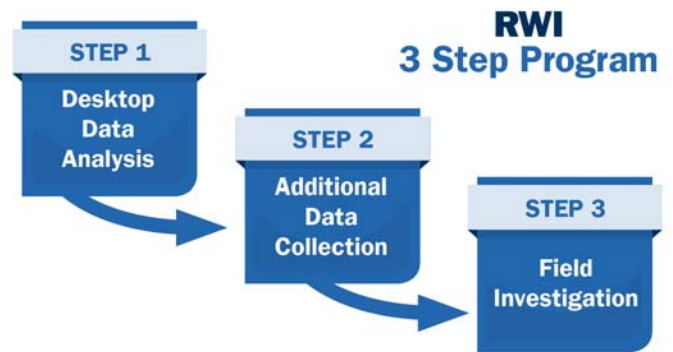


Lift Station Affected by RWI

communities are not able to close the CSO's after performing sewer separation due to basement backups and interceptor surcharging. Upon taking a step back to analyze why interceptor surcharge is occurring, the presence of RWI is being determined as the primary culprit and the assumption that RWI was eliminated was not correct.

RWI impacts on combined sewer systems can be severe, and in some cases can lead to a system surcharge that can take several days or even weeks for recovery. In these cases, it can be extremely expensive and cumbersome to diagnose the RWI problem and eliminate it from the system unless the right tactics are implemented.

URS has implemented a strategic three step program to identify specific locations of where RWI enters the system in order to recommend cost-effective solutions for RWI elimination. The program first looks at readily available data to perform a cost-effective desktop analysis. Once RWI is confirmed, the next step includes collection of data to evaluate system response to high river stage events and to pinpoint locations. The last step is to verify the evaluation results through field investigations.



The program has been developed through past evaluation conclusions that three (3) main sources of RWI exist and are as follows:

- ◆ Inflow through at-grade components of the system that are submerged (manholes, catch basins, siphons, pump station wet wells);
- ◆ Infiltration into the underground sewer system infrastructure components (or under river siphon pipes) through defects, cracks, leaking joints, etc.; and
- ◆ Backflow into the regulator outfalls where backflow prevention is either not present or not operating properly.

The first step is to cost-effectively review available data and information as part of a desktop analysis to determine the general presence of RWI. Commonly available data includes river stage elevations, flow monitoring, wastewater treatment plant (WWTP) flow and CSO outfall data.

### A. USGS River Stage Elevation Analysis

The river stage elevation analysis is performed by utilizing NOAA's National Weather Service Advanced Hydrologic Prediction Service and U.S. Geological Survey (USGS) websites for historical river stage elevation data. Data can typically



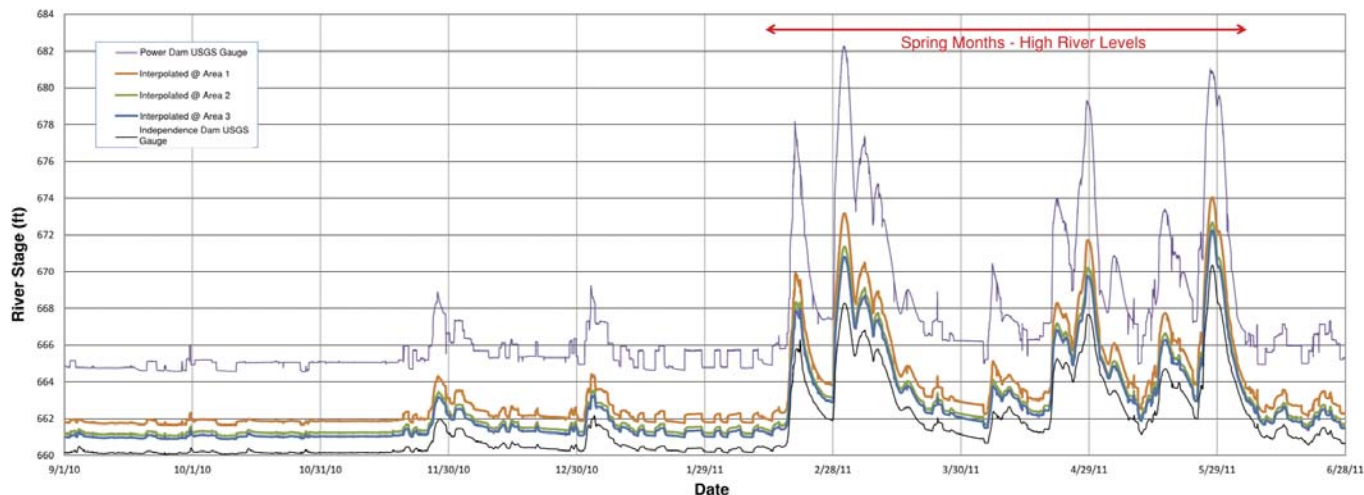


Figure 1: RWI Evaluation – USGS Data

be obtained in the general vicinity of your project area and interpolated between USGS gauge stations if needed to arrive at the approximate river stage elevations for your area. An example of river stage data that was obtained near the City of Defiance, Ohio is included in the figure below and includes the time period from late 2010 through mid-2011. As is evident from **Figure 1**, the river level generally trended higher during the wet spring months. Through further analysis of this data, the highest river elevation during this time period was determined, which was used to pinpoint timeframes for RWI occurrence and also evaluate RWI potential in relation to infrastructure elevations.

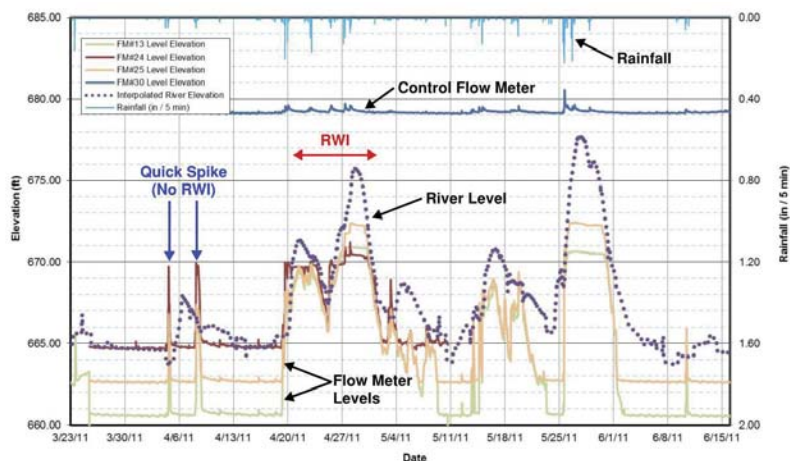


Figure 2: River and Flow Monitor Levels

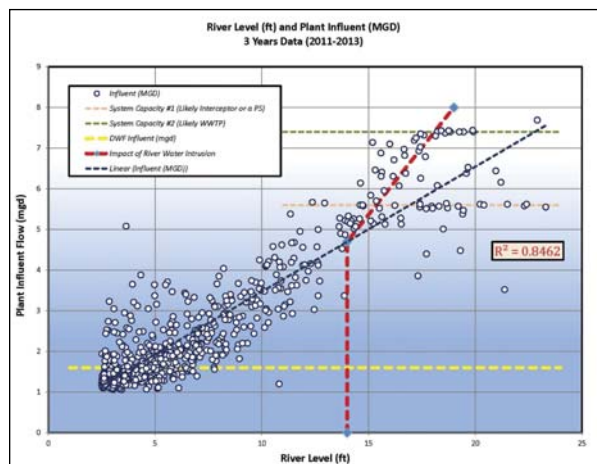


Figure 3: WWTP Influent and River Stage Data

**B. Flow Monitoring RWI Analysis**

Another data source that can be utilized to identify areas susceptible to RWI is to compare flow monitoring data with river stage elevations. RWI can be identified in flow monitoring data when multiple days of elevated flow levels occur in the interceptors that does not subside after the rain events. Further review can confirm that the river stage is elevated during the same periods of time as the flow monitoring levels, indicating that RWI is present.

**Figure 2** provides an example of the correlation between the river level and the flow levels in a potential RWI area. This figure displays the river elevation with the interceptor levels superimposed on top, along with the intensity of the rain events. This figure shows that when the river elevation is low the interceptor level peaks during a rain event and then quickly subsides back to pre-event levels. However, when the river elevation is high or quickly rises from a rain event, the interceptor levels follows very close to the river levels. Because the levels mimic the river elevation it is evident that there is RWI present.

**C. WWTP Influent Flow RWI Analysis**

The influent flow at a community’s WWTP can also be another valuable data source and evaluated to determine if RWI is present in cases where there is only one interceptor. By charting the WWTP influent flow in relation to the river level, it can be determined if RWI is entering the system. If

RWI is determined to exist, this chart can also aid in identifying the elevation where RWI first enters the system. As shown in **Figure 3**, the WWTP influent flow follows a linear trend (blue dashed line) until the river level reaches 14 feet, at which case the WWTP influent flow trends upward (red dashed line). This indicates that RWI is affecting the interceptor at the 14 foot level.

**D. CSO Outfall Data**

The CSO outfall data collected by communities as part of their NPDES Permit compliance can also be used as part of this desktop data analysis. This analysis includes charting the CSO outfall volume over a period of time and comparing it to the river stage elevation data. As shown in **Figure 4** on page 48, the CSO outfall volume is displayed with the river level superimposed on the top. This figure identifies that the CSO volume is 25-50 times larger during river stage events that exceed the 14 foot mark.

continued on page 48

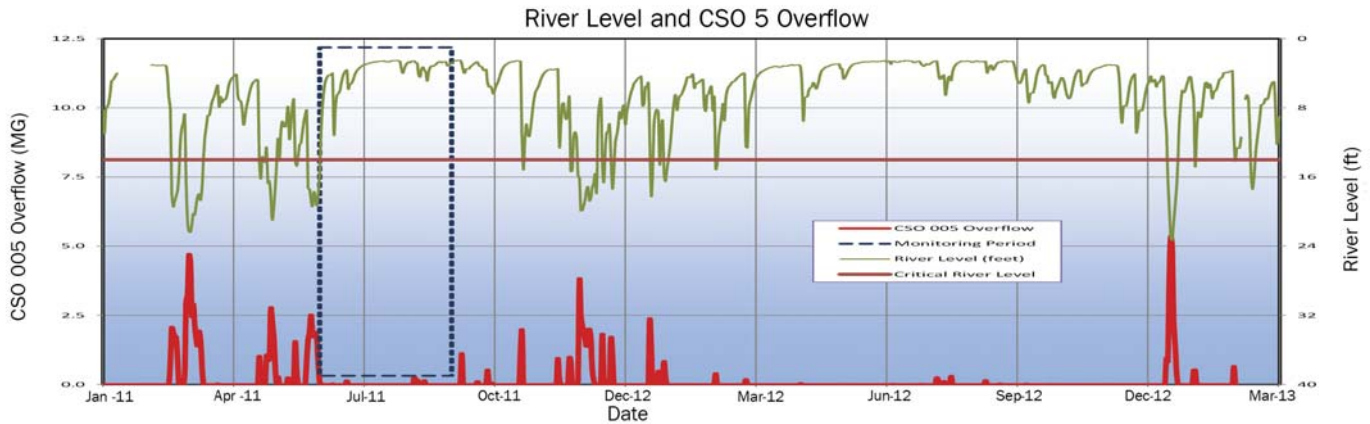


Figure 4: River Level and CSO Overflow Chart

Now that the general presence of RWI has been detected, the next step is to gather new and additional data that will pinpoint the actual RWI location. This data collection step includes field installation of monitoring equipment and the analysis of rain and high river stage events.

### E. River Water Monitoring Sensor Analysis

The next step is to install river water monitoring sensors and evaluate the temperature and level data obtained to identify areas where RWI may be occurring. River water monitoring sensors are a cost-effective method as the sensors measure temperature and level and are similar to a groundwater monitoring gauge. These sensors (*samples shown at right*) can be located in rivers, interceptors, pump stations, or almost any infrastructure desired. They cost roughly \$600 per sensor to purchase and the software is very simple to use and download the data.



As shown in **Figure 5a**, the general trend of the interceptor levels in response to a minor rainfall event where the river level does not rise (as shown on November 9, 2011), is a quick rise and drop in the interceptor level. The quick rise and drop indicates inflow in response to the rain event, but does not indicate RWI since there is not an extended rise in the interceptor level. However, this figure also displays many RWI events, an example of which occurs on

November 29, 2011 when a significant rainfall event creates a rise in the interceptor levels which follow the same rising trend as the river levels, indicating that RWI is present. This level chart was used to determine specific events when RWI occurred in the collection system to continue with additional analysis of those events.

Upon determining the events during which RWI occurred, the analysis can be further developed to evaluate the temperature and level in the interceptors in response to that of the receiving waters. **Figure 5b** depicts the temperature response to a rainfall event that occurred on February 28, 2011. In this figure, the temperature in the interceptors quickly drops in response to the rain event due to inflow into the system, and quickly rises back in the same day. Then, as the river elevation rises in response to the rain event over the course of the next few days, the interceptor temperatures eventually drop again trending towards the temperature in the rivers, indicating that RWI is present.

This analysis can be further evaluated for each of the RWI sensors to better understand the sequence of RWI entrance into the interceptor and RWI potential at each location. By evaluating the responses of the upstream and downstream sensor reactions of temperature change and level increase in relation to time, it can be determined which direction on the system the intrusion source is present. This evaluation can be performed in each RWI area to attempt to identify the exact locations and sources of RWI.

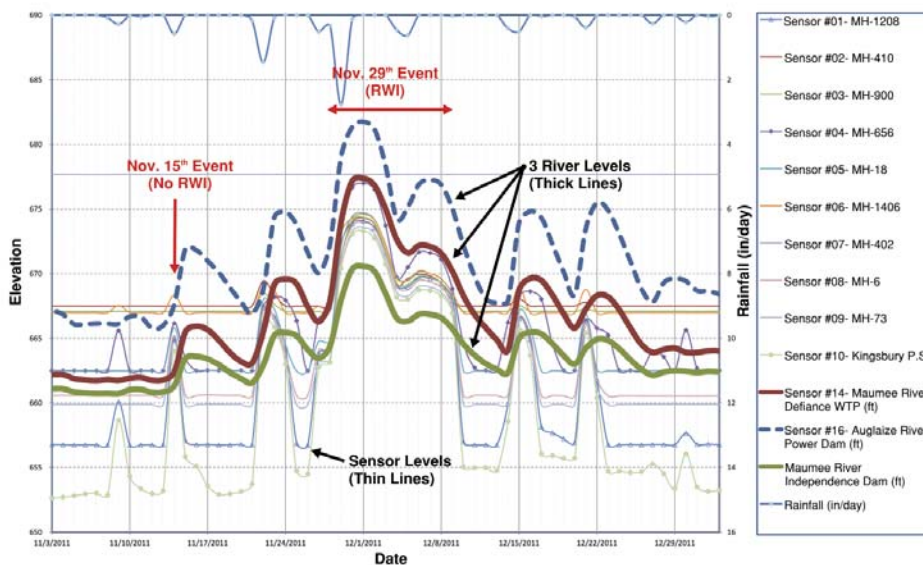


Figure 5a: River Water Monitoring Sensor Level Chart



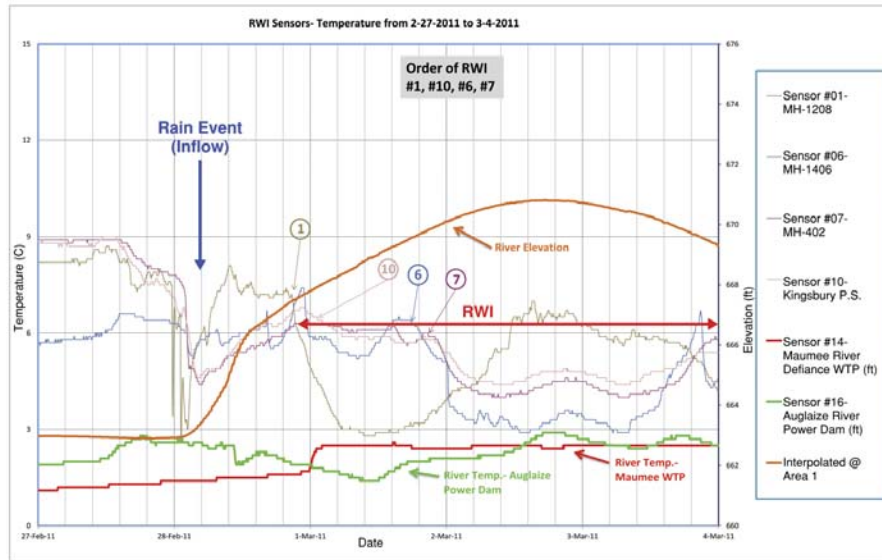


Figure 5b: River Water Monitoring Sensor Temperature Chart

**F. Field Investigations**

It is very important that the conclusions drawn from the data collection and analysis are verified and are even improved through field investigations. During the field investigation phase, the infrastructure identified as having the potential for RWI are investigated, which includes manholes, catch basins, siphons, pump station wet wells, and regulator structures. In addition, the regulator outfalls are an important item that must be investigated to determine whether backflow prevention devices exist and whether they are operating properly in the locations where RWI is identified. We commonly find that routine maintenance activities are not being performed on the backflow preventers and the accumulation of debris and large sticks can impact the operation.

Field investigations should be performed as the river is rising until it peaks to get the best results. It is also important to investigate the infrastructure as the river starts to inundate the system rather than after it is already fully surcharged. **Figure 6** below shows an example of the NOAA river stage prediction website that can be utilized to determine when to mobilize field crews for performing the inspections.

**RWI Conclusions**

By performing this three step process, RWI can be identified and the location of where it enters the system can be pinpointed and eliminated. It is much more cost-effective from a construction standpoint to identify specific problems with specific solutions

versus prescriptive solutions such as complete system rehabilitation and/or relocation.

We have recently identified the following specific sources of RWI by performing this process for communities in Ohio; which include leaking siphon pipes and non-watertight chambers, pump stations below the floodplain elevation, backflow preventers malfunctioning, no backflow prevention in areas in the floodplain, and vented manhole lids within the floodplain.

In summary, RWI can have a very negative impact on the affordability and environmental benefit of a communities' CSO program. Simply put, RWI must be identified and eliminated in the initial steps of LTCP implementation to be a successful, cost-effective program.

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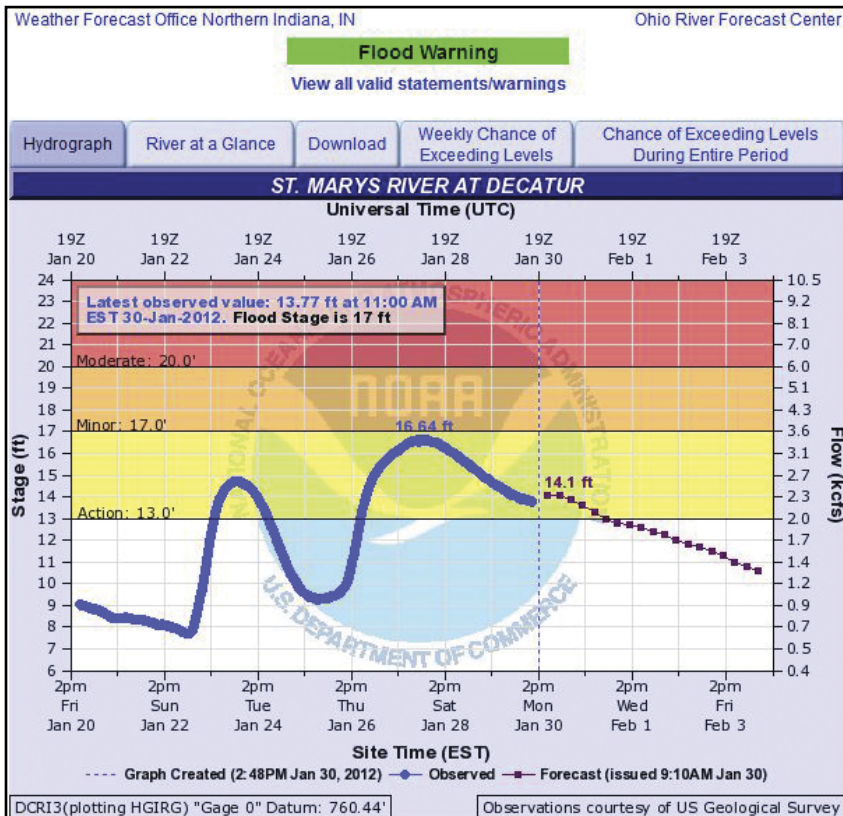


Figure 6: NOAA NWS Advanced Hydrologic Prediction Service



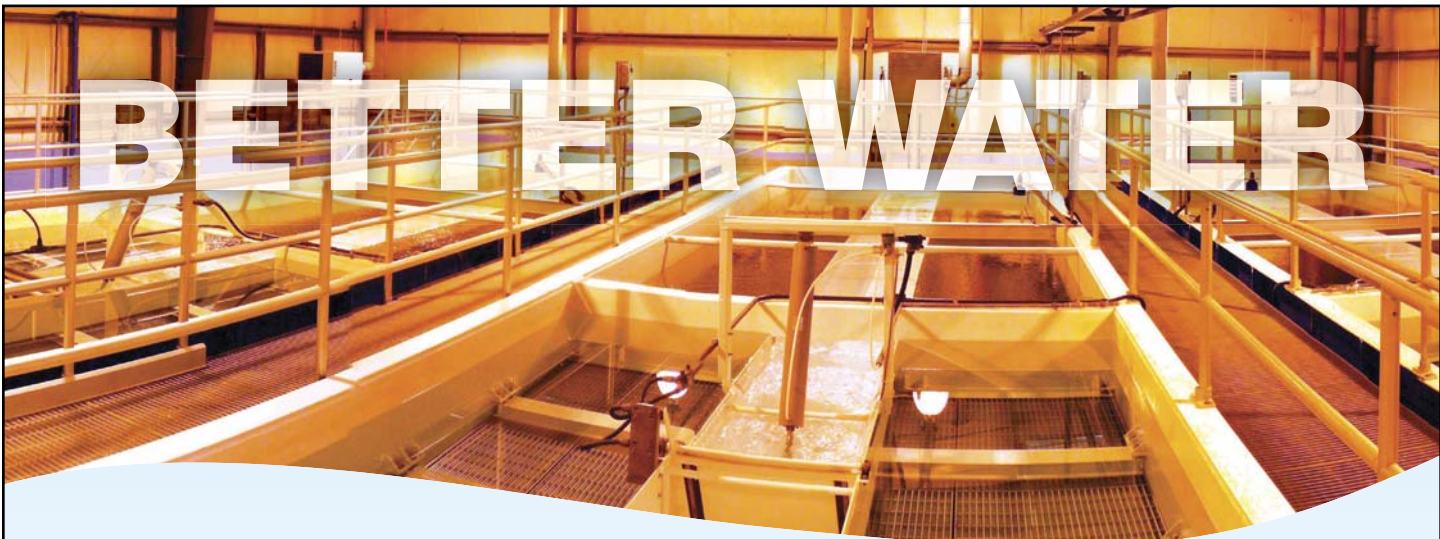
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## CITY OF DEFIANCE - WATER POLLUTION CONTROL

*by Kristi Babcock, Assistant Superintendent***Background**

In 1794 General Anthony Wayne built Fort Defiance on the site of the confluence of the Maumee and Auglaize Rivers as a base for military operations. By the late 19th century, sewers were installed in more populated areas that transported the sewage away from these areas and discharged directly into the rivers. By the 1950's the significant growth of Defiance was evident and a primary treatment facility, along with an interceptor sewer, was built at the cost of more than \$2 million.

An upgrade in 1969 included the addition of secondary treatment including aeration tanks and final settling tanks. Sludge handling and effluent chlorination facilities were also added. By 1989 failing equipment and more stringent discharge limits forced another upgrade that cost nearly \$12 million. The 2000 upgrade increased the size of the plant from 4.0 MGD to 6.5 MGD and included the construction of two Roughing Towers.

Currently the City of Defiance discharges an average of 2.5 MGD of treated effluent to the Maumee River and has strict year-round permit effluent limits. The staff includes four Plant Operators, one Lab Chemist, three Maintenance Personnel, and four Collection Equipment Operators. Supervisory staff includes the Superintendent, Assistant Superintendent, and Collection Supervisor. This staff operates the plant 365 days/year, maintains approximately 120 miles of combined and sanitary sewers, and 24 lift stations. The City serves approximately 18,000 residents.

**Pretreatment**

The City maintains a pretreatment program to aid in the control of industrial flows. Currently there are 12 significant industrial users with one being categorical. Industrial flows currently amount to about 12% of the daily flows. Industries range from a dairy business to metal finishing. The Industrial Sampler is responsible for monthly collection of samples for four of the industries, as well as quarterly sampling on all industries. This program ensures that the industries are meeting federal, state, and local discharge limits and other reporting requirements.

**Preliminary Treatment**

Raw wastewater is conveyed to the POTW through five lift stations. As flows enter the plant, it splits into two grit removal tanks. These tanks are aerated by a positive displacement blower to aid in settling of the heavy solids. The heavy solids are removed from the grit tanks using an overhead hoist and clam system. Flows then pass through a mechanical bar screen with 5/8" openings. Rags and other debris are collected in a hopper, then hauled off site to the local landfill.

**Primary Treatment**

After preliminary treatment, flows then pass through to four rectangular and one round primary settling tanks. During average summer flows, only three of the four rectangular tanks are utilized. These tanks remove approximately 55% of TSS and 25% of CBOD. Sludge from the primary tanks, which also includes WAS, is pumped to two anaerobic digesters using two new rotary lobe pumps that were installed in 2013. Approximately 1 MGD of the





*Extended aeration tanks*

primary effluent is then pumped by one 60 hp pump through one of two Roughing Towers. These towers contain plastic media that aid in maximization of ammonia removal in the aeration tanks.

### **Secondary Treatment**

Roughing Tower effluent is then combined with the primary effluent where the combined flows receive a dose of Sodium Aluminate to aid in phosphorous precipitation and pH adjustment. RAS is also introduced back into the system at this point. Following chemical addition, the flows split into three aeration tanks. With all three aeration tanks online, the tanks can handle 6.5 MGD. Although during normal summer flows, only two aeration tanks are on line. The plant maintains a 3500-4500 MLSS concentration. A 200 hp blower is used to supply air through fine bubble diffusers for ammonia removal and biological growth. The air is controlled via the SCADA system using three DO probes. Flows then enter three final clarifiers where the sodium aluminate also helps settling of solids. RAS amounts to approximately 55% of aeration influent flows from the southwest and southeast final clarifiers and 65% from the northeast final clarifier. RAS is returned to the beginning of the aeration basins. Approximately 80,000 gallons a day is wasted (WAS) back to the primary tanks.

### **Chlorination**

Since the POTW discharges directly into a recreational river, EPA requires summer disinfection. Beginning May 1st through October 31st of each year the City uses chlorine gas to disinfect and sulfur dioxide to dechlorinate. The City has strict eColi limits during those summer months. To reduce eColi, chlorine gas is introduced into the waste stream after exiting the final clarifiers and before entering the chlorine contact tanks. The tanks allow for approximately 30 minutes of contact time for eColi reduction. Sulfur dioxide is then introduced to remove chlorine from the waste stream before entering the Maumee River.

### **Solids Handling**

As mentioned before, primary sludge along with waste activated sludge is pumped to two anaerobic digesters for solids reduction and stabilization. The sludge is heated using a methane gas fed boiler to maintain between 96-104 degrees. Sludge is held in the digesters for approximately 28 days before being discharged to one of four lagoons. These lagoons hold approximately 900,000 gallons each. Water is supernated from the surface to achieve a 5-6% solids content. Bio-solids produced are Class B and are injected into local farm fields by a licensed contractor. The City land applies approximately 562 dry tons per year. All bio-solids meet EPA and federal regulations.

### **Wet Weather Flows**

The POTW was designed to accommodate 6.5 MGD through the aeration tanks. During higher flow events, which could reach nearly 15 MGD, all flows receive primary treatment. After primary treatment, flows that exceed 6.5 MGD will bypass aeration and final clarifiers. Flows will then combine again after the final clarifies for disinfection and dechlorination before being discharged to the Maumee River.

### **Lab**

The City maintains a full time lab chemist. The chemist is responsible for daily process control testing such as Settleometers, MLSS/MLVSS, COD and alkalinity. EColi, phosphorous, chlorine residual, and ammonia are also crucial tests that are analyzed for EPA reporting.

### **Mission Statement**

Achieving environmental standards and providing quality and dependable service for our customers through teamwork.

Kristi Babcock, Assistant Superintendent  
City of Defiance - Water Pollution Control  
[kbabcock@cityofdefiance.com](mailto:kbabcock@cityofdefiance.com)



*NETZSCH T2 Rotary Lobe pump installed in 2013 for sludge transfer from primary tanks to digester*

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## DRIVERS AND STRATEGIES FOR PHOSPHORUS MANAGEMENT

## PART ONE: PHOSPHORUS AS A RESOURCE

by Samuel Jeyanayagam, PhD, PE, BCEE, Vice President/Senior Principal Technologist, CH2M HILL

### Introduction

An increasing number of utilities in Ohio will be required to upgrade their facilities to comply with new effluent phosphorus (P) limits in the next few years. Traditionally, the main driver for implementing P removal has been environmental protection (minimizing algal bloom and the resulting cultural eutrophication). The underlying assumption is that phosphorus is a 'pollutant' that must be controlled. However, phosphorus is also a critical resource and its scarcity is threatening food security. The collective understanding of this phenomenon is still in its infancy and is not prominently featured in policy discussions and regulatory initiatives in North America.

The water pollution aspect of phosphorus is well understood and widely documented. This article sheds light on phosphorus as a resource and discusses the nature of its scarcity, potential future pathways, and the role for municipal water resource recovery facilities (WRRFs). (Note: In keeping with WEF initiative, this article refers to wastewater treatment plants as WRRFs.) A subsequent article (Part 2) will present a synthesis of current knowledge, lessons learned, and best practices in designing and operating P removal facilities. Together, these two articles should allow utilities in Ohio make informed decisions with respect to implementing an integrated, sustainable, and cost-effective phosphorus resource management strategy.

### History of Phosphorus and Its Importance

Over 300 years ago the German alchemist Henning Brandt, while searching for the legendary Philosopher's Stone, stumbled upon the discovery of a much more valuable commodity - elemental phosphorus. He found that it glowed in the dark when exposed to oxygen, which gave rise to the term "phosphorescence". Approximately 170 years later the German chemist Liebig identified phosphorus as a limiting nutrient in plant growth in 1840, which led to its use in mineral fertilizer. In the 20th century, the element's role in degrading receiving water quality was recognized. Now in the 21st century, we are faced with yet another globally significant event, the decline of available P as a life-sustaining element.

Phosphorus is very reactive and rarely occurs in the elemental form. In nature it is found in phosphate rock deposits, which contain 5 to 13 percent P. It is a fundamental component of genetic material (DNA and RNA) and is also found in our bones. An average adult body contains 650 grams of phosphorus. Phosphorus is also an essential element because it has no substitutes, unlike other critical resources. Quoting Issac Asimov (1974):

*"We may be able to substitute nuclear power for coal, plastics for wood, yeast for meat, and friendliness for isolation – but for phosphorus there is neither substitute nor replacement."*

### We are Not Running Out of Phosphorus!

Of the three key elements required for plant growth, nitrogen, phosphorus, and potassium, only phosphorus is scarce and limits food production. The global distribution and availability of phosphorus may be likened to fresh water. While there is

an abundance of fresh water present in lakes, rivers, glaciers, groundwater, etc., only a small fraction is available for productive use. Phosphorus is the 11th most abundant element on earth's crust amounting to approximately  $4 \times 10^{15}$  metric tons (t)\* P, seemingly enough to last nearly a millennium. However, this estimate also includes deposits that:

- ◆ Cannot be extracted economically
- ◆ Are inaccessible because of their depth or location offshore
- ◆ Exist in underdeveloped or environmentally sensitive land
- ◆ Contain high levels of toxic or radioactive contaminants.

(\*1 Metric ton (t) or tonne = 1,000 kg or 2,204 lb)

As shown in **Figure 1**, only a small amount (approximately 0.007 percent) of P in earth's crust is concentrated as phosphate rock resources, and about 6 percent of the resources, called rock reserves, is economically and technically recoverable by current methods. Hence, any reference to phosphorus scarcity is related to rock phosphate reserves (estimated at 16,000 Mt), which are available for extraction and use. Recent estimates indicate greater amount of rock reserves. But these are based on secondary sources and await confirmation.

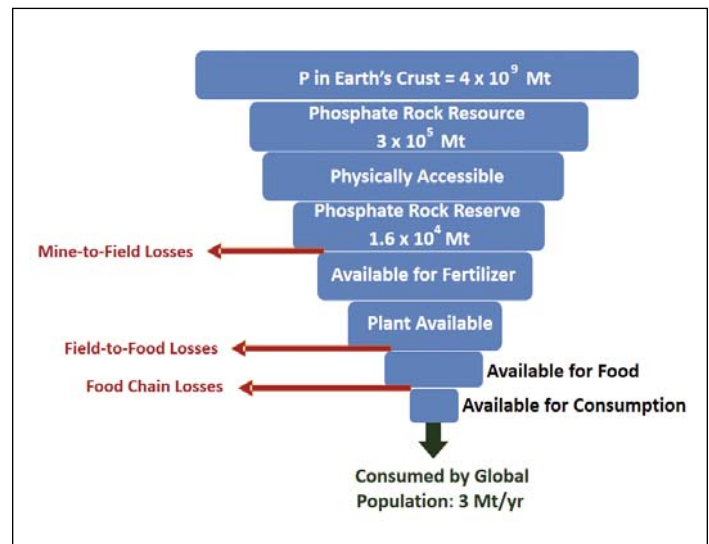


Figure 1: Several Bottlenecks Limit Phosphorus Availability for Productive Use (Cordall et al)  
(Note: Only major losses are shown)

### Where is It Found?

The global flow of phosphorus is estimated at around 40 million metric tons per year (Mt/yr). Approximately 60 percent of this (24 Mt/yr) represents newly mined phosphate. Phosphate rock reserves are unevenly distributed and are primarily found in five countries. **Table 1** summarizes estimated reserves, mine production rates, and remaining life for each country. Based on the data, the following observations may be made:

- ◆ US reserves will be depleted in about 40 years and phosphorus imports will need to be increased to feed a growing population in this country.

Country	Reserves (Mt)	Mine Production (Mt/yr)	Remaining Life (Years)
Morocco & Western Sahara	5,700	28	204
China	4,100	50.0	82
South Africa	1,500	2.4	62.5
United States	1,200	30.9	39
Jordan	900	5.5	164
All other countries	2,000	49.9	40
World total	15,400	166.7	92

- Like oil, the planet’s remaining rock reserves are under the control of a handful of countries and their accessibility and price are influenced by international political climate. Unlike oil, however, there are no substitutes for phosphorus and its scarcity can limit the carrying capacity of this planet.

### Phosphorus Cycle

A simplified version of the phosphorus cycle, presented in **Figure 2**, shows two smaller cycles. Cycle 1 illustrates the flow of P in the human food system, which is a relatively short cycle completed in days to years. Losses from Cycle 1 occur through point and nonpoint discharges. Cycle 2 shows the global biochemical P flux that occurs over millions of years. In human terms, the P that enters this cycle (including losses from Cycle 1) is virtually lost and is considered non-renewable.

As P cycles through the lithosphere (soil and rock) and hydrosphere (rivers, lakes, and oceans), it encounters significant losses. Estimates indicate that only about 20 percent of the mined P is consumed in food and the rest (80%) is lost to the environment. Of the amount consumed, approximately 90 percent is lost. These losses result in a considerable accumulation of P in the environment. The bottom line is that in order to offset the losses, satisfy the demand of a growing population, and support improved quality of life, approximately five times the amount of P consumed is mined.

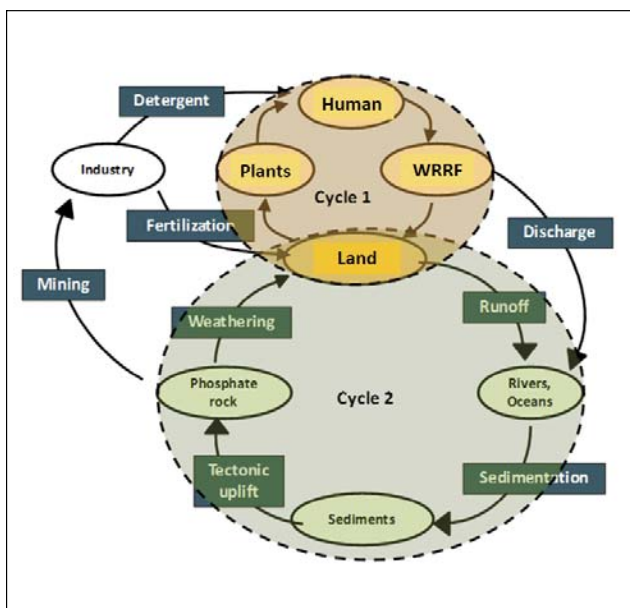


Figure 2: Fate of Phosphorus (Cornell, et al.)

### The Concept of Peak Phosphorus

Experts believe that phosphorus production can be modeled similar to other finite non-renewable resources such as oil. Accordingly, phosphorus production is anticipated to keep pace with global demand and peak around 2035 (**Figure 3**). Beyond this point, phosphorus supply will decline because the quality of the remaining reserves is poorer and uneconomical to mine and process. Importantly, peak phosphorus production will occur long before 100 percent of the reserves are depleted. On the other hand, the demand for phosphorus will keep increasing thereby creating a gap between projected demand and supply. While there is some uncertainty when peak phosphorus would occur, general consensus is that the quality of phosphate rock is steadily declining. Under the ‘business as usual’ scenario, the growing demand for P will outstrip economically available supply. This situation, if left unchecked, is expected to result in phosphorus depletion in 50 to 100 years. Given this relatively short timeframe, there is an urgent need to close the gap between demand and supply.

### Implications for the Global Community

The fact that phosphorus could potentially limit the sustaining capacity of our planet has triggered a global response and countries are acting in various ways as shown in **Table 2**. For any meaningful change to occur, realistic and measurable targets must be established through government policies and environmental initiatives.

*continued on page 64*

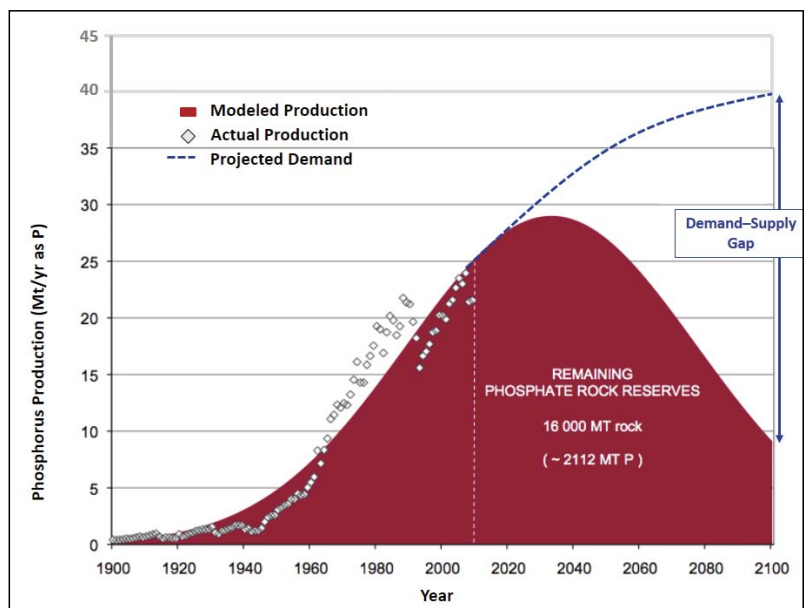


Figure 3: Peak Phosphorus (Cordell)



Table 2: Global Response to Phosphorus Scarcity Crisis (After Umble)	
Country	Action
Germany	Considering channeling taxes collected from wastewater management to fund P recovery projects.
China	Export tariff of 130% is levied to conserve P reserves.
The Netherlands	Goal to replace 20% of mined P with P recovered from sidestreams.
Sweden	Mandate to recover 60% of P in wastewater.
Denmark	Trending towards incineration & recovery of P from ash. Reduce farm losses.
Finland	Target 50% recovery from sludge
Switzerland	Ban on sludge land application. Eliminate farm losses.
Japan	Focus on recovering P from iron/steel slag.
Nepal	Efforts underway for recovering P from source separated urine.
USA	Several struvite recovery facilities in operation. No mandate yet. WERF study initiated to enable adoption of nutrient recovery.

### A Roadmap for the Future

We are consuming phosphorus faster than the geological cycle can replace it. Clearly, our current phosphorus management approach is unsustainable and a change in paradigm is needed for ensuring phosphorus security for a rapidly growing global population. The overarching goal of the preferred future scenario is to close the significant and growing gap between ‘business-as-usual’ demand and available supply. As shown in **Figure 4**, in order to close this gap by the end of the 21st Century, the following measures are needed:

- ◆ Diversification of supply sources by adopting P recovery from the food chain including crop residue, manure, human waste, and food waste.
- ◆ Reduction in P demand by changing diets, reducing food chain losses, and increasing agricultural efficiencies.

As noted above, P recovery from municipal wastewater is a viable supply-side strategy. The average P content of municipal waste is around 3.5 g per capita per day. In the US, sewage is the source of approximately 400,000 t/yr of phosphorus. Globally, the amount of P that can be recovered from WRRFs represents approximately 17 percent of the mined phosphorus.

As shown in **Figure 5** around 67 percent of the phosphorus entering WRRFs is in urine. During treatment, almost all of the phosphorus (90%) becomes solids-associated. Consequently,

most of the proven P recovery approaches target the solids stream. An ongoing WERF study led by Hazen & Sawyer and CH2M HILL is designed to bridge the knowledge gap and enable the wider adoption of nutrient recovery at WRRFs.

It should be noted that livestock waste contains significantly higher levels of phosphorus. However, full scale implementation is fraught with many challenges including lack of mature technology and absence of initial infrastructure at concentrated feed operations.

### Conclusion

Phosphorus is one of nature’s paradoxes. It is essential to life on earth, yet destructive to the aquatic environment when present in excess. This article reviews phosphorus as a resource and its importance to global food security. The following is a summary of the salient points:

- ◆ Phosphorus = Food: Of the three key nutrients required for plant growth, only phosphorus is in short supply and limit global food production. Approximately 90 percent of the mined P is used for food production.
- ◆ Non-Renewable Resource: We are consuming phosphorus faster than the geologic cycle can replace it. Economically extractable P is estimated to be depleted in 50 - 100 years. Resources are geographically concentrated and controlled by a handful of countries.

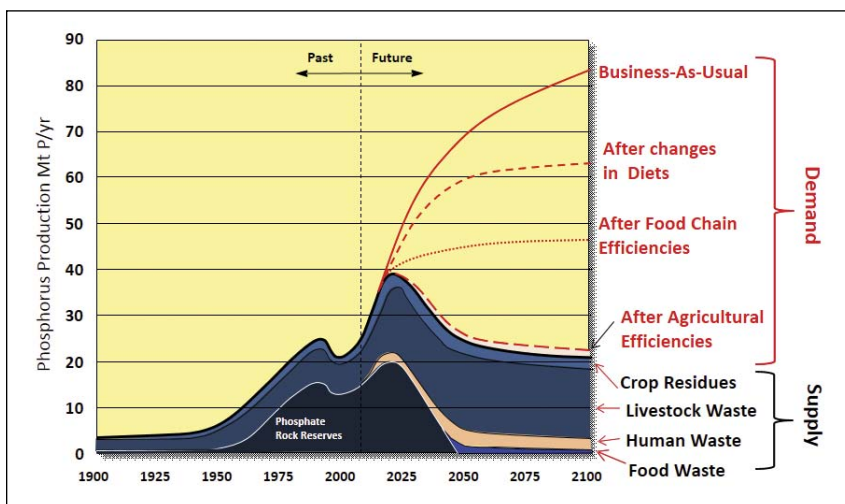


Figure 4: Strategies for Closing the Demand-Supply Gap (Cordell)

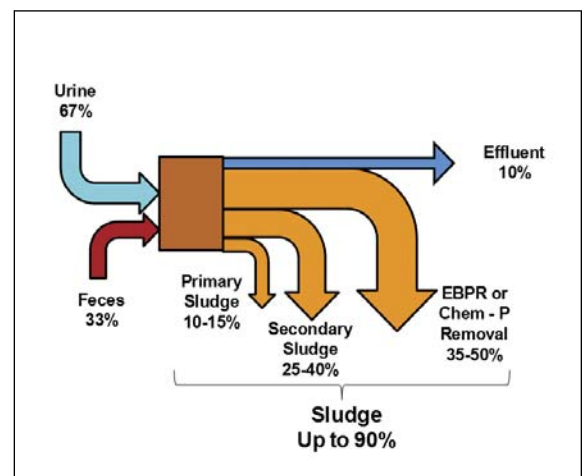


Figure 5: Phosphorus Content of Municipal Waste (Cornel et al)

- ◆ **Essential Element:** Unlike oil, which is part of a larger pool of energy options, phosphorus has no substitute. As a result, human survival hinges on the continued availability of phosphorus.
- ◆ **Phosphorus-Dependent Life-Style:** Caused by global population increase and improved quality of life trending towards P-intensive food, the demand for phosphorus is growing. Approximately 60 percent of the annual demand comes from newly mined phosphorus.
- ◆ **Significant Phosphorus Leakage.** The phosphorus cycle is associated with significant losses. In order to meet the growing demand and offset losses, five times the amount of phosphorus consumed is mined.
- ◆ **The Good Stuff is Gone!** The quality of phosphate rock is declining (lower P content & more contaminants). Accessing the remaining resources will be increasingly costly and more energy-intensive.
- ◆ **Doing Nothing is Not an Option:** Due to our action or lack thereof, life on this planet is in peril. Dramatic and transformational changes are needed in how we manage phosphorus in order to ensure long-term food security. This could potentially involve a range of disruptive and 'outside the box' strategies for reducing demand, recycling P-rich wastes, and minimizing losses.
- ◆ **A Key Role for WRRFs:** Unlike phosphate rock, human waste contains phosphorus that is readily available for extraction. Hence, WRRFs are in a position to improve and diversify the phosphorus supply chain. The amount of phosphorus that can be recovered this way represents approximately 17 percent of the mined phosphorus.
- ◆ **Implication for Plants in Ohio:** As Ohio plants strive to comply with emerging phosphorus regulations, an integrated management plan that combines both P removal and P recovery offers an opportunity to address the dual concerns of surface water pollution and looming phosphorus scarcity crisis (To be addressed in Part 2). In addition, by adopting P recovery, these facilities can begin the journey of evolving as water resource recovery facilities of the future at a manageable and affordable pace.

In closing, the issue of phosphorus shortage is not widely discussed currently; however, a visionary President recognized it 75 years ago:

*"I cannot overemphasize the importance of phosphorus not only to agriculture but also the physical health and economic security of the people of the nation."*

*Franklin D. Roosevelt, 1938*

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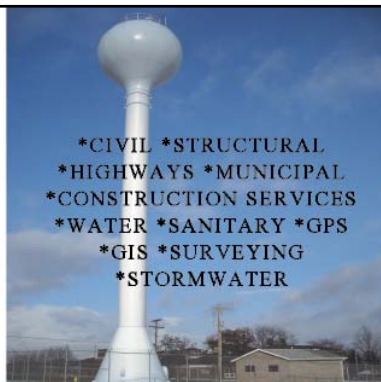
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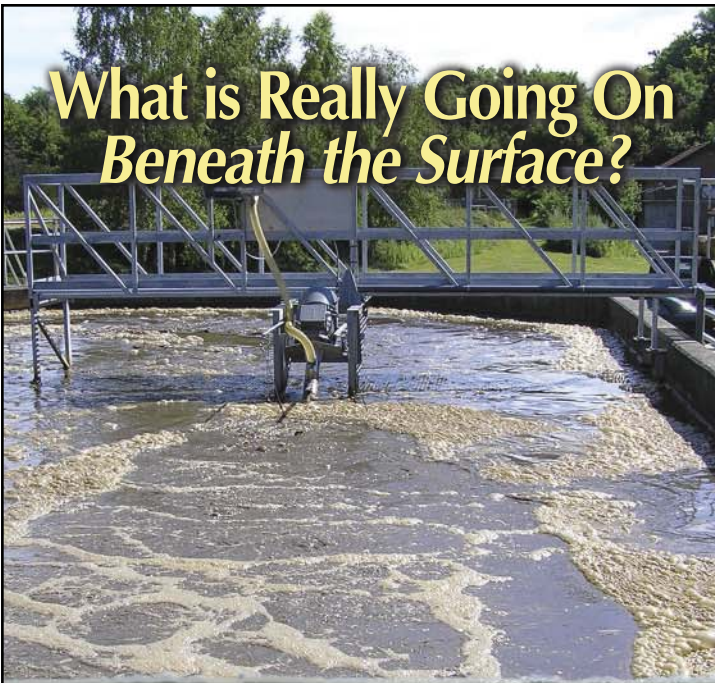
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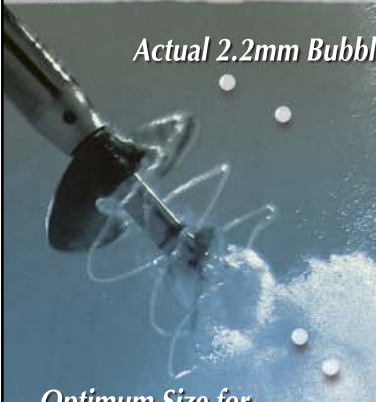




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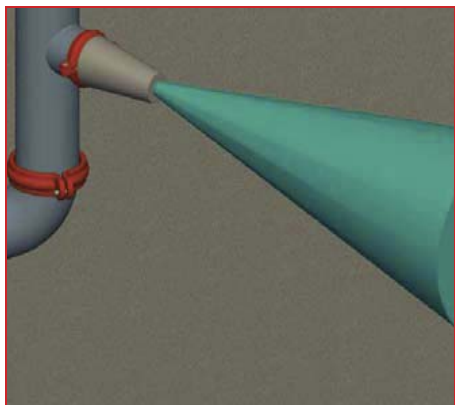
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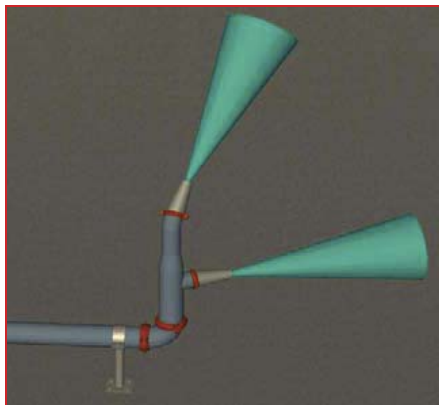
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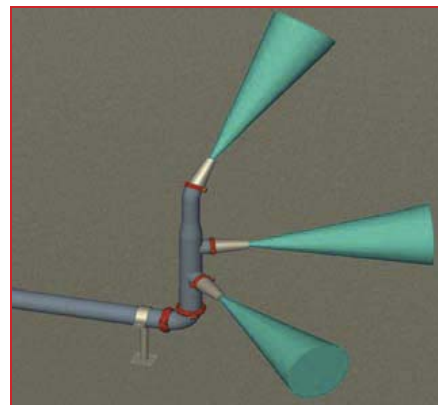
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