



# Buckeye Bulletin

Ohio Water Environment Association | Volume 83:1 | Issue 1 2010



OWEA Hosts WEFMAX  
in Cleveland May 6 & 7  
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Featured Plant  
St. Marys WTP  
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The Case for Effluent Reuse  
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*Preserving & Enhancing  
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**Don't Miss the 2010  
Government Affairs Workshop  
Thursday, March 11th in Columbus**

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## Disclaimer

The *Buckeye Bulletin* (BB) is the official publication of the Ohio Water Environment Association, Inc., a nonprofit corporation founded in 1926, dedicated to the improvement of water quality in Ohio and the continuing education of water professionals. It is one of the top five member associations of the Water Environment Federation. Subscription is through membership in OWEA.

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 the editor.

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

## On the Front Cover

OWEA's Northwest Section hosts a tour at the American II WWTP. Photo by Jeff Lamson.

## Contact Hour Information:

All OWEA training is submitted for contact hour approval.

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

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

## Publication Dates:

Spring, Summer, Fall, and Winter

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## Ohio Water Environment Association

1890 Northwest Blvd, Suite 210  
Columbus, OH 43212

T: 614.488.5800

F: 614.488.5801

C: 614.361.2080

E: [info@ohiowea.org](mailto:info@ohiowea.org)  
[www.ohiowea.org](http://www.ohiowea.org)

Judi Henrich  
Executive Administrator

Editorial Assistance Provided by:  
Samantha Moffett

## OWEA is a Member Association of the

## Water Environment Federation

601 Wythe Street  
Alexandria, VA 22314-1994  
T: 703.684.2400  
F: 703.684.2492  
[www.wef.org](http://www.wef.org)



**2010 Calendar of Events****February 2010**

- 11 SEOWEA Section Meeting  
25 NEOWEA Industrial Wastes Seminar

**March 2010**

- 11 Government Affairs Workshop  
17 NWOWEA Section Meeting  
18 Executive Committee Meeting  
18 SWOWEA Section Meeting  
25 Joint NE/SE Section Meeting

**April 2010**

- 16 NWOWEA Executive Committee Meeting  
17 NEOWEA Certification Review

**May 2010**

- 6 Executive Committee Meeting (Cleveland)  
6-7 Ohio WEFMAX in Cleveland  
13 Collections System Workshop  
18 Ohio Operations Challenge  
18 Ohio Operator Hands-on Education Day  
19 NWOWEA Section Meeting  
27 SWOWEA Section Meeting

**June 2010**

- 14 2010 Golf Outing at Foxfire Golf club  
14 Executive Committee Meeting  
15-17 2010 OWEA Annual Conference  
18 SWOWEA Section Meeting

**July 2010**

- 16 NEOWEA BioMasters Golf Outing

**September 2010**

- 1-2 Plant Operations/Lab Analysis Workshop

**2009-2010 Executive Committee**

**President** Mark Livengood, Montgomery County  
Phone/Fax: 937.781.2559/2685  
Email: livengoodm@mcOhio.org

**President-Elect** Dale Kocarek, Stantec  
Phone/Fax: 614.486.4383/4387  
Email: dale.kocarek@stantec.com

**Vice President** Doug Clark, City of Bowling Green  
Phone/Fax: 419.354.6274/1521  
Email: douglas.clark@bgohio.org

**Past President** Dianne Sumego, ARCADIS  
Phone/Fax: 330.434.1995/374.1095  
Email: dianne.sumego@arcadis-us.com

**Secretary-Treasurer** Jane Winkler, Retired  
Phone: 513.910.3775  
Email: jwink1127@aol.com

**Senior WEF Delegate** Steve Morrison, Woolpert  
Phone/Fax: 513.272.8300/8301  
Email: steve.morrison@woolpert.com

**Junior WEF Delegate** Phil Anderson, ARCADIS  
Phone/Fax: 419.473.1121/2108  
Email: phil.anderson@arcadis-us.com

**NE Delegate** Tom Angelo, City of Warren  
Phone/Fax: 330.841.2591 ext.110/2717  
Email: tangelo@warren.org

**SW Delegate** Dan Sullivan, Sullivan Environmental  
Phone/Fax: 859.426.5178/5177  
Email: danny.sullivan@fuse.net

**SE Delegate** Mike Frommer, URS  
Phone/Fax: 614.464.4500/0588  
Email: mike\_frommer@urscorp.com

**NW Delegate** Elizabeth Wick, Ohio EPA, NWDO  
Phone/Fax: 419.373.3002/352.8468  
Email: elizabeth.wick@epa.state.oh.us

**Get Involved****Join a Committee Today**

The Ohio Water Environment Association has 23 Committees with focus on wastewater, stormwater, and association operational issues. See the list of committees on page 5. Three committee chair positions are currently vacant.

OWEA needs your skill, experience, and energy. Contact President Mark Livengood at [livengoodm@mcOhio.org](mailto:livengoodm@mcOhio.org) or the OWEA office at [info@ohiowea.org](mailto:info@ohiowea.org) for more information on committees of interest to you.

**Executive Committee Meeting Dates**

March 18, 2010 - OWEA Office

May 6, 2010 - Cleveland Hyatt at the Arcade

June 14, 2010 - The Columbus Renaissance

Check the OWEA website for meeting details.



**Committee Chairs**

<b>Annual Conference</b>	Mike Frommer, URS Phone/Fax: 614.464.4500/0588 Email: mike_frommer@urscorp.com
	Cindy Jacobsen, Malcolm Pirnie, Inc. Phone/Fax: 614.430.2710/888.6711 Email: cjacobsen@pirnie.com
<b>Archive</b>	Tom Kutcher, CH2M Hill Phone/Fax: 513.337.9341/489.0807 Email: thomas.kutcher@ch2m.com
<b>Auditing</b>	Tom Fishbaugh, Ohio RCAP Phone/Fax: 419.680.4707/334.5124 Email: webmaster@ohiowea.org
<b>Awards</b>	Phil Anderson, ARCADIS Phone/Fax: 419.473.1121/2108 Email: phil.anderson@arcadis-us.com
<b>Certification</b>	Kathy Cook, Retired Phone: 937.878.1924 Email: kathy.cook8@gmail.com
<b>Collection Systems</b>	Bill Horst, Montgomery County Phone/Fax: 937.781.2636/2681 Email: horstb@mcoghio.org
<b>Contact Hours</b>	Marc Morgan, City of Mansfield Phone/Fax: 419.589.2830/7984 Email: mmorgan@ci.mansfield.oh.us
<b>Finance</b>	Steve Morrison, Woolpert Phone/Fax: 513.272.8300/8301 Email: steve.morrison@woolpert.com
<b>Governance</b>	Mark Livengood, Montgomery County Phone/Fax: 937.781.2559/2685 Email: livengoodm@mcoghio.org
<b>Government Affairs</b>	Dale Kocarek, Stantec Phone/Fax: (614) 486-4383/4387 Email: dale.kocarek@stantec.com
<b>Laboratory Analysts</b>	Eva Hatvani, NEORS Phone/Fax: 216.641.6000/8118 Email: hatvanie@neorsd.org
	Nancy Taylor, City of Newark Phone/Fax: 740.349.6774/6771 Email: ntaylor@ci.newark.oh.us
<b>Member Support</b>	Tom Kutcher, CH2M Hill Phone/Fax: 513.337.9341/489.0807 Email: thomas.kutcher@ch2m.com
<b>Plant Operations</b>	Jim Borton, City of Wooster Phone/Fax: 330.263.5293/5291 Email: jborton@woosteroh.com
	Kim Riddell, City of Delphos Phone/Fax: 419.692.0991/695.5102 Email: kriddell@cityofdelphos.com
<b>Pretreatment/Industrial</b>	Vacant
<b>Publications</b>	Vacant

**Committee Chairs**

<b>Residuals</b>	Dave Brewer, Montgomery County Phone/Fax: 937.496.7096/7358 Email: dbrewer@mcoghio.org
<b>Safety</b>	Ed Nutter, City of Newark Phone: 740.670.7950 Email: enutter@newarkohio.net
<b>Science Awards/SJWP</b>	Vacant
<b>Utility Enhancement</b>	Doug Clark, City of Bowling Green Phone/Fax: 419.354.6274/1521 Email: douglas.clark@bgohio.org
<b>Water for People</b>	Keith Riley, OhioEPA, NEDO Phone/Fax: 330.963.1111/487.0769 Email: keith.riley@epa.state.oh.us
	Cindy Jacobsen, Malcolm Pirnie, Inc. Phone/Fax: 614.430.2710/888.6711 Email: cjacobsen@pirnie.com
<b>Watershed</b>	John Aldrich, Camp Dresser & McKee, Inc. Phone/Fax: 216.579.0404/0414 Email: aldrichja@cdm.com
	Phil Anderson, ARCADIS Phone/Fax: 419.473.1121/2108 Email: phil.anderson@arcadis-us.com
<b>Webmaster</b>	Tom Fishbaugh, Ohio RCAP Phone/Fax: 419.680.4707/334.5124 Email: webmaster@ohiowea.org
<b>Young Professionals</b>	Dan Martin, RA Consultants, LLC. Phone/Fax: 513.469.6600/2684 Email: dmartin@raconsultantsllc.com

**Section Presidents**

<b>NW President</b>	John Motycka, American-Bath WWTP Phone/Fax: 419.225.8048/6092 Email: jmotycka@allencountyohio.com
<b>NE President</b>	Bob Hrusovsky, MWH Phone: 216.621.2407 Email: robert.r.hrusovsky@us.mwhglobal.com
<b>SW President</b>	Carl Gatton, Warren County W & SD Phone/Fax: 513.925.1643/695.2995 Email: carl.gatton@co.warren.oh.us
<b>SE President</b>	Greg Otey, URS Corporation Phone/Fax: 614.464.0588 Ext 7730/464.0588 Email: greg_otey@urscorp.com



Mark Livengood  
OWEA President

I am writing today during the week between Christmas and New Year's Day. My wife and I have had a "full house" over the holidays, as my daughters are either visiting from New Orleans or are home from college for holiday break. Mary-Pat (2nd year law student at Loyola) brought with her from NOLA her husband Ira and dog Coltrane. Hannah is home from Saint Louis University and has one semester remaining in her undergraduate studies.

Rachel, my wife, has once again outdone herself this holiday season with decorating, baking, buying, wrapping, and coordinating.

December 2009 marks the mid-point of my leadership role as President for OWEA. It has been a quick 6 months, and I'm sure every past-President has also felt that their year of leadership goes by more quickly than expected. 2009 has been a year of special accomplishments for OWEA. One of these was signing a Memorandum of Understanding with USEPA's Research Lab to provide technical comments on future documents for which USEPA needs quick and targeted review. Thanks to Dianne Sumego and Dale Kocarek for heading this and other technical review and comment activities. 2009 also marked the first complete calendar year for Judi Henrich, Executive Administrator for OWEA. I think a President's year goes by so quickly because Judi does an outstanding job of handling the big, small, important, and mundane business issues associated with running our not-for-profit organization.

Someone has been quoted as saying "There are two kinds of leaders: those who are interested in the flock, and those who are interested in the fleece". OWEA is fortunate to have leaders, at the Committee, Section, and Member Association levels, of the former kind—those who take extra steps to help OWEA and WEF move toward meeting their goals and objectives. These leaders are not in it for themselves. To better describe these individuals, I like to use the adjectival phrase "they're engaged to fulfill personal and professional demands". To summarize—engaged leaders often appear busy (and successful) in both personal and professional duties. They find it difficult to say "no" when asked to help with something. They have the ability to have answers to difficult questions. They are balanced.

Today, I am asking each OWEA and WEF member to become more engaged with OWEA. At your Section level, become involved with a committee. Offer to give a 30 minute technical talk about a success story at your plant or system. Team up with a coworker to develop an article for the Buckeye Bulletin highlighting your plant. Offer to help with meeting set up. Become the "go-to photo-taker" for your Section and have your photos posted on websites and published in the Buckeye Bulletin. Take part in operator education days to share hints with others who are preparing for certification

exams. By becoming more engaged with OWEA, one will continue to meet others who appreciate hard work and who take initiatives to enhance our environment. By sharing your positive outcomes to problem-solving, OWEA will attract new members and retain our current members. You will help your personal and professional growth and knowledge.

Just 10 short years ago, many of us were preparing for "planetary implosion" as the Y2K computer clock/date/calendar issue was approaching. I recall celebrating the arrival of 1-1-2000 along the frozen shores of the Great Miami River in Troy, where the community had planned a special fireworks celebration. This was in contrast to preparations we had taken at work and at home. At work, computer systems had been backed up, software that was deemed prone to Y2K error had been replaced or upgraded, and computer systems that were not required for critical system support were temporarily taken off-line for the date shift. At home, we had candles ready for temporary light, some drinking water stored, the camping stove was ready for possible use, and firewood was stacked and dry. At the stroke of midnight plus 1 second---nothing happened---except the fireworks were set off and we returned home with fully functioning lights, heat and water. But we were prepared!!

OWEA is preparing for 2010 and beyond. The 2010 Annual Conference is in good hands with co-chairs Michael Frommer and Cindy Jacobsen. By the time this article is read, OWEA award winners for 2010 will have been chosen. The 2010 Government Affairs workshop will be approaching in early March. The OWEA Executive Committee will be considering nominees for WEF Delegate, replacing Steve Morrison who will finish his 3-year term in October. The Northeast Section will nominate a State Delegate for OWEA's Executive Committee as Tom Angelo continues his "engagement" as Vice President.

Thanks for reading and hopefully thinking about how you can become more engaged with OWEA and WEF.

Mark Livengood  
[livengoodm@mcOhio.org](mailto:livengoodm@mcOhio.org)

### Don't Miss Out On Important News Update Your Membership Profile

Maintain an accurate mail and email address so you receive timely communications from OWEA regarding upcoming events, important news affecting water environment issues, and your copy of the Buckeye Bulletin.

Please check your member profile at: [www.wef.org](http://www.wef.org) by clicking on the Membership link. You can also make changes to your OWEA/WEF membership account by contacting WEF directly at 1.800.666.0206 or by email at [csc@wef.org](mailto:csc@wef.org).



Steve Morrison, Sr. WEF Delegate

## WEF DELEGATE REPORT



Phil Anderson, Jr. WEF Delegate

Congratulations to the Biosolids Committee, speakers, attendees, and other volunteers for the recent successful workshop. With attendance near 140, this workshop was a huge success and OWEA has again received many favorable comments from the attendees. I was in attendance at the workshop and can attest to it being a huge success. The popularity of this workshop continues to grow year after year. Another great example why plant operators should become members of WEF and OWEA.

In our last report we mentioned that preliminary indications were that WEFTEC in Orlando was a huge success. Well, the numbers are in and once again it met expectations. Official attendance was 17,772, down a little from what was projected. The 967 exhibitors once again set a record. It should be noted that 92% of the exhibitor space for next years WEFTEC in New Orleans has already been reserved by vendors. Attendees also had an opportunity to attend 123 different technical sessions during the conference. Make your plans now to be part of the 2010 event. WEFTEC continues to be the premier water quality event for our industry.

WEF, through the Board of Trustees (BOT) and the House of Delegates (HOD) continues to look at ways to improve existing and add additional services to our members. The WEF Board of Trustees (BOT) recently created a Membership and External

Relationship Workgroup to review recommendations made by the House of Delegates (HOD). The HOD provides recommendations, developed through workgroups, to the BOT on ways to improve WEF services to its members. OWEA members are well represented on these workgroups. Your WEF Delegates, Steve Morrison and Phil Anderson, participate on several of the workgroups. OWEA member and Past President, Debbie Houdeshell, is also a member of the WEF BOT.

If you've been to the WEF website recently you have noticed the enhancements that make navigating the site much more user friendly. The site has a wide variety of information that can be used by the general public and also water environment professionals. The site contains information that can assist us on a day-to-day basis in performing our jobs.

If you have any comments or questions pertaining to WEF please let your Delegates know.

Steve Morrison  
[steve.morrison@woolpert.com](mailto:steve.morrison@woolpert.com)

Phil Anderson  
[phil.anderson@arcadis-us.com](mailto:phil.anderson@arcadis-us.com)

## WEF DELEGATE CANDIDATE APPLICATIONS

Due May 15, 2010

The OWEA Executive Committee will appoint a new WEF Delegate in June 2010 to represent OWEA in the WEF House of Delegates. This appointment is open to any current WEF/OWEA member in good standing. The successful candidate will have shown past interest in positively supporting OWEA and WEF by serving on committees, on an Ohio Section Executive Committee, on OWEA's Executive Committee, or other relevant service.

The position would require a 3-year commitment to serve in the WEF House of Delegates. The delegate position starts in October 2010 and runs through WEFTEC in 2013. The successful candidate will replace Steve Morrison, who is completing his 3-year HOD position. Phil Anderson is OWEA's second WEF Delegate and is completing his first year of service.

Please review the House of Delegate Orientation to learn more about the responsibilities of a WEF Delegate.

([http://www.ohiowea.org/docs/Delegate\\_Orientation\\_2009.pdf](http://www.ohiowea.org/docs/Delegate_Orientation_2009.pdf))

If interested, please send an email with appropriate supportive information by May 15, 2010 to Mark Livengood, OWEA President  
[livengoodm@mcoho.org](mailto:livengoodm@mcoho.org)



# UTILITY “WELLNESS CHECK” IN A DOWN ECONOMY

by Dale E. Kocarek, P.E., BCEE - OWEA President-Elect

## The Health and Wellness Debate

Many of us who have reached the age of 50 acknowledge this to be a milestone in life when we are increasingly bombarded by messages – both subliminal and direct – about health and wellness, starting with the receipt of literature from AARP. For those who suffer from maladies such as diabetes, high blood pressure, heart disease, or a predisposition towards different types of cancers, the background “noise” that we hear increases to the point where these messages become a deafening cacophony. Still adding to the weight of this message is the controversy of the national health debate, which promises to occupy the air waves and printed media for years to come.

Like many progressive organizations in the 21st Century, my employer, Stantec, initiated a wellness program. For those of us who have previously maintained distance from the medical profession, having easy and convenient screenings for blood pressure, cholesterol, and blood glucose is a good thing.

## A Final Word on ARRA

The year 2009 began with a dizzying period of wishful expectation beginning with the announcement of a new emergency funding program installed with the directive to target “shovel ready” projects through the program called the American Recovery and Reinvestment Act of 2009 (ARRA). The objective for this program was two fold: (1) repair aging critical infrastructure, which by all accounts is overdue for an overhaul as is evidenced by the bridge collapse on I-80 in Minneapolis in 2008, and (2) infusing money into the ailing economy quickly through the construction trades, where it tends to stay “local”. Many of us were caught up in the excitement of submitting applications. There were several periods during February 2009 that I was reminded of the old days of the Construction Grants Program.

Unfortunately, many applicants for the ARRA were disappointed. I heard many complaints about the way that projects were selected and many were confused over the definition of “shovel ready”. Despite its shortcomings, I am happy for those who received funding, including one of my projects involving the “water treatment” side. The receipt of a zero percent loan and a \$500,000 forgiveness loan for my client was an unexpected blessing. It is for the rest of those communities, who deserved, but were unsuccessful in their pursuit of funding through ARRA, this column is dedicated.

## A “Wellness Check” for Utilities

Given the age and criticality of our public infrastructure, it is logical to think that it is due for a “wellness check”. Given a poor economy and disappointment over the lack of receiving ARRA funding, it is doubtful that 2010 will bring forth significant new projects into construction to reverse this trend. Most communities will have to make do with equipment and systems for at least another year while the economy begins to heal. For those undertaking projects, many

will be smaller and done under the guise of “maintenance” projects. Those fortunate enough to undertake larger improvement programs will likely invoke lengthy programs of phasing to spread upfront capital cost over a longer period of time and into a better economy.

## Establishing Realistic Expectations for 2010

It is at times like this where good planning is critical. When undertaking small projects it is imperative to pay close attention to make sure that all of the pieces fit together at the end of the program. Inherent with any planning effort, it is important to provide good value for the investment being proposed to create a project that is “sellable” to key decision makers, and ensure that future needs are not being compromised in the process. Also, just so there is no misunderstanding: phasing does not reduce cost; rather it increases it. However, in this day and age, when something is better than nothing, much like the “short game” in football, it is a viable strategy to “move the ball downfield” and achieve good in the end.

## How Do We Begin?

As an initial step, I suggest that any community focus their thoughts and needs on the creation of a master facilities plan. A portion of this plan should inventory critical equipment and estimate remaining life and risk of failure. This process helps create “sellable value” for a decision maker by creating a better vehicle for effective communication.

When preparing the master facilities plan, I recommend that it be made simple and clear so that it can be well understood by a wide range of parties and groups including technical staff, decision makers in the administration, public, and even the media. A table, which may be helpful in the education and communication process, is presented in Table 1 on page 9.

## New Year’s Resolutions:

While many resolutions for the New Year are quickly broken, I believe that the following will help any treatment plant in the upcoming year:

- ◆ Resolve to maintain an Operator’s log to record all process changes, significant events, and operational adjustments (this may already be a requirement in your NPDES permit)
- ◆ Resolve to make only one change at a time when seeking to correct a process related problem (we all say this, but few of us do this)
- ◆ Resolve to formulate a better understanding of the minimum solids inventory needed for your plant to maintain optimum process stability and performance. Remember that more solids does not equate to better performance.

**Table 1 - Risk Evaluation Summary for Critical Equipment and Systems**

Name	Likelihood of Failure within 5 years	Mode of Failure	Implication of Failure			Action Required
			Low	Medium	Severe	
Wet Well	50%	Structural			X	Repair
Sewage Pumps	90%	Mechanical		X		Replace
Blowers	70%	Mechanical		X		Rebuild
Effluent Flow Meter	100%	Mechanical		X		Replace
Sludge Storage	100%	Regulatory		X		Add Capacity

**Process Control Initiatives:**

These tasks pertain to gaining a better understanding of your own system:

- ◆ Purchase a phase contrast microscope for activated sludge and filament identification and obtain training
- ◆ Measure performance using the 30-minute settling test and microscope on a daily basis
- ◆ Create trend charts to track important process parameters and determine correlations
- ◆ Waste sludge to keep solids inventory in the appropriate operating “zone”
- ◆ Keep sludge return rates low to maximize actual detention time in the bioreactor and minimize secondary releases in the final clarifiers
- ◆ Determine if even flow splitting is occurring between trains, aeration tanks, and final clarifiers and take appropriate action
- ◆ Understand the impact of recycle streams on your plant

**Reliability Initiatives:**

These tasks are examples of those which can be undertaken as self directed pursuits without significant input from professional service firms:

- ◆ Fix broken valves
- ◆ Calibrate all meters including WAS
- ◆ Level weirs on clarifiers
- ◆ Manage spare parts inventories to know what is available and what condition the part is in
- ◆ Purchase portable pumps for bypass pumping and draining tanks and pump stations
- ◆ Create a field investigation crew to identify and remove large sources of infiltration and inflow, which usurp capacity and may create loading violations
- ◆ Rewrite ordinances for infiltration and inflow to give more teeth to the public authority including correction of some defects on private property, perhaps including the building service laterals
- ◆ Update position descriptions to attract and retain the best employees

- ◆ Execute emergency aid agreement with neighboring communities to share personnel, and equipment such as portable pumps, generators, sludge treatment, and flush trucks in the event of emergencies

**Small Capital Improvement Initiatives:**

These improvements typically provide high value in the form of operations, maintenance, regulatory compliance, or process control:

- ◆ Improve sludge thickening to get more capacity of digestion and storage tanks
- ◆ Convert unused tanks to equalize high strength recycle streams
- ◆ Add a biological selector to obtain a better settling sludge
- ◆ Replace aeration diffusers
- ◆ Replace mechanical screens
- ◆ Replace any pump, blower, instrument, or pipe that is at the end of its useful life, cannot be rebuilt or repaired appropriately and that if unattended may create a safety hazard, NPDES permit violations, or contribute to more expensive problems later.

**Beware of the Old Adage**

As I bring this article to a close, I want to take a moment to address a concern that we all have faced. This is the old adage that “if something seems too good to be true, it probably is”. Much of how we base our decisions involves calculating a pay back period. When computing “payback” upfront costs, which include design and construction costs, financing, are reconciled against operational cost savings that include labor, energy, transportation, chemicals, and on-going maintenance. Any envisioned savings in operational cost, when reconciled over time used is the “payback period.”

When money is tight, it is essential to carefully research sales pitches that promise paybacks in the near future—say anything less than 3 years. This last year we heard a lot about sludge treatment and making electricity from sludge. While I acknowledge that there have been gains in this area, we must not forget the fundamental truth of gains often is at the expense of significant upfront cost. If this is understood by all parties, then the necessary education has been successful.

*continued on page 16*

## NW SECTION

*John Motycka, NW President*

The Northwest Section Fall Meeting was hosted by the Allen County Sanitary Engineering Department on October 21, 2009. Attendees were treated to a pancakes and sausage breakfast that was organized by Doug Borkosky. The event raised approximately \$360 that was donated to Water for People. Hats off to Doug and his assistants for their hard work for a very worthy cause.



Tours of Allen County's American II WWTP, a 1.3 mgd sequencing batch reactor with the Cannibal Solids Reduction System, and the American-Bath WWTP, a 1.5 mgd Orbal oxidation ditch, were given in the morning. Thank you to the staffs of both plants for your hard work in preparing for the event.



Lunch, technical sessions, and the business meeting were held at the Lima Fraternal Order of Eagles Lodge. Steve Kayatin P.E., Allen County Sanitary Engineer, was presented a plaque in appreciation for hosting the meeting. Jeff Swartz P.E. and Phil Anderson from ARCADIS gave presentations on the design, operation, and maintenance of The American II Wastewater Treatment Plant. Bryce VandenBoom from Siemens Water Technologies Corporation gave a presentation on the operation of the Cannibal Solids Reduction Process. During the business meeting Michelle Sharpe, from OEPA and the Northwest Awards Committee Chairperson, presented

Neil Pry, Assistant Superintendent at the City of Defiance Water Pollution Control Facility, the 2008 Collection System Award. There were approximately 115 people that attended the meeting.

Northwest Past President Frank D'Ambrosia organized the Semiannual Northwest Operator Education Day that was held at the OEPA Northwest District Office in Bowling Green on October 23. Dail Hollopeter P.E. and Doug Brookhart from Jones & Henry Engineers and Al Zamora P.E. from Kusmer and Associates Incorporated were the instructors for the training event. There were approximately 25 operators in attendance.

Northwest Industrial Waste & Pretreatment Committee Chairperson, Josh Wehring, organized an Industrial Pretreatment Meeting that was held at the OEPA Northwest District Office in Bowling Green on December 9. Mike Maringer from Industrial Fluid Management gave a presentation on pharmaceuticals in water and wastewater treatment facilities. Brian Sprang from Allmax Software Incorporated gave a presentation on the benefits of a pretreatment data management software system. There were 41 people in attendance for the training event.

Upcoming Northwest Section training events include the section meetings scheduled for March 17 in Archbold and May 19 in Bowling Green. Other meetings to watch for this spring that are not scheduled at this time are the Northwest Biosolids Committee meeting, the Laboratory Analysts Committee meeting, and the Operator Education Day. The dates, times, and locations will be placed on the calendar at [www.ohiowea.org](http://www.ohiowea.org) as soon as they are scheduled.

John Motycka  
[johnmotycka@allencountyohio.com](mailto:johnmotycka@allencountyohio.com)

## SW SECTION

*Carl Gatton, SW President*

The 8th Annual Plant Operations Seminar was held at the Crowne Plaza in Blue Ash on November 12, 2009. Attendance was 127. Congratulations to our hard-working Plant Operations Committee for another successful seminar!

The December 18 Past President's Luncheon at Parmizanno's in the Dayton Marriott Inn had 31 attendees. This is an annual affair to recognize the great contributions from our SWOWEA past presidents.





Our most recent section meeting was held on January 28 at the 21st Annual Industrial Wastes Seminar held at the Wingate by Wyndham in West Chester, Ohio.



The SWOWEA Laboratory Analyst Committee has been very active, with recent and future meetings:

- ◆ January 21, noon - 4 p.m., at TestAmerica, 4738 Gateway Circle, Kettering, Ohio
- ◆ April 15, 10 a.m. - 3:45 p.m., at YSI, 1700/1725 Brannum Lane, Yellow Springs, Ohio
- ◆ July 15, noon - 4 p.m., at the Fairfield Wastewater Treatment Plant, Fairfield, Ohio
- ◆ October 21, noon - 4 p.m., at Greene County.

Our next SWOWEA Executive Committee Meeting will be held February 12 from 9:30 a.m. to noon at the Hazen and Sawyer Office.

The spring section meeting is scheduled for March 18 at Greene County. A tour of the upgraded Sugar Creek Water Reclamation Facility is included.

April 30, Operator Education Day at the Montgomery County Sanitary Engineering Building. Also, another session is being planned for October.

Check the SWOWEA website at [www.swowea.org](http://www.swowea.org) for EC and Committee Chair contact information and for other events as they are scheduled.

Carl G. Gatton

[Carl.Gatton@co.warren.oh.us](mailto:Carl.Gatton@co.warren.oh.us)

## NE SECTION

*Bob Hrusovsky, NE President*

The NESOWEA 2009/2010 year started off with a great meeting at the City of Solon where over 125 NESOWEA members attended the meeting. The meeting featured a tour of the Solon Water Reclamation Facility and the L'Oreal manufacturing facility. After a bountiful buffet lunch at the Solon Community Center, we had technical presentations. The outstanding effort by the plant staff, L'Oreal personnel, and the presenters was really appreciated.

It's time for the next phase of our year which is the Operations Seminar on January 28, 2010, and the Industrial Seminar on February 25, 2010. Both all day seminars have really great



programs and it's a great opportunity to get contact hours and mingle with a few hundred fellow NESOWEA members.

The NESOWEA Web Page is up and running. This will be a great way for our members to obtain Section information. Please visit [www.nesowea.org](http://www.nesowea.org).

We also plan on having a joint meeting with the Southeast Section at the Dover, Ohio WWTP in March 2010. This will be a great opportunity to see a plant that uses membranes for treatment and to mingle with Southeast section members.

Bob Hrusovsky

[robert.r.hrusovsky@us.mwhglobal.com](mailto:robert.r.hrusovsky@us.mwhglobal.com)

## SE SECTION

*Greg Otey, SE President*

The Southeast Section is currently in the process of thawing out from the winter freeze, and we are preparing for 2010. Hopefully, 2010 will be the start of the economic recovery and we all get stimulated. And speaking of being stimulated, the SE Section has just the solution to do that.

Our first meeting of the new year will be held in Columbus on February 11, 2010. It is our traditional industrial-themed meeting, and we will be touring Hanson Pipe and Precast in the morning at their facilities in Columbus and then moving on to the Berwick Manor Restaurant for lunch, business meeting, and technical sessions.

*continued on page 12*

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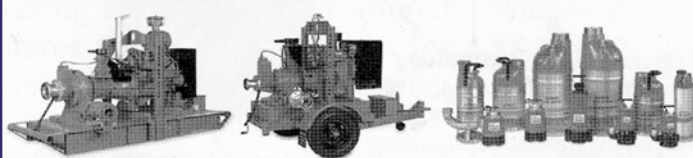
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## SE SECTION

continued from page 11

On March 25, 2010, we plan to team up with our brethren up north and have a Joint SE/NE Section Meeting in Dover, Ohio. Stay tuned for more specific information on this upcoming meeting. The details are still in the process of being finalized.

Also in March, the SE Section will be very active judging six District Science Fairs. Since we are blessed with such a large section (geographically speaking), it is always a challenge to cover all these Science Fairs. But thanks to a dedicated group of volunteers, we always manage to "get-er-done". Having been a past Science Fair Judge (and having kids that participated), it is a very rewarding and worthwhile experience. So, please contact me or any of our Executive Committee members if you want to spend a Saturday morning for a good cause judging Science Fair projects while also promoting the wastewater industry. You will be truly surprised and impressed with the young people that some day will be filling our shoes.

Greg Otey

greg\_otey@urscorp.com

## WELCOME

*new members who joined OWEA  
in October, November, and December.*

Keith Bair	Suzanne Matz
James Baxter	Linda Mayer-Mack
Dane Brown	James Nelson
Henry Carota	John Pelton
Nicholas Dornbusch	Laquita Pickard
Ashley Elber	Lisa Silva
Pat Esposito	Matt Taggart
Gary Hater	Joseph Taylor
Robert Hornic	Joseph Tekuelve
Andrew Hunter	Marie Wenzel
Katherine Kinstedt	Denny White
Doug Knauer	Christopher Witt
Dennis Long	Billy Wooton
Ting Lu	

Dwight Thompson Rick Wilhelm Marc Nusser

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## YOUNG PROFESSIONALS

by Dan Martin

Professional development opportunities, contact hours, and camaraderie. . . . the Young Professionals Committee has it all in 2010.

For the State Conference in June we will have a block of sessions dedicated to younger members.

- We plan to have senior folks from Sewer Districts, Regulatory, Manufacturing, and Consulting backgrounds sit in a roundtable discussion and answer questions. This technical session worth 1 contact hour of credit was successful in Cleveland in 2008, so we have brought it back.
- We are also planning a session around professional development, time management, and organizational skills.
- We will cap off our sessions with a YP Committee Meeting.

Our hallmark event in 2010 will be a YP Summit planned to occur in Central Ohio. The event will be centered around a “green” activity such as the planting of a rain garden. Participants will learn key aspects of sustainable “green” design while earning contact hour credit as we literally roll up our sleeves and dig into this seminar. Keep an eye on future YP updates for more details on the date and location.

Are you a young operator who would like to learn more about the Operator Challenge Competition? Would you be interested to participate in the competition, but your utility doesn’t have a team in place? We are trying to establish a YP Operator Challenge team made up of operators from multiple utilities. Please contact Dan Martin ([dmartin@raconsultantsllc.com](mailto:dmartin@raconsultantsllc.com)) if you would be interested.

### Notable Happenings

- On October 23rd, the SEOWEA YP Committee held its last event of the year. Twelve individuals visited the Columbus Southerly WWTP and learned about four current wet weather projects under construction; including new headworks, rehabilitation of existing aeration tanks and secondary clarifiers, the addition of new aeration tanks and secondary clarifiers, and an effluent pump station. All of these projects had young professionals involved so it was very nice to see their hard work and dedication.



A special thank you goes to Bill Johngrass for arranging the presentations and also thanks to the presenters Chad Dunn, Patrick Eiden, and Andrew Eribo for conveying some great information. After the tour, URS supported the happy hour social event. Thanks to all attendees.

- It seems hard to imagine, but spring is just around the corner so watch for information concerning the upcoming 2nd annual SE YP Golf Outing event. Contact Brandon Fox ([bfox@co.fairfield.oh.us](mailto:bfox@co.fairfield.oh.us)) if you have ideas for future events or would like to become more involved.
- The Northeast YP Committee is officially up and running, and is in the process of putting together an event for the first quarter of 2010. The Northeast section is also working to reach out to universities in the area in hopes of increasing student involvement in the section and build the YP presence. If anyone has any contacts at schools that may be interested, or know of anyone who may have an interest in joining the section, please send contact information to Nick Bucurel ([nbucurel@pirnie.com](mailto:nbucurel@pirnie.com)).
- Southwest Section held a happy hour get together on December 10th. We discussed activities for 2010.
- The Northwest YPs are looking at possibilities for upcoming events. Contact Walter (information below) for additional details.

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

SE Section: Brandon Fox, [bfox@co.fairfield.oh.us](mailto:bfox@co.fairfield.oh.us)

SW Section: Dan Martin, [dmartin@raconsultantsllc.com](mailto:dmartin@raconsultantsllc.com)

NW Section: Walter Ariss, [Walter.Ariss@epa.state.oh.us](mailto:Walter.Ariss@epa.state.oh.us)

NE Section: Nick Bucurel, [NBucurel@pirnie.com](mailto:NBucurel@pirnie.com)

OSU Student Chapter: Nick Elmasian, [nemasian@gmail.com](mailto:nemasian@gmail.com)

Please contact Nick if you or a Student/YP you know would be interested to develop a student chapter at a local university.

Special thanks to all the committee volunteers who make the YP committee vibrant! As always, if you have any suggestions or questions, please contact Dan Martin, [dmartin@raconsultantsllc.com](mailto:dmartin@raconsultantsllc.com), 513.469.6600.





## LAB ANALYST COMMITTEE

by Chairs Eva Hatvani and Nancy Taylor

### Lab Certification News:

The Laboratory Analysis Committee would like to congratulate the following people for successfully passing the Laboratory Certification Exam:

<b>Class I</b>	<b>Class II</b>	<b>Class III</b>
Karen Dickerson	John Feightner	William Collins
Paul Fraley		
Patricia Gifford		
Josh Phillips		
Nivia Torres		
Paul Wilkins		

This Wastewater Analyst License is an observable measure of the aptitude of personnel in the laboratory and helps to ensure accurate, responsible data collection and reporting. Good job people!

### **2010 Exam Dates**

April 23, 2010  
Cleveland and Columbus – Locations TBA  
Application Deadline is March 12, 2010

October 22, 2010  
Cleveland and Columbus – Locations TBA  
Application Deadline is September 10, 2010

The test fee is \$95.00.

Applications and need-to-know criteria can be found at:

[www.ohiowea.org](http://www.ohiowea.org) > Certification Programs > Lab Analyst

Please contact Eva for more details on specific test sites (216.641.6000, [hatvanie@neorsd.org](mailto:hatvanie@neorsd.org)).

Need some explanation on the lab stuff you should know? A lab certification study manual is available for purchase on the OWEA website. The Lab Review Manual was put together by the NE Section and is a comprehensive guide to the material required for all four levels of certification. It is available for \$20 and can be ordered by contacting either of the NE section chairs listed below.

If you already have your license, hopefully you remembered to renew by January 31, 2010. If you didn't get your \$25 in to OWEA to renew your license by the deadline, you now owe \$95 to renew your license. Proof of past license is also required after the January 31 deadline. If you cannot produce a copy of your lapsed certificate then all certification tests must be re-taken and passed in sequential order to obtain a current license. An application can be printed from the OWEA website ; Certification Programs > Lab Analyst.

### Operations Challenge

Operations Challenge is scheduled for May 18 at the Allen County Sanitary Engineering Department, 3230 N. Cole St. Lima, OH 45801. The LAC will again be organizing and running the lab portion of the Challenge. This event is set up not only as a competition, but as a hands-on learning opportunity as well. So come join us and try your hand at setting up a BOD or some of the other Ops Challenge events. More information can be found at [www.ohiowea.org](http://www.ohiowea.org), under the "Operations Challenge 2010" tab located on the left of the page.

### NE LAC – Kathy Richards

#### ◆ **December 11, 2009**

Medina County Sanitary Engineers' Dept hosted a LAC training event, and despite some very nasty weather we had a full house. Cheryl Soltis-Muth from NEORS D reprised her State conference presentation "What's the Deal With Laboratory Ethics and Data Quality?" Steve Roberts from OEPA overcame technical difficulties with his presentation of "The Methods Update Report & What It Means To You". 2 contact hours were approved for this event. Anyone who attended this session and has not yet received the PDF version of these presentations please contact me. [NESOWEALAC@gmail.com](mailto:NESOWEALAC@gmail.com) or 330.864.0521 Ext. 484

#### ◆ **February 23, 2010**

Akron WPCS will be hosting a training event from 1:00 – 3:30. Dr. Marc Silling, Testing Coordinator for the University of Akron, will speak about "Study Skills and Test Taking Strategies". Dr. Silling has been the learning specialist at NEOUCOM. His primary role was to teach medical students how to study for and pass board exams. A second speaker has yet to be confirmed. Contact hours are pending.

#### ◆ **April 2, 2010**

Wastewater Analyst Certification review session is tentatively scheduled for this date. The venue has yet to be determined. This session has been approved for 4 contact hours. Review manuals will be available either on a CD or as a bound copy. If you do not plan on attending the review session but would like to purchase a review manual, order forms can be found online at the new NE Section website, [www.nesowea.org](http://www.nesowea.org).

Additional training events will be announced in future Buckeye Bulletin articles as well as in Sparkling Waters, the NE Section's newsletter. Copies of our newsletters are available online at [www.ohiowea.org](http://www.ohiowea.org) and [www.nesowea.org](http://www.nesowea.org). While you are visiting these websites, consider responding to the NESOWEA LAC Questionnaire. The information we compile will go a long way towards building a networking database that will enable analysts to better connect with each other and share experiences and support. If you would like to be added to our NES membership directory (now numbering close to 200), please contact Kathy Richards.

Co-Chair Kathy Richards, 330.928.1164 x484, [NESOWEALAC@gmail.com](mailto:NESOWEALAC@gmail.com)  
Co-Chair Denise Seman, 330.742.8820, [dseman@cityofyoungstownoh.com](mailto:dseman@cityofyoungstownoh.com)

### Southwest LAC

The SW Section of the Laboratory Analysis Committee held a meeting on November 5th, 2009 at the Metropolitan Sewer District of Greater Cincinnati Laboratory, Division of Industrial Waste. Attendance was excellent, with 37 people from 10 organizations attending. Technical sessions included the following presentations:

- ◆ "PeCOD (a new way to analyze COD)" by Aaron Gotway, ManSci Inc, (1 Contact Hour approved)
- ◆ "Automated BOD Analysis" by Aaron Gotway, ManSci Inc, (1 Contact Hour approved)

*continued on page 15*

- ◆ Lab Tour - Highlighting Automated BOD, Low level Hg analysis, GCMS, and sample Custody (0.75 Contact hours approved)

Refreshments were provided by the Metropolitan Sewer District of Greater Cincinnati.

Photos of the meeting have been posted to the web at: <http://www.swowea.org/lac.htm>

The following events are on the 2010 calendar for the SW section LAC:

- ◆ January 21st, 12 - 4 pm  
TestAmerica, 4738 Gateway Circle, Kettering  
pH analysis  
Low Level Hg sampling and analysis  
Laboratory Documentation  
Laboratory Tour  
Refreshments provided by TestAmerica
- ◆ April 15th, 10 am -3:45 pm  
YSI, 1700/1725 Brannum Lane, Yellow Springs  
Advancements in DO technologies, electrochemistry vs. optical and review new BOD probe  
How to get the best DO data, calibration, maintenance and troubleshooting your DO Probe  
Facility Tour  
Lunch provided by YSI
- ◆ July 15th, 12 - 4 pm  
Fairfield Wastewater Treatment Plant, 4799 Groh Lane, Fairfield  
Topics to be determined.
- ◆ October 21st, 12 - 4 pm  
Greene Co. Sanitary Engineering, Laboratory Division, 422 Factory Road, Beavercreek  
Topics to be determined.

**Co-Chair** Roger Rardain, 937.754.3075, [roger.rardain@ci.fairborn.oh.us](mailto:roger.rardain@ci.fairborn.oh.us)

**Co-Chair** Jim Davis, 937.496.7051, [davisji@mcchio.org](mailto:davisji@mcchio.org)

### **Southeast LAC**

We are looking for a place to hold our March meeting. This will be an afternoon meeting, so you don't have to plan to feed anybody lunch, just show us around your place a little. Remember, the cost is free and your operators are welcome (everybody needs contact hours)! If you would like to host the meeting or have topics in mind that you would like to see presented, please contact:

**Chair** Diana Liston, 614.864.3370, [dliston@co.fairfield.oh.us](mailto:dliston@co.fairfield.oh.us)

### **Northwest LAC**

A spring meeting is planned, but not finalized. To get on the mailing list for this meeting please contact:

**Chair** Kevin Hughes, 419.488.5440, [watertreatment@tiffenohio.gov](mailto:watertreatment@tiffenohio.gov)

### **Crystal Crucible**

The March 1 deadline for Crystal Crucible Nominations is quickly approaching!

This Crystal Crucible is a peer-nominated award for exemplary laboratory personnel with at least ten years of wastewater laboratory experience. The deadline for submission is March 1, 2010 but applications are accepted year-round. If you miss the deadline this year, but still want to nominate an individual that you feel has given outstanding performance to our profession, please download the nomination form located at [www.ohiowea.org](http://www.ohiowea.org) (Select : Committees> Laboratory Analysis Committee. The form is located at the bottom of the page) and submit the completed form to:



Eva Hatvani  
NEORS  
4747 E. 49th Street  
Cuyahoga Heights, OH 44125

Plaques and pins will be presented to the 2010 awardees during the Awards Breakfast at the OWEA conference in Columbus this June. The induction ceremony for new members will take place at the annual C<sup>2</sup> Family Picnic this August.

If you have any topics that you would like to see presented at either a section meeting or a statewide meeting, please don't hesitate to contact Nancy Taylor or Eva Hatvani. We are always looking for new presentation ideas as well as new speakers. If you are interested in writing a technical article for the Buckeye Bulletin, we would love to hear from you too. The audience reading this article is filled with experienced, knowledgeable people. Share your expertise with the young professionals coming up through the ranks. They need to hear from you either in the Buckeye Bulletin or as a presenter at a meeting. Pass on the knowledge that you have earned over the years by stepping up and speaking out.

### **STATE LAC CHAIRS**

Eva Hatvani, 216.641.6000, [hatvanie@neorsd.org](mailto:hatvanie@neorsd.org)  
Nancy Taylor, 740.349.6774 x205, [ntaylor@ci.newark.oh.us](mailto:ntaylor@ci.newark.oh.us)

## **NEED PRACTICE TESTS?**

The WEF/ABC Wastewater Laboratory Analysts' Guide to Preparing for Certification Exam is also available for purchase from [www.wef.org](http://www.wef.org) for \$38 (member's price), \$49 (non-member's price). Through multiple-choice questions, this guide tests at various levels the skills and knowledge required by laboratory analysts working at wastewater treatment plants.

The guide contains more than 400 questions and answers, on 19 different topics, chosen to sample many aspects of an analyst's job. Each answer is accompanied by a page-specific reference to direct students to sources of additional information. Detailed solution sets are provided for answers requiring mathematical computation.

The guide doubles as a valuable reference tool for laboratory analysts during examination preparation and on a day-to-day basis. It includes a list of the formulas used in a wastewater treatment plant laboratory including conversion factors and a detailed list of abbreviations and acronyms, a 220-term glossary, a comprehensive reference list, a table of elements, and tables of approved methods.

## RESIDUALS MANAGEMENT COMMITTEE REPORT

*by Dave Brewer and Jamie Gellner*

The OWEA Residuals Management Committee continues to remain active in the monitoring of issues related to biosolids management and to seek opportunities to serve the membership of OWEA. Since our last update, we have remained active in several main focus areas, including the following:

- **Land Application Rules Revision** - An update to OWEA members on the proposed changes was provided by OWEA at this year's Biosolids Workshop. OEPA has finalized all changes and is currently preparing the rules for legal and JCARR review. They expect that the rules will be finalized by May 2010 and will define an effective date at that time. The OWEA Residuals Management Committee will continue to be actively involved in discussions with OEPA regarding these rule changes.
- **Farm Science Review** - This year's Farm Science Review will be held September 21 - 23, 2010. The Residuals Committee provides manpower and educational materials on the benefits of biosolids land application at the OWEA sponsored booth. Small promotional handouts are normally also given to illustrate and reinforce the benefits of biosolids. This event is a great opportunity to provide information to the agricultural community on the benefits of Biosolids.

- **Biosolids Workshop** - The 2009 workshop was held on December 10th in Columbus. Over 130 attended this workshop. The Residuals committee greatly appreciates everyone braving the elements and participating in this workshop. A special thanks also goes out to our speakers - they were the core of the workshop and made it an extremely interesting and successful day.

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 have you at our next meeting. If you are interested in getting involved or if you have any questions about the committee, please contact:

Dave Brewer  
937.781.2561  
(brewerd@mcoho.org)

Jamie Gellner  
513.317.0337  
(jgellner@hazenandsawyer.com).



## KOCAREK CORNER - *continued from page 9*

### Conclusion

Let's face it; most of what I have written above is common sense. Most utilities have good programs to assess needs and take appropriate corrective action. Much of what I have written is directed towards medium and small communities whose needs are sometimes not as well articulated.

I hope that 2010 brings forth an end to the severe recession we are now in, and that Ohioans can begin the task of rebuilding the economy starting in spring. Since the health and welfare of our utilities is a foundation on which growth occurs, now is the time to take heed of what work must be done now to ready ourselves for better days ahead.

### About the Author:

*Dale E. Kocarek is an Associate with Stantec Consulting in Columbus, Ohio and is the President Elect of OWEA.*

*Dale is also the Chair of the Government Affairs Committee and he may be reached at Dale.Kocarek@Stantec.com*





## SHIFT WORK: A FACT OF WASTEWATER LIFE

by Ed Nutter, Safety Committee Chair

Shift work. It is not fun, but it is a fact of life in the wastewater industry. Wastewater utilities are charged with returning safe, clean water back to our nation's rivers 24 hours a day, 7 days a week, 365 days a year – without fail. That means that somewhere, someone is going to be working hours other than 8:00 AM to 5:00 PM. The Bureau of Labor Statistics says shift work affects an estimated 15.5 million workers in the United States. This number varies with the definition of shift work. Shift workers might work in the evening, in the middle of the night, overtime or extra long workdays. They also might work regular days at one time or another. Many shift workers “rotate” around the clock, which involves changing work times from day to evening, or day to night. This might happen at different times of the week or at different times of the month.

Some workers actually prefer non-day work, but most do not seek out shift work. Reasons for employees choosing shift work include better pay, more available time during the day for childcare, more daylight hours for recreation, and more time to attend school. Some workers prefer the night shift because it is quieter and there are fewer supervisors. Usually, however, workers say they did not choose shift work. They do it either because it is required of the job, or no other job is available.

Working odd shifts can be problematic. Employers must become more aware of how alternate work schedules affect their employees both physically and mentally. Working at night makes it difficult to get enough sleep. Sleep after night work usually is shorter and feels “light” or less refreshing than sleep during the normal nighttime hours.

This happens because their body rhythm (also called a circadian rhythm) tells them to be asleep at those times. Night workers also must sleep during the day, when their circadian rhythm tells them to be awake. Often, night workers don't get enough sleep during the day to combat nighttime fatigue and sleepiness. Disrupting your body's normal circadian rhythm and interfering with your normal sleep patterns can produce the following effects:

- ◆ Chronic fatigue
- ◆ Reduced attention span
- ◆ Inability to concentrate
- ◆ Slower reaction time
- ◆ Gastrointestinal and digestive problems
- ◆ Disruption in family and social life

These can be contributing factors to increased accidents and injuries – and that makes shift work a safety concern.

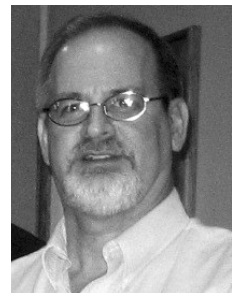
The problems associated with shift work can be addressed two ways. The first is organizational. There is no perfect shift work schedule. The best one incorporates plenty of employee input with a thorough understanding of the job(s) that need to be accomplished. Organizational factors include length of rotation (short or long), direction of rotation (moving from day shift to second or visa versa), and the start and lengths of shifts. All of these factors should be considered when making up the shift schedule.

The second way to address shift work is individual. An individual shift worker can take several actions to minimize shift work effects. These include:

- ◆ Maintain regular eating patterns, and if working the night shift, eat lighter, healthier foods.
- ◆ Limit intake of caffeine, alcohol, and salt.
- ◆ Try to avoid using sleep aids.
- ◆ Sleep on a regular schedule.
- ◆ Keep your sleeping areas as dark and quiet as possible. Use earplugs and a mask if necessary. UNPLUG and/or TURN OFF the phone.
- ◆ Make sure your family and friends understand the importance of your keeping a regular schedule.

In order to avoid some of the stresses that shift-work places on employees, the employer and their employees must work together as a team to follow these guidelines to make alternative work-shifts a positive experience for everyone. Using the simple tips provided can reduce the stress and physical problems associated with shift work. And remember, shift work has benefits, too, like uncrowded shopping malls and weekday tee times . . . but if only you are alert and well rested.

*Ed Nutter has been employed by the City of Newark for 21 years, the last 5 serving as the Safety & Training Coordinator for the Division of Water and Wastewater. He has served as the OWEA Safety Committee chairman since 2002, and a member of the WEF Safety, Security, and Occupational Health Committee since 2006. He has judged the Operations Challenge Safety Event at WEFTEC the past 4 years. He holds an OEPA Class III Wastewater Operators license.*





OWEA Plant Operations  
Committee presents:

## 2010 Operations Challenge

Tuesday, May 18, 2010

Allen County Sanitary Engineering Dept.

*See address and hotel info on Page 19*

### THE COMPETITION

All teams will compete in all events. Each event will be judged and scored separately against established criteria. The scores of all events will be totaled and the champion team will be selected. Rules are available for the OWEA event on the website. Five separate competitive events will be held:

**Maintenance:** Teams will be required to pull and perform various maintenance procedures and electrical tasks on a WILO FA10.33 pump and a WILO TR50 mixer.

**Collection Systems:** Teams will cut out a "cracked" section of eight inch (8") gravity PVC sewer pipe with water circulating through it. Drill a four inch (4") hole in a piece of eight inch (8") PVC pipe on a separate stand. Install a saddle connection with gaskets and two straps to represent a house connection. Cut and install the 8" PVC section with saddle and install the section with "flexible" repair couplings. Program a Sigma 900 max sampler. 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:** Teams will perform the set up for a seeded BOD and calculations to complete a BOD bench sheet.

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

### ELIGIBILITY

- ◆ Teams must be composed of no less than two and no more than four members.
- ◆ Teams must be composed of the same two to four individuals for all five events.
- ◆ Members of a team may come from the same employer or from multiple employers.
- ◆ Individual team members must meet the qualifications described below, plus reside within the geographical boundaries of the pathway MA or OA.

### QUALIFICATIONS

- ◆ Individual team members shall be actively employed and in the field on a regular basis within the wastewater business. Specifically team members must actively work in the consulting, regulation or operations and maintenance of any

collection system, treatment plant, industrial pre-treatment system or program and/or laboratory facilities. The intent is that team members will be those actually involved in wastewater collection, operations, laboratories, industrial pre-treatment or maintenance functions.

### PURPOSE

To recognize excellence in wastewater treatment operations, maintenance, laboratory, safety and collection systems personnel.

### DIVISIONS

The competition will be limited to the first 10 teams registered. The two divisions function as follows: Both divisions compete "head to head" in all five events. There are no apparent differences in the competition. At the completion of the competition, teams are sorted according to division and then ranked based on a score. A team's division status will be announced or posted.

#### Division I (D1) and Division II (D2) Definitions:

Traditionally D1 is composed of previous winners of the D2 and D1 contests, previous year individual event winners, or for any other team(s) that chooses to move up to compete in this division. D2 is traditionally for "new" teams and/or previous year(s) non-winning teams. Teams should apply to the division for which they believe they should compete. However, to balance competition within the divisions and to improve the overall quality of the competition, a final decision of the appropriate division will be determined by the Event Coordinators and the Operations Challenge Chairperson(s) the day prior to the contest. In no case will the 2009 D1 or D2 winning teams be permitted to compete in D2 for 2010.

### REGISTRATION

Team registration is \$250. Registration includes lunch, awards presentation on the day of the event, and admission to the Awards Breakfast at the 2010 OWEA Annual Conference. Application deadline - March 1, 2010. Register online or download forms at [www.ohiowea.org](http://www.ohiowea.org)

For more info, contact:

Kim Riddell, Chairperson

City of Delphos

[kriddell@cityofdelphos.com](mailto:kriddell@cityofdelphos.com)

419.692.0991



Why should I attend the  
**Operator Education Day**  
 held in conjunction with  
 OWEA's 2010 Operations Challenge?

- ◆ Earn up to 5 Contact Hours
- ◆ Network with other operations professionals
- ◆ Five morning training sessions (2.5 CH)
- ◆ Afternoon hands-on practice sessions (2.5 CH)
- ◆ Includes lunch and Operations Challenge Award Ceremony
- ◆ All for just \$50.00

You or your operators should attend the Ops Challenge / Operator Education Day. The cost is only \$50 and includes lunch and award ceremony the day of the event.

The morning session will include 2.5 contact hours in a classroom setting and the afternoon will include up to an additional 2.5 contact hours in a hands-on setting where attendees will put to practice what you learned about in the morning sessions. For those of you not ready yet to be part of a team, or you need up to 5 contact hours, come to the Operator Education Day to watch and learn. Contact hours, good food and the opportunity to network with other operations professionals all for the low price of \$50.

In between contact hours, attendees will be able to watch the Ohio Ops Challenge teams that are competing for a free trip to Operations Challenge held at WEFTEC in New Orleans in the fall!

For more info, contact:

Kim Riddell, Chairperson

City of Delphos, [kriddell@cityofdelphos.com](mailto:kriddell@cityofdelphos.com)

419.692.0991

**Allen County  
 Sanitary Engineering Department**  
 3230 N. Cole St  
 Lima, Ohio 45801

**Area hotels:**

Microtel Inn & Suites:	567.765.1500	(Delphos)
Fairfield Inn:	419.224.8496	(Lima)
Courtyard by Marriott:	419.222.9000	(Lima)
Hampton Inn:	419.225.8300	(Lima)



## OPERATOR EDUCATION DAY

Tuesday, May 18, 2010

### Morning Session

**2.5 Contact Hours**

- 8:30-9:00 Registration**
- 9:00-9:30 Process Control Training Session
- 9:30-10:00 Lab Training Session
- 10:00-10:30 Maintenance Training Session
- 10:30-11:00 Collection Training Session
- 11:00-11:30 Safety Training Session
- 11:30-12:30 Lunch - included**

### Afternoon Session

**2.5 Contact Hours**

- 12:30-4:30 Five (5) half hour hands-on sessions where attendees can put into practice what you learned in the morning sessions. Groups will be made up of 8-10 persons.

*12:30-4:30 In between Contact Hours you will be able to watch Operations Challenge teams compete to see which team will earn the right to represent Ohio at the national WEFTEC event in New Orleans in October 2010.*

- 4:30-5:00 Award Ceremony



**Online Registration and Registration Forms Available at**  
**[www.ohioweaa.org](http://www.ohioweaa.org)**  
**for Teams and Operator Hands-On Education Day**



## GOVERNMENT AFFAIRS COMMITTEE REPORT

*by Dale E. Kocarek, PE, BCEE, Chair*

Ever since attending the WEFMAX (WEF Member Association Exchange) meeting in 2007, I have viewed our own Government Affairs Committee in a different way. What brought about this change were presentations from the states of North Dakota and South Dakota on how their associations are structured regarding “committees”.

Both “Dakotas” reported annual budgets of only \$1,500 (each) and are operated by a small and super energetic group of about six volunteers with no paid staff. As a point of comparison, each state has fewer members than the smallest of our sections. Also, the Ohio Water Environment Association (OWEA) has a budget of approximately \$350,000, which places Ohio as one of WEF’s larger member associations. And to be clear, I believe that the largest member association in WEF is the Ontario Water Environment Association with a budget of close to \$750,000 (Canadian Dollars).

What I found interesting were that both “Dakotas” operate only four standing committees: annual conference, membership, publications, and government affairs, and their membership is only about 150 persons. Initially, I was surprised to learn that Government Affairs was included, until I thought about it. What I concluded is that much of what drives our business involves government rule and regulation, which is always led by the rule and then followed by technology and practice.

Unlike North and South Dakota, OWEA is fortunate to have many ad-hoc and standing committees – last count was 23. Five regularly hold meetings or workshops: annual conference, government affairs, collections, plant operations/lab (2-days), and biosolids. This does not reflect the fact that our four vibrant sections—NE, NW, SW, and SE hold a combined total of 12-16 meetings per year, not counting “friend and family” day events in summer.

### **WEFTEC09 Update:**

I had the opportunity to attend WEF’s Government Affairs Committee at WEFTEC on October 10, 2009. This afforded me the opportunity to interact with a cadre of professionals who are passionately engaged in our industry for the purpose of helping educate our members on the importance of common sense and relevant environmental regulation regarding clean water. Many in attendance were senior people in our industry, with a deep knowledge of how government “works” and had a realistic view of the political environment in Washington DC.

Virtually every person who attended the WEF meeting at WEFTEC agreed that the process of finding “windows of opportunity” to interact with elected officials is difficult as legislators are very busy and focused on many things. The New England WEA related a past practice where they sponsored a breakfast for key elected officials on Capital Hill in the fall of each year. While I believe that such an undertaking, even on a modest level, may be too ambitious for OWEA at this time, I believe that we must find opportunities to build relationships of trust with our elected officials where possible. This is not to lobby or influence, but to share information “from the trenches” on the importance of maintaining our infrastructure, and preserving the quality of life in America as we know it.

In hearing all of this discussion, I was left with the feeling that we have a lot of potential in our own organization for doing more than we currently do, but still do not. One of our biggest challenges is finding meaningful opportunities to interact with our environmental leaders and elected officials to share information and concerns voiced by our members – not in a pushy or invasive way, but as a resource organization to serve this cause when needed. Overall, I feel that OWEA has done a good job in our workshop, which will be held in Columbus at the University Plaza on March 11, 2010.

I am pleased to report that 2009 was an important year for the Government Affairs Committee’s Technical Review Group (or TRG). Through the TRG, OWEA offered comment on two occasions on the Ohio EPA’s Sewage Sludge Rule, comment on the Ohio EPA’s proposed rules on PTIs, Plan Reviews, and BADCT, and a detailed review of the EPA’s Draft Nutrient Control Manual to the USEPA Research Branch in Cincinnati. We have also gained favorable response from our members who have shown an interest in providing the benefit of their knowledge and experience by active participation in government, which as we all know, is the hallmark of the democratic process at work.

### **Revisions to Definition of BADCT to Include Limits for Nutrients:**

This coming year, the Ohio EPA, Division of Surface Water (DSW) is proposing to revise its definition of best available demonstrated control technology (BADCT) to include limits for Total Nitrogen and Total Phosphorus in addition to those already stipulated for CBOD5, Total Suspended Solids, Ammonia-Nitrogen and Dissolved Oxygen. As we heard from Ohio EPA updates at our annual conference and the 2009 Government Affairs Workshop, we believe that the current proposed thinking is to set new BADCT limits for Total Nitrogen and Total Phosphorus of 10 mg/l and 3 mg/l respectively.

As I understand it, I believe the premise for these limits is that most plants that employ a version of the activated sludge with longer detention times should be able to comply with them by making operational adjustments.

Please stay tuned to the OWEA Government Affairs webpage for further developments. Once this rule is published for review, it is imperative that our members carefully consider the implications of this proposed revision in the context of how it may impact your community.

### **Annual Workshop on March 11, 2010:**

OWEA’s annual workshop for the Government Affairs Committee will be held on March 11, 2010 at the University Plaza Hotel. Register online at [www.ohiowea.com](http://www.ohiowea.com) or use the form on page 21 to make sure you have a seat at this informative workshop. The Government Affairs Workshop sold out in 2009 so remember to register soon for 2010.



## 2010 Government Affairs Workshop

Thursday, March 11, 2010

- 7:45-8:30 Registration, Coffee, and Pastries**
- 8:30-8:45 Introductions/Opening Remarks  
- Mark Livengood, President Ohio WEA
- 8:45-9:30 Surface Water Update  
- George Elmaraghy, P.E., Ohio EPA
- 9:30-10:15 Proactive Maintenance Job Consolidation Success Story  
- Mark Livengood, Montgomery County
- 10:15-10:30 Break**
- 10:30-11:15 Emerging Contaminants: The Research Agenda of the Water Environment Research Foundation (WERF)  
- Alan Vicory, P.E., BCEE, ORSANCO
- 11:15-12:00 Emerging Contaminants: Ongoing Research and Future Regulatory Challenges  
- Eric Emory, ORSANCO
- 12:00-1:00 Lunch (provided)**
- 1:00-1:45 Implementing a Satellite Sewer Control Program  
- Robert Hollis, Summit County
- 1:45-2:30 An Update on Current and Future Nutrient Regulations  
- Guy Jamesson, P.E., BCEE, Malcolm Pirnie
- 2:30-2:45 Break**
- 2:45-3:30 Expanding the Private Property Virtual Library: Private Sewer System Legal Issues  
- Laurie Chase, P.E., Stantec, Inc.
- 3:30-4:15 Are You Facing Large Expenditures for Wet Weather Sewer Improvement? New Analysis Technology Can Save You Money.  
- Ronda O'Connell, P.E., OHM Engineering Advisors
- 4:15 Adjourn**

### OWEA Refund Policy

- Cancellations within 24 hours of the workshop, or no-shows the day of the workshop will still be billed in full and will NOT receive a refund.
- Any Cancellation 72-24 hours prior to the workshop will receive a 65% refund minus any credit card processing fees.
- Any Cancellation 72 hours or more prior to the workshop will receive a full refund minus any credit card processing fees.

## Earn up to 6 Contact Hours

Save Time and Postage  
Register Online at [www.ohiowea.org](http://www.ohiowea.org)

If unable to register online,  
complete below and mail or fax to OWEA,  
or register via telephone by calling 614.488.5800.

Registration Fee	
Member:	<input type="checkbox"/> \$100
Enter OWEA/WEF #	
Non-Member:	<input type="checkbox"/> \$150
Badge Name:	
Company:	
Address:	
Email:	
Phone:	
Method of Payment	
Check #	<input type="checkbox"/>
P. O. #	<input type="checkbox"/>
Credit Card:	<input type="checkbox"/>
If you select credit card, you will be emailed a secure link to enter your credit card payment. Be sure to enter a valid email address. Or you may call the OWEA office with your credit card number.	

Submit completed registration form to:

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

Phone: 614.488.5800 Fax: 614.488.5801  
E-mail: [info@ohiowea.org](mailto:info@ohiowea.org)

### University Plaza Hotel and Conference Center

Conveniently located in central Columbus,  
west of I-71 and along 315, north of OSU campus.

[www.universityplazaosu.com](http://www.universityplazaosu.com) 877.677.5292

The conference rate is \$99/night (+ tax).

You will need to mention the "OWEA Specialty Workshop".

## WATER FOR PEOPLE

by Keith Riley

### Water For People 2010 Silent Auction

The Water For People Committee is ramping up its efforts to collect donations for its third annual Silent Auction planned at our Annual Conference, June 15 - 17, in Columbus. If you would like to contribute an auction item to support the good works of Water For People, please contact me at 330.963.1111 or email at [keith.riley@epa.state.oh.us](mailto:keith.riley@epa.state.oh.us).



### Thanks to OWEA's Water For People Guardians:

#### 2009 Fund Raisers:

June 09	Annual Conf. Golf Event	\$1,870
June 09	Annual Conf. Meet & Greet	\$313
June 09	Annual Conf. Auction	\$2,772
June 09	SS Donation	\$500
	Sterns & Wheler Donation	\$75
July 09	NE Section Golf Event	\$1,024
Sept 09	SE Section Event	\$200
Oct 09	NW Section Event	\$160
Oct 09	NE OEHA Donation	\$275
<b>2009</b>	<b>Current Total</b>	<b>\$7189</b>

### International Programs Newsletter

Katja Neubauer

*International Programs Coordinator*

This newsletter outlines the latest update information coming from Water For People's work in the field. Notes from the field:

- ◆ This summer there was a cholera outbreak in the region of Chikwawa, Malawi. Due to the great work of the Malawi team and its partners, none of the Water For People

supported communities in the region were affected by the outbreak.

- ◆ While the political situation in Honduras remains difficult, Water For People-Honduras is still working towards achieving full water and sanitation coverage of one of its target regions - Chinda - by the end of the year. If they are able to accomplish this, Chinda will be the first Water For People targeted region to achieve full coverage.
- ◆ Water For People-India was able to leverage \$75,000 from the South 24 Parganas District Government. The funding will go directly to the Water For People-India office and will be used to fund water and sanitation programming in schools. The India team has been working hard for this and this direct collaboration is a testament to their work.
- ◆ Water For People is almost an officially registered Non-governmental Organization (NGO) in Peru. All the paperwork has been accepted, and all that is left to do is present the work plan to the Ministry of Foreign Affairs. Mapping of two regions will take place at the end of October.
- ◆ Water For People-Guatemala is close to securing a major grant from the Inter-Development Bank for 2010 SWASH+ programming. WFP Director, Ned Breslin, and Country Coordinator, Diana Betancourt, will be traveling to Guatemala next week to help with this process.
- ◆ Water For People-Rwanda broke ground on its first project, a water supply project serving over 6,000 beneficiaries, in July of this year.

#### Data Snapshot:

Water For People country programs are making strides towards achieving the strategic goal of supporting 1,000 people a day with improved water supply and sanitation. While the target beneficiary



photos provided by Water for People



numbers continue to change, especially in light of recent political unrest and natural disasters, we are still on our way to reach our goal. Right now, our programs are targeting 216,097 water beneficiaries and 152,145 sanitation beneficiaries, totaling a little over 373,000 target water and sanitation beneficiaries for 2009. To date, 90,865 water and sanitation beneficiaries have been served.

#### **Program Highlight:**

Water For People- Malawi was recently awarded a grant by the European Investment Bank (EIB) to act as the facilitation service provider for the Blantyre Water Board (BWB) in the provision of water supply and basic sanitation services to low-income areas (LIAs) in peri-urban Blantyre. The program begins on November 1st, and will run for four years, with a budget of almost \$1.56 million. Water For People-Malawi plans to develop an effective and responsive kiosk management program that will allow the BWB to extend water services through the establishment of new and rehabilitated water kiosks in 19 LIAs. Water For People-Malawi will also expand sanitation coverage in these low-income areas by promoting a service-based model that creates incentives for the private sector to expand coverage. The Malawi team will apply its Sanitation as a Business model, with the sanitation businesses providing the options of VIP latrines, ecological sanitation and desludging (pit emptying) services. While the EIB grant begins on November 1st, a pilot project for the program will be launched, in collaboration with BWB and the World Bank, at the beginning of October with the mapping of the LIA Mbayani.

#### **World Water Corps (WWC) Update:**

Seven World Water Corps® volunteers from the United States Military Academy (USMA also known as West Point) joined four Water For People Honduras in-country staff in late May 2009 to conduct a monitoring assessment in 17 communities within the municipalities of San Antonio in the department of Cortés, Chinda and Concepción del Norte within the department of Santa Bárbara, and El Negrito in the department of Yoro. Of the 17 communities visited, 13 involved both water and sanitation projects, three involved only water projects, and one involved only latrines. Hygiene practices were evaluated in all communities visited. Water committee members were interviewed in 16 of the communities visited and 84 resident surveys were administered. The majority of water projects consisted of private household taps from gravity-fed systems fed from either capped springs or surface water sources.

#### **Water Results:**

15 of the 16 water systems evaluated had water available during the time of our visit, with 13 meeting the required flow standards of 100 liters per person served per day. Of the 84 households interviewed, 70 (83%) of the households had enough drinking water every day, and thus displayed that the vast majority of the households have sufficient drinking water available. A similar percentage acknowledged having sufficient water available for other uses around the house to include cooking, cleaning, and other domestic activities.

#### **Sanitation results:**

86% (72) of the household latrines assessed were classified as optimal. All of the communities visited used a flush latrine in which the user had to pour a bucket of water down the toilet after each use, except for Las Barreras which used the ecological sanitation (ECOSAN). General sanitation in almost all latrines observed was very good. Most latrines were well kept and rarely were feces found on the wall, floor, or toilet seat. Although very few flies were noted in the latrines, few toilets had actual lids to prevent access. There was no obvious method to dispose of trash in the communities visited and the result was family trash dumps that often were very near to the household tap. This poses health issues in the form of both potential for vector-borne disease as well as attracting rodents to the area immediately around the home.

As noted above, most communities with water projects also had sanitation projects consisting of resident latrines separated from the home. One village visited was also the beneficiary of a new ECOSAN latrine pilot project intended to provide sanitation support where water projects are not currently present. The community of Las Barreras is a test site for the ECOSAN latrine which is a waterless toilet that utilizes a mix of sand and ash to neutralize and dry human excrement in a large container. All of the families that had working ECOSAN latrines were very happy with the way it was functioning, although the sinks and urinals utilized rainwater catchments and were not in use due to the current dry period. Two families had a design in which only one compartment within the container was used and the container inside the compartment was supposed to be emptied into a composter separate from the rest of the structure. As of now, none of the households in Las Barreras has a private potable water tap in the house and must use untreated sources (private wells) for their water needs. The lack of a sufficient water supply is the primary reason this community was chosen as the pilot site for the ECOSAN project.

*“Every sunrise and sunset reminds us that each day gives us an opportunity to share our resources with humanity.”*

*(photos provided by Water for People)*



## STOCKHOLM JUNIOR WATER PRIZE AND OHIO SCIENCE DAYS

The Stockholm Junior Water Prize (SJWP) is the most esteemed youth award in the world for a water-related science project. High school students compete as they seek to address society's water challenges. The purpose of the competition is to promote excellence in water science research at the highest levels and give participants a positive experience of a lifetime.

Created in 1997 by Stockholm Water Foundation, the prize was established to mirror the adult Stockholm Water Prize, the equivalent of a Nobel Prize for water. This competition now draws in participants from more than 30 countries.

The Water Environment Federation (WEF) and its Member Associations (OWEA is a "MA") organize the national competition, the most prestigious youth competition for water-related science in the United States, to support innovative water science, the encouragement of water careers, and raising global awareness about water issues.

Each year, students from across the county enter science projects in local, regional, or state science fairs. In Ohio, OWEA members help judge at Ohio District Science Days all across the state in March. OWEA judges can award regional SJWP certificates and/or encourage students with water quality related projects to apply for the Ohio SJWP award. Students can also self nominate their project and enter the state competition directly at [www.sjwp.org](http://www.sjwp.org).

High school students (grades 9 through 12) are eligible to participate in the competition. Projects must be aimed at increasing the quality of life through the improvement of water quality, water resource management, or water and wastewater treatment.

To enter the state SJWP competition, students must submit their research papers online at [www.sjwp.org](http://www.sjwp.org) by April 15. Ohio will select their state winner by May 8, 2010.

The state winner and their science teacher will receive a trip to the national competition in St. Louis, Missouri, June 17-19, 2010. The three day trip will focus on water and science. The state winner will also receive an SJWP state medal and a one-year WEF student membership, as well as a framed certificate to hang in their school.

Projects will be judged by research paper review and/or interviews at the State Science Day. The State Science Day will be held at Ohio State University at the French Field House on Saturday, May 8, 2010. OWEA also sponsors water quality awards at the Ohio State Science Day (\$200, \$300, and \$500 as well as a \$1000 scholarship). If you know an aspiring water quality student scientist, encourage them to apply for these awards. Judges for Science Days at the Section or State level are often needed.

Contact [info@ohiowea.org](mailto:info@ohiowea.org) for more information on the Stockholm Junior Water Prize, OWEA state awards, or if you would like to assist with judging.



## OWEA HOSTS REGIONAL WEFMAX

The Ohio Water Environment Association will host a regional WEFMAX in Cleveland May 6-7, 2010.

WEFMAX is unlike any other meeting - providing the members of the Water Environment Federation (WEF) House of Delegates, Member Association (MA) Leaders, and WEF Staff an opportunity to meet, discuss challenges, and share successes.

At this meeting you will have the opportunity to meet WEF Vice President Matt Bond, WEF House of Delegates Speaker Bill Orne, the Ohio WEA Leadership: President Mark Livengood, President-Elect Dale Kocarek, and WEF Delegates Stephen Morrison and Phillip Anderson.



*Matt Bond*  
WEF Vice President



*Bill Orne*  
WEF HOD Speaker

### WEFMAX PROGRAM

9:00 am - 12:00 pm  
12:00 - 1:00 pm  
1:00 - 5:00 pm  
6:00 - 10:00 pm

### Thursday, May 6, 2010

WEF House of Delegates  
Lunch for all WEFMAX Attendees  
WEFMAX Day 1  
Dinner/Cruise Nautical Queen

### Friday, May 7, 2010

8:00 am - 5:00 pm  
5:00 pm  
WEFMAX Day 2  
Continental Breakfast & Lunch provided  
WEFMAX Adjourned

Ohio MA leaders are encouraged to attend this informative meeting to observe the WEF House of Delegates in action and learn about programs and activities at fellow Member Associations.

For more information, visit [www.wef.org](http://www.wef.org), keyword - 2010 Ohio WEFMAX or contact [info@ohiowea.org](mailto:info@ohiowea.org).

WEFMAX location:  
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## LAKE ERIE HEALTH AND WATERSHED MANAGEMENT

*by T. Dalrymple, Montgomery County*

Several years ago Ohio Senator Voinovich introduced legislation at the national level that would establish a method to evaluate the nation's infrastructure. Government departments, with a wealth of information at their disposal, could easily determine which assets are doing well and those that need attention, especially funding. Currently the job is being done by volunteers at the American Society of Civil Engineers (ASCE). They publish a "report card" every four or five years that assigns letter grades to such things as airports, bridges, schools, sewage treatment plants, and several other categories.

Several years ago ASCE presented an award to Senator Voinovich to recognize his efforts in supporting infrastructure. In brief comments following the award the Senator explained his reasons for writing the bill. When he became mayor of Cleveland, one of his early requests was to review the priority list for construction projects. Apparently he was not pleased with the list, or lack of it, and worked to establish a priority list that would guide future expenditures. At the city level a priority list is a management tool that is reviewed, debated, and ultimately accepted. The Senator took the same approach when he was elected Ohio governor. The approach at the state level was apparently similar to that at the city level. A suitable list was developed and priorities established, with not much push back.

Things are different at the national level. His well reasoned and very workable bill went nowhere. No one has stepped forward to explain why, but you may be able to discern the reason. Every member of Congress wants to send as much money as possible back to the home district. A list of priority projects would be in the way. You might have heard terms like "ear marks" or, more bluntly, "pork".

This failure to adopt sound funding management tools for infrastructure improvements is a failure of leadership. The political will does not exist to establish a national policy, whether it be roadways or water courses. In the storm water arena, it results in an unintended consequence. Many people are concerned about the environment. They support the green movement, take part in cleanup programs, and contribute to local and national environmental groups. The lack of national leadership for environmental issues, such as watershed management, generates dissatisfaction that ultimately leads to law suits. Environmental groups continue to sue at the state and national level in order to achieve changes in regulations and enforcement. They are not always successful, but they do influence changes.

The Water Quality Act, which was a revision of the Clean Water Act, was passed in response to successful suits by environmental groups. That national legislation resulted in new requirements for non-point pollution abatement, popularly known as Phase One and Phase Two. Judges decide such suits based on current environmental law, but they really cannot write new laws. That is left to the legislature, who can revise the Clean Water Act, and they should. Remember, the Clean Water Act is limited in its powers to address water pollution. The Environmental Protection Agency is charged with improving water quality but the agency is prohibited from controlling water quantity, except in special cases. Water quality and quantity are inseparable. Both must be controlled together to reduce both pollution and flooding. Additionally, there are at least three major industries that are exempt from the Act - oil and gas, forestry, and agriculture.

This lack of a comprehensive approach could be seen in Lake Erie in the fall of 2009. The lake had a distinctly green appearance, rather than a healthy blue appearance. The problem received the attention of a Columbus newspaper reporter, who wrote "Worrisome, though, are the blooms of blue-green algae that have coincided with the lean years for walleye and perch. Strains of the algae produce toxin, are a weak link in the food chain, and absorb oxygen when they die and decompose. Blue-green algae blooms this year appear to match or surpass those of the 1960s, when Lake Erie was famously declared "dead"." The reporter also stated "The algae outbreak is linked to an abundance of phosphorus, whose source is believed to be runoff from farm fields and, to a lesser extent, residential lawns." Others have stated nitrogen is another contributor. The source of the pollution appears to be well defined, but knowing the problem and solving the problem are completely different.



*Senator George Voinovich*

*continued on page 29*

A watershed approach to both water quantity and quality has long been advocated, but what measures are necessary to make it work? Are there any examples of a successful watershed wide storm water pollution abatement program? Yes there are, here in Ohio. The site is Indian Lake in Logan County. Fifteen years ago, in response to poor water quality, an organization was formed to tackle the problem. Since that time the "Indian Lake Watershed Project" has gained a national reputation for its successful approach to watershed management. The measures they employed included increased use of agricultural no-till planters and seed drills, compost barns, liquid manure spreaders, pesticide and nutrient containment systems, tree and grassed filter strips, grassed water ways, wet lands, live stock exclusion from streams and many other methods. Essential to these programs were low interest loans to enable investments in these beneficial methods. Probably the most important aspect of clean water is the appearance. Indian Lake was troubled with excessive sediment transported by streams to the lake. The sediment degraded the appearance, recreational value, and biology of the lake. The watershed project pursued sediment sources caused by storm water run off from fields, stream bed and bank erosion and beach erosion. The brown color of the lake is now gone, replaced by a more healthy hue.



*Aerial view of Indian Lake in Logan County*

This demonstration project has shown the way for solving watershed wide quality problems. These same measures should be adopted in every watershed in the state. Their solution emphasizes the effectiveness of local people solving local problems. The issue yet to be resolved is funding. This project was funded with grants from the Ohio EPA, US Department of Agriculture, and the Ohio Department of Natural Resources. These funding sources are not sustainable state wide. Legislation in Ohio is needed to enable the formation and funding of these organizations. It must be comprehensive, enabling control of both quantity and quality from all sources. That is where the special interest may become involved. For some, the success of watershed management is not as important as their own bottom line. An abundance of political will is the solution to the inaction we see today. Senator Voinovich cannot find it in Washington. We have high hopes for local people working together to solve local watershed problems.



## **OWEA's 2010 Workshop Schedule**

**Government Affairs March 11, 2010**

**Collections Systems May 13, 2010**

**Operators Hands-on Workshop at Operations Challenge May 18, 2010**

**Plant Operations and Laboratory Analysts September 1 - 2, 2010**

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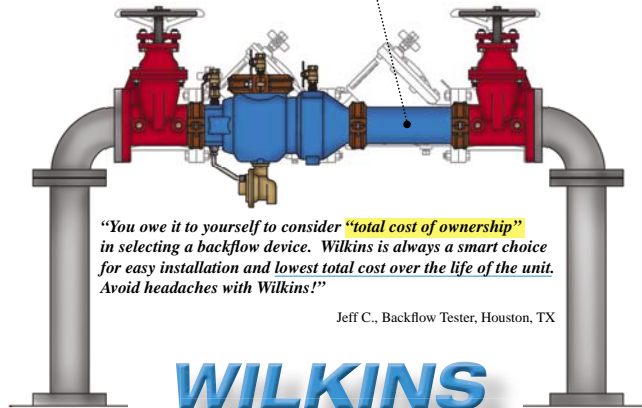
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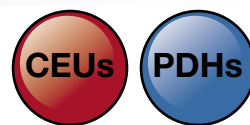
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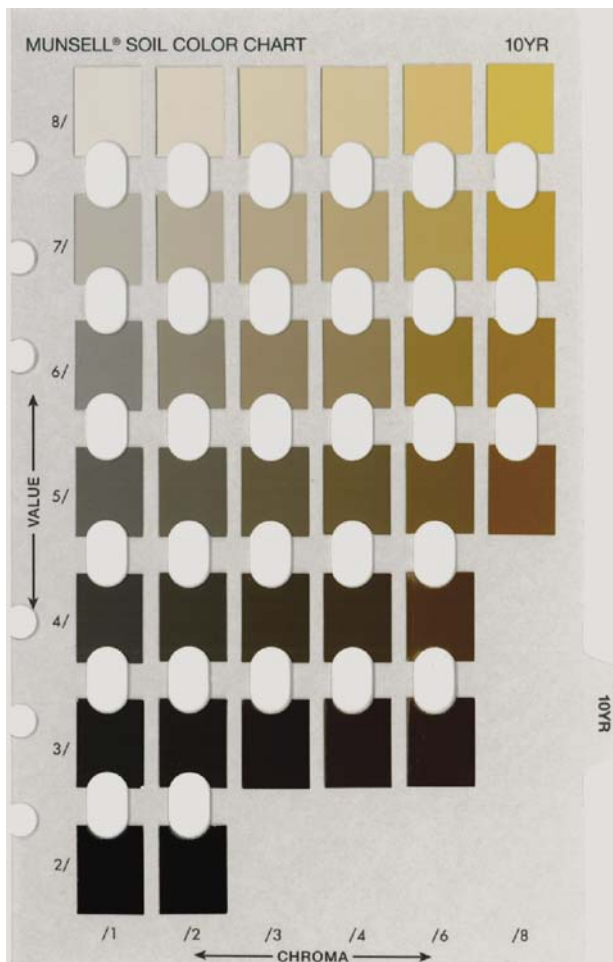
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Munsell Soil Color Chart - see Technical Article on page 48





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### 2010 ANNUAL CONFERENCE EXHIBITOR CONTRACT - Page 2

#### TERMS AND CONDITIONS

1. We hereby contract to participate in the Exhibit Expo on Tuesday, June 15, 2010, at the Ohio Water Environment Association's (hereinafter referred to as "OWEA") Annual Conference and agree to pay the designated registration of \$700.00 for OWEA members (\$850 for non-members) for an 8' deep x 10' wide booth, with a 6' draped and skirted table and two chairs. The registration fee includes one full conference registration and admission to all conference activities for the responsible person.
2. Additional personnel participating in the exhibit will be charged \$35 (which includes lunch on June 15, 2010 and complimentary exhibit hall admission) and must register as additional exhibit booth attendants prior to the conference so name badges are available. Additional personnel interested in attending the social events and/or meals other than lunch on June 15, 2010 must purchase tickets at the registration desk. To preregister additional personnel for the full conference, use an "Attendee Registration Form", available at [www.ohiowea.org](http://www.ohiowea.org) or by emailing [info@ohiowea.org](mailto:info@ohiowea.org).
3. Only exhibitors who have completed the proper forms and paid their exhibitor fee will be permitted to exhibit.
4. We agree to all the terms of the "Liability & Responsibility Clause", which is part of this contract.

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1. In signing this Exhibitor's Contract, the exhibitor agrees to assume the entire responsibility and liability for losses, damages, and claims arising out of loss or damage to the exhibitor's displays, equipment and all other property brought upon the premises of and shall indemnify and hold harmless the OWEA, The Columbus – A Renaissance Hotel, the agents, servants, and employees of each organization for any and all such losses, damages, and claims.
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Cindy Jacobsen, 614.402.2802, cjacobsen@pirnie.com



## Ohio Water Environment Association

1890 Northwest Blvd • Suite 210 • Columbus, Ohio 43212

T: 614.488.5800 F: 614.488.5801 E: [info@ohiowea.org](mailto:info@ohiowea.org)

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Dear Friends of OWEA:

We are planning the 2010 Annual Conference and need your continued support. The success of the Ohio Water Environment Association (OWEA) has always been and always will be accomplished with the tremendous support we receive each year from each of you - our sponsors. You are a valued friend of this organization and we are once again respectfully asking for your support.

The Ohio Water Environment Association continues to provide value to our nearly 2000 members, as well as nonmember water quality professionals, by offering an annual three day conference designed to provide professional development, contact hours, and technical information regarding the preservation and enhancement of our most precious natural resource...WATER.

The **84th Annual Conference** will be held **June 15-17, 2010** at The Columbus, A Renaissance Hotel in downtown Columbus. Sponsorship of the conference by consultants, equipment suppliers, contractors, and manufacturers' representatives will help OWEA develop quality educational programs, recognize excellence in the wastewater field, and provide a relaxed, informal atmosphere to facilitate peer-to-peer networking.

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2010 Sponsor Co-Chair  
614.464.4500  
[greg\\_otey@urscorp.com](mailto:greg_otey@urscorp.com)

Sandra Doyle-Ahern  
2010 Sponsor Co-Chair  
614.775.4510  
[sdoyleahern@emht.com](mailto:sdoyleahern@emht.com)

Mike Frommer  
2010 Conference Co-Chair  
[mike\\_frommer@urscorp.com](mailto:mike_frommer@urscorp.com)

Cindy Jacobsen  
2010 Conference Co-Chair  
[cjacobsen@pirnie.com](mailto:cjacobsen@pirnie.com)

The Ohio Water Environment Association is a not-for-profit 501(c)(3) association that provides technical education and training for Ohio water quality professionals who clean water and return it safely to the environment.



**2010 Golf Registration - Register online at ohiowea.org**

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

Format: 256 Golfers  
32 Teams per Course  
Four Person Scramble

When: Monday, June 14, 2010  
Registration 8:30 a.m.  
Driving Range Open 8:30 a.m.  
Shotgun Start 10:00 a.m.

Food/Prizes: Lunch and Dinner included  
Prizes for Long Drives, Pin Shots, and  
Long Putts  
All players eligible for Raffle/Door  
Prizes

Company Name		
Address		
City	State	Zip
Contact Name	Email	
Tel #	Fax #	

<b>Foursome Pricing</b> - print foursome names below	\$300	\$
1. _____ 2. _____		
3. _____ 4. _____		
<b>Individual Pricing</b> - print name(s) below, will be assigned to a team		
1. _____	\$75	\$
2. _____	\$75	\$
Course Preference (subject to availability): <input type="checkbox"/> Players Club <input type="checkbox"/> Foxfire <input type="checkbox"/> No Preference		
<b>Golf Sponsorships</b> (multiple sponsorships per event)		
Hole Sponsor (2 signs - one on each course)	\$300	\$
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Make checks payable to OWEA and mail to: Ohio Water Environment Association 1890 Northwest Blvd, Suite 210 Columbus, OH 43212 Or fax to: 614.488.5801		If you select credit card, you will be emailed a secure link to enter your credit card payment.  Be sure to enter a valid email address.  Or you may call the OWEA office with your credit card number.

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## PROTECTING WATER QUALITY YESTERDAY, TODAY, TOMORROW

### ST. MARYS WASTEWATER TREATMENT PLANT

*by Dave Sprague*  
*Superintendent Water Wastewater*

The result of fifteen years of engineering studies and design, EPA negotiations, and planning by St. Marys Council, the Administration, and plant operators, a new wastewater treatment plant began operation in 2009.



The new wastewater treatment plant increases daily treatment capacity to 3.0 MGD and allows for the treatment of wet weather flows up to 9.0 MGD. Total construction cost amounted to \$11,012,020.

The new facility includes:

- ◆ New maintenance building including office and training room.
- ◆ Modifications to the existing Administration Building including office and laboratory improvements.
- ◆ Influent screening and vortex de-gritting.
- ◆ Three-channel oxidation ditch.
- ◆ Chemical phosphorus removal.
- ◆ Two final clarifiers.
- ◆ Ultraviolet disinfection.
- ◆ Cannibal® solids reduction process.
- ◆ Non-potable water recycle system.
- ◆ New discharge to the St. Marys River

Construction of the new facility began in January 2008; it began treating flows in May 2009; and construction was considered substantially complete in July 2009. The

improvements were financed through the Ohio EPA Water Pollution Control Loan Fund. Sewer rates were increased a total of 65% over three years beginning in 2006 to finance the plant and pay for other sewer improvements. Residents pay \$42.19 for 1,000 cubic feet of usage.

#### 100+ Years of Wastewater Service

St. Marys began treating wastewater in 1908, when citizens constructed one of the first complete sanitary sewer systems in Ohio. One hundred years later, in 2008, construction of a new wastewater treatment began. The facility was the City's third new treatment plant and fifth major treatment plant project, an investment that shows the concern that St. Marys citizens have for public health and the environment, dating back a century. Today, our facilities serve a population of over 10,000 people.

#### Wastewater Collection

The wastewater collection system includes all areas inside corporate limits and also several areas bordering Grand Lake St. Marys. There are a total of 58 miles of gravity sewer mains, 1,256 manholes, 24 pump stations, 10,000 feet of force mains, and 4,300 service connections in the system. Pump stations included in the system can pump over 10.0 MGD.

The systems bordering the lake are owned by Auglaize County or the State of Ohio. St. Marys treats the wastewater but does not operate or maintain these systems.

#### Flow Equalization

Equipment at the beginning of the treatment plant controls the volume of wastewater that can be processed for treatment. During high flow conditions, an electric gate can divert a portion of the flow to a 2.7 MG equalization basin for storage. The captured wastewater is automatically returned to the plant for treatment when flows return to normal.



#### Wastewater Treatment

Polluted wastewater pumped into the treatment plant goes through a complex, multi-stage treatment process that takes about 22 hours. The treatment plant uses physical, biological, and chemical processes to remove contaminants, producing a high quality discharge.

*continued on page 44*

**Influent Screening & Vortex De-gritting System**

Two identical ¼" screening units and a bypass channel are provided. The screens intercept flows going to the equalization basin as well as the plant influent flow. Material removed by the screens is dewatered and land filled.

The grit removal facilities consist of a vortex style grit tank with one grit pump which sends the grit slurry to a cyclone separator and grit classifier. The grit cyclone separates coarse and fine grit from the slurry, discharging a small volume of water and the grit into the classifier. The classifier separates grit from water and discharges relatively dry grit, which is land filled.

**Oxidation Ditch**

The oxidation ditch process consists of three concentric channels with mechanical aeration disks which provide oxygen and circulate flows in the channels. The oxidation ditch has been sized to accommodate the design loading without the need for separate primary settling tanks. The wastewater is biologically treated in the oxidation ditch to reduce biological oxygen demand and to oxidize ammonia.

Influent flow enters the interior channel where it combines with return activated sludge. The oxidation ditch operates in an extended aeration mode to achieve ammonia removal, which occurs in the outer rings of the ditch. A chemical is fed into the outer ring to remove phosphorus.

**Final Clarifiers**

Effluent from the oxidation ditch flows to the final clarifiers. Two peripheral feed final clarifiers separate sludge from treated wastewater. Supernatant from the clarifiers flows to the disinfection process. Sludge from the clarifiers is pumped to the oxidation ditch (RAS) or wasted to the solids reduction process. A rotating skimmer arm attached to the sludge removal mechanism removes floating material.

**UV Disinfection**

Ultraviolet (UV) disinfection utilizes the energy from UV lamps to reduce the pathogen content of the treated wastewater. The UV lamps are submerged in a channel which the plant effluent flows through before discharge.

**Plant Effluent**

Treated wastewater is discharged to the St. Marys River through a new 36" outfall structure, sized to accommodate a peak capacity of 9.0 MGD.

Plant effluent also is used within the plant through a non-potable water recycle system that consists of supply and pressure pumps, a break tank, and three pressure tanks.

**Cannibal® Solids Reduction System**

Solids removed or generated during treatment undergo further treatment through a cannibal solids reduction process.

In this process, the return sludge flow (RAS) is pumped through a solids separation module to remove inert material

from the sludge. The module consists of fine screening, screenings compaction, and cyclone grit removal.

From the solids separation module the majority of RAS is returned to the oxidation ditch, while a portion is sent to one of two interchange tanks. In the interchange tanks, the environment is converted between an aerobic one to a facultative one, which causes microorganisms to cannibalize each other, significantly reducing the volume of the sludge. A portion of interchange tank solids is returned to the oxidation ditch.



Solids ultimately are wasted from the cannibal process to one of two existing digesters for storage. The solids will either be applied to agricultural land as Class B biosolids or dewatered and disposed of in a landfill.

**Laboratory**

Water quality is checked at all stages of the treatment process by thoroughly trained laboratory analysts in a new laboratory built in the existing Administration Building.



## Environmental Protection

“The new facility will improve the quality of wastewater discharged to the St. Marys River and allow the City to reliably treat current and estimated future wastewater flows and maintain compliance with regulatory requirements. An important environmental benefit of the new facility is the expansion of treatment capacity, which will allow the City to continue to provide regional wastewater treatment. The expansion of treatment capacity will protect the public health and the environment.” (2007 Ohio EPA Report)



*Dave Sprague has worked for the City of St. Marys for 32 years. He is currently the Superintendent of Water and Wastewater. In this position, he is responsible for all phases of providing drinking water and wastewater services to St. Marys' citizens. Dave has been a member of OWEA since 1982 and has been actively involved with the Northwest Section, OWEA, for over fifteen years, is a past section president, and has been the section's Treasurer for the past five years. At the State level, he was co-chair of the 2007 State Conference, and has been appointed co-chair for the 2011 conference. Dave and his wife Juli have been married 29 years and have three children and six grandchildren. In his spare time, his hobbies include his family, golf, traveling, the Buckeyes, and the Browns.*

## Plant Profile Selection

The **Buckeye Bulletin** features a Plant Profile article in each of its four issues annually. If you have a suggestion for a Plant Profile article, contact a member of your section's Executive Committee.

The Plant Profile article schedule:

Summer Issue 2010	Northeast Section
Fall Issue 2010	Southwest Section
Winter Issue 2010	Southeast Section
Spring Issue 2011	Northwest Section

## Career Opportunities

**Does your organization have a position to fill?**

**Are you looking for a position?**

Take advantage of the Ohio Water Environment Association's Career Opportunities Web Page.

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Or contact OWEA:  
614.488.5800  
[info@ohiowea.org](mailto:info@ohiowea.org)



## CERTIFICATION CORNER

by Kathy Cook

Exam dates for 2010 are:

**April 23, 2010**

**Cleveland and Columbus – Locations TBA**

**Application Deadline is March 12, 2010**

**October 22, 2010**

**Cleveland and Columbus – Locations TBA**

**Application Deadline is September 10, 2010**

More information is available on the OWEA web site or you can call the exam program manager with specific questions.

Program Managers are:

### Laboratory

Eva Hatvani  
NEORS  
4747 E. 49th  
Cayahoga Hts., OH 44125  
216.641.6000  
[hatvanie@neorsd.org](mailto:hatvanie@neorsd.org)

### Industrial Waste Operator

Brian Tornos  
Burgess & Niple, Inc.  
5085 Reed Road  
Columbus, OH 43220  
614.459.2050  
[BTornos@burnip.com](mailto:BTornos@burnip.com)

### Industrial Waste Inspector

Fred Neugebauer  
City of Akron  
Water Pollution Control Division  
2460 Akron Peninsula Road  
Akron OH 44313  
330.928.1164 Ext. 487  
[NeugeFr@ci.akron.oh.us](mailto:NeugeFr@ci.akron.oh.us)

### Certification Program Manager

Kathleen Cook  
2307 Regency Ct.  
Fairborn, Ohio 45324  
937.878.1924  
[kathy.cook8@gmail.com](mailto:kathy.cook8@gmail.com)



## THE CASE FOR EFFLUENT REUSE

by Dale E. Kocarek, PE, BCEE, President-Elect, OWEA

### An Old Problem

Most of us who have experience with the design of sewerage systems for development projects know that one of the most difficult things when siting a new wastewater treatment plant is finding an acceptable receiving stream to discharge flows. If you do not know what I mean, just try it, and you will find out that the best locations for new developments, which are often upscale and remotely located, are located on good quality upland areas, where the closest receiving streams do not have year-round flow. Even if a suitable receiving stream can be located, the effluent limits to accommodate an effluent discharge to meet in-stream water quality standards often require a degree of treatment that is very stringent, as noted by ammonia-nitrogen concentrations less than 1 mg/l.

Fortunately, wastewater treatment technologies have been developed to the point where it is not difficult to achieve single digit effluent concentrations for CBOD5 and Total Suspended Solids (TSS), and less than 1 mg/l for ammonia-nitrogen on a sustained basis. The use of polishing filters - either traditional or disc, or membrane bioreactors make it easy to produce very clean water on a continuous basis. Also, by making adjustments to the biological process and establishing zone control of dissolved oxygen, our plants are now able to reduce total nitrogen and phosphorus to lower and lower levels. Despite these advances, the one thing that designers have not been able to accomplish is to eliminate the “discharge” of effluent to our receiving streams, and yet please our clients who are gun-ho in moving forward with their project, and do not want a “little thing” like the lack of a suitable receiving stream to stand in their way.

### Definition of Effluent Reuse

Effluent reuse is the environmentally responsible discharge of a treated effluent, in accordance with Rule 3745-42-13 of the Ohio Administrative Code, onto a suitable land area. Its purpose is to bio-incorporate water and nutrients into a cover crop, turf grass, nursery, or woods. It is important that the land application site be able to handle the discharged flow without producing runoff, pollution to an underlying aquifer system, or an environmental nuisance.

### An Old Technology: A New Life

Effluent reuse of treated effluent is really an old technology in which soils and a vegetated surface are used to treat pre-treated wastewater flow. Research by Professor Karen Mancl of the Ohio State University Department of Agricultural, Food, and Biological Engineering have shown that the use of this technology on a suitable site, and designed with the necessary features and safeguards, is a viable option for smaller communities and applications. The oldest application that I know of is at Deer Creek State Park, which has been in operation since the early 1970s.

The “rebirth” of this concept came with an extensive overhaul of the Ohio EPA’s Antidegradation Rule, which was made effective

on October 1, 1996. This new Antidegradation Rule replaced an old rule, which had been rendered obsolete in a court decision by the Ohio Supreme Court, requiring it to be rewritten in its entirety.

Under the current Antidegradation Rule, effluent reuse was listed by name as one strategy to review and consider when evaluating feasible options to not increase discharge loadings that are associated with new growth, the elimination of sanitary sewer overflows, or the introduction of new parameters, which had previously been absent from the flow stream. Also, it was under this Rule that the term BADCT, or best available demonstrated control technology, was used.

The purpose for Ohio EPA to list effluent reuse is based on the literal interpretation of the Antidegradation Rule, which is to evaluate and provide justification for increases in pollutant loading discharged into “waters of the state.” If flow associated with new growth is treated but not slated for direct discharge to a receiving stream, but used for an alternative purpose such as watering a vegetated area, golf course, sod farm, or tree farm, then a dual benefit is realized: (1) the municipal wastewater treatment plant does not have to work harder to produce a higher quality effluent, and (2) a receiving site benefits from being watered by a readily available resource. If we think about the current use of the word sustainability, effluent reuse is worthy of consideration – even in Ohio, which is comparatively rich in water resources. Benefits of considering effluent reuse are as follows:

- ◆ Encouraged by the Antidegradation Rule
- ◆ Reduces potable water use for irrigation for targeted receptors (e.g. nurseries, golf courses, parks, etc.) and recharges aquifers in headwater areas
- ◆ Offers another option to on-lot disposal systems and small package plants
- ◆ Offers a decentralized “cluster” of “farm village” developments, placing fewer burdens on a public utility to extend public sewers in areas where they are not feasible.
- ◆ Under the right conditions, it can be a “short-term” option until sewers reach an area
- ◆ Can be coupled with a controlled discharge to offer flexibility

Since the late 1990s, there has been a resurgence of interest in this concept. Several projects have been approved over the last decade, based primarily on sizing and design recommendations in OSU Bulletin 860 and other Ohio EPA guidelines such as Green Book and Ten States Standards. Three projects were golf course communities located in Delaware County, just north of Columbus.

### Types of Effluent Reuse Systems

Generally speaking, effluent reuse systems come in two different options: (1) year-round, and (2) seasonal. With the “year round” option, all flow is contained and then applied in agronomic rates to a designated effluent receiving area during the growing season. Thus, no discharge ever occurs to “waters of the state.” Conversely,

with the “seasonal” option, operational and managerial provisions exist to discharge to “waters of the state” at specified times of the year. The benefit of having a seasonal discharge is that it reduces the effluent storage impoundment area considerably. Also, the effluent reuse application area can be smaller.

- ◆ Each system has the following components:
  - Central sewers and a wastewater treatment plant
  - Storage impoundment(s) for the treated sewage (Table H-2 of Rule 3745-42-13)
  - Irrigation system
  - Land Application Management Plan (LAMP)
- ◆ Non-discharging systems do not have an NPDES (direct discharge) permit, but all systems have monitoring and reporting requirements via the LAMP
- ◆ A discharging land application system is defined:
  - (a) Regardless of whether a land application contract allows isolation distance requirements to be waived, does not meet the isolation distance requirements in this rule;
  - (b) Proposes to apply on sites where drain tiles are, or will be, less than two vertical feet below final grade;
  - (c) Proposes to apply on frozen or snow covered ground;
  - (d) Proposes to apply during precipitation events; or
  - (e) Proposes a point source discharge to waters of the state.

Each major element is described below

*Sewer system and treatment plant:* Flow is collected and treated to required levels – either A, B, or C, pursuant to the requirements of the Rule. The collection systems are typically traditional gravity or pressure, and treatment is provided by the extended aeration process, designed to completely nitrify and de-nitrify. While traditional extended aeration modular plants are common, membrane bioreactors may be an excellent application since they provide exceptional treatment in a minimum of space. The following is an expansion of information in the Rule:

- ◆ Sets forth different tiers of wastewater treatment for the land application of treated sewage; Class A, Class B, and Class C.
- ◆ Class A is essentially BADCT plus removal of Total Nitrogen to 10 mg/l, and total fecal coliform reduction.
- ◆ Class B and C systems typify “lagoon quality” treatment. Class B produces a better quality in terms of fecal coliform than Class C. Also, both systems stipulate Total Nitrogen levels of 10 mg/l.
- ◆ Each class has its own set of monitoring requirements
- ◆ These treatment classes are not to be used for the treated sewage discharged to waters of the state via a point source.

*Effluent storage impoundment:* Following treatment, final effluent is pumped to an effluent storage impoundment (pond) located adjacent to the application area. The size of these impoundments can be enormous and are often problematic to locate on site and design. Permitting requirements for the Ohio EPA, Division of Drinking and Ground Waters and the ODNR, Dam Safety Unit stipulate that any storage impoundments or ponds be designed to

the same standards as treatment “lagoons.” In addition, the new Ohio EPA isolation requirements must be met, making the task of locating these large facilities to be difficult.

It should be noted that the size for effluent storage impoundments can be reduced substantially if the project is designed to have provisions for direct discharge. While going through the steps of securing an NPDES permit may add months to the approval process, the end result is often a reducing in the amount of effluent storage that must be provided. This reduction in size can be translated to more land that can be made available for development.

*Effluent reuse application area:* Determining the amount of land needed for irrigation is often the “deal breaker” because it is difficult to come up with enough land to make a project viable. It is commonly known that the majority of Ohio soils has high clay content and hence is relatively impermeable below the root zone. Even in situations where soils are considered more permeable, designers have to contend with high seasonal ground water tables, high rock, or field tiles. All of which are considered to be conditions that affect the irrigation rate, preclude an area in its entirety, or make it necessary to have greater isolation distance.

The choice of a cover crop and how it is managed is another design challenge. Experience has shown that the best covers are turf grass in the form of golf courses, sod farms, or natural areas, planted in fescue long grasses left in a prairie type state. Cover crops of corn or soybeans are not suitable given their short growing season.

*Land Application Management Plan (LAMP):* The LAMP is the glue that ties everything together. The LAMP defined all of the physical attributes of the project, who is in primary control of them, how they are operated, and what the operational and institutional requirements are. It covers the entire gambit of operations ranging from normal every day operations to reporting and emergencies. The Ohio EPA Rule stipulates that a new LAMP be submitted to the Ohio EPA every five years for approval. The purpose for this is to document changes in ownership or operation that need to be addressed.

### Challenges of Implementation

The challenges for implementing an effluent reuse system are many. A few of the most common pitfalls include the following:

*Political and Governance Considerations:* Unless the governing authority is agreeable to the idea of effluent reuse, the project will never move forward. These types of projects can draw criticism in many ways including that they result in more intimate contact with recycled wastewater, which bothers many people. Another common concern voiced is that they are blamed for urban sprawl, since they are built on the outskirts of developed areas and can be done without the traditional upfront investment in infrastructure by the nearby community. These systems can be considered to be nonconforming with community master and area 208 plans.

*The “Right” Project:* The “right” project is one that is reasonably scoped, with a high degree of certainty that it can be successfully planned, designed, financed, constructed, and operated. The best projects employ a high degree of conservatism and follow the tenets of sustainable development. This is discussed at the end of the article.

*continued on page 48*

*Developer Sophistication and Knowledge:* The old axiom is that a good developer makes money and a poor developer loses money. A great developer achieves a lasting legacy in addition to achieving his/her financial goals. Developers must be well capitalized, understand the zoning process, have established relationships with local officials, and be known for high quality development projects. It is essential that responsible parties understand that these systems can be very expensive, due in part because they are building an entire community.

*Ability of the design engineer and owner's representatives:* Design firms must be experienced in both urban development and environmental infrastructure to fully integrate the disciplines successfully. A good knowledge of the Rule and Ohio EPA approval processes is also essential.

### **The New Rule**

The Rule, which governs the design, approval and operation of effluent reuse systems, became effective on July 1, 2007. Its purpose was to create a more formal, defined, and consistent process for approvals and denials. Prior to that time, applications featuring effluent reuse were reviewed on a case by case basis using old policies and guidelines.

The chapters in the Rule are as follows:

- A. Definitions
- B. Purpose and exclusions
- C. Prohibitions and restrictions
- D. General requirements
- E. Land application management plan and NPDES permit requirements
- F. Permit to install application requirements
- G. Design requirements for a treatment works or sewerage system
- H. Design requirements for storage facilities
- I. Design criteria for land application distribution systems
- J. Isolation distance requirements for land application areas
- K. Treatment requirements, effluent water quality and itoring requirements
- L. Ground water monitoring program requirements for land application areas, lagoons, and storage facilities
- M. Hydrogeologic site investigation requirements
- N. Soil and site evaluation requirements
- O. Record keeping, reporting requirements, compliance, enforcement and oversight

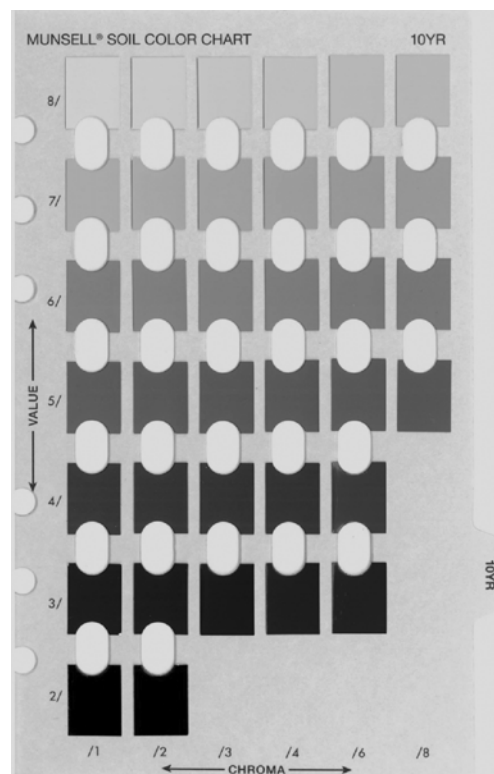
### **Greater Emphasis on the Analysis of Soils**

One of the most important things done by the Rule is that it places greater emphasis on delineation of soil properties on a potential application site. Without a suitable site to determine if the size, configuration, and nature of the soils are permeable enough to accommodate flow, effluent runoff to waters of the state and

contamination of ground water resources may result. Key aspects of Rule as it pertains to the analysis of soils are as follows:

- ◆ It places greater responsibility on the applicant to demonstrate the viability of approach
- ◆ It requires on-site soils testing by a professional soils scientist
- ◆ The Rule allows greater latitude to entertain science-based and alternative design approaches towards site evaluation, and other methods of sizing other than those presented in OSU Bulletin 860
- ◆ It recognizes the critical importance of soil as a treatment medium, particularly at depths of 12 inches below natural grade
- ◆ The Rule recognizes quality aspects of effluent: Class, A, B, or C, as one determining factor in the design
- ◆ It requires soil scientists to perform on site soil analysis using soil probes and trench evaluations to determine the following:
  - soil texture and structure
  - soil classification— soil permeability of each layer: A, B1, and B2 to a depth of at least 30 inches
  - vertical separation between natural grade and all limiting conditions, including high seasonable groundwater based on Munsell soil chart analysis

MUNSELL SOIL COLOR CHART



*View color version of chart on page 35*

**SOIL PROFILE CHARACTERISTICS**

TYPICAL SOIL PROFILE	TYPICAL DEPTH	DEFINING CHARACTERISTICS	PHYSICAL/CHEMICAL CHARACTERISTICS IMPACTING TREATMENT	SUITABILITY FOR TREATMENT
A	0 – 12"	Organic layer Heavy root zone Very biologically active	High permeability Extensive root zones	High permeability (Suitable)
B1	12" – 27"	Generally non-organic Heavily weathered Heavy root zone Biologically active	Weathering leaches out carbonates and silicates Root zones create permeability	Moderate permeability (Generally suitable)
B2	27" – 48"	Non-organic Weathered Some roots Prone to high seasonal ground water Biological activity	Additional weathering leaches out carbonates and Silicates Fewer root zones reduce permeability	Borderline permeability High seasonal groundwater (May not be suitable)
C	48" – 80"	Non-organic Generally unweathered Few roots High seasonal ground water Not biologically active	Leached minerals accumulate in this layer Few root zones reduce permeability	Low permeability High seasonal groundwater (Generally unsuitable)
E	> 80"	Inorganic material No root zones	Unweathered parent material including rock	Low permeability High seasonal groundwater (Unsuitable)

The best soils are considered to have the following characteristics:

- ◆ They have greater than one foot to a limiting layer, which in most cases is high seasonal water, bedrock, or a highly impermeable layer (e.g. fragipan)
- ◆ They have a good landscape position meaning “sheds water (convex) as opposed to “holds or collects” water (concave)
- ◆ They exhibit good, but not excessive permeability in the range of 0.2-0.6 inches/hour
- ◆ They possess excellent structure, as determined by soil grain size, porosity, and fissures between soil “chunks” from root zone development in B1 and B2 horizons (below the organic “A” layer)
- ◆ Application areas have few tiles, with those existing greater than 24 inches below the surface

**Isolation Distance Requirements**

The Ohio EPA, Division of Surface Water adopted a separate rule on isolation distances from wastewater treatment plants and associated facilities, including effluent storage impoundments. The purpose of isolation distance is to protect human health from bacterial contamination from aerosols that result from wind carry and groundwater and surface streams from potential contamination.

Isolation distance issues can be difficult to reconcile. All pieces of the project must fit together including the development, and the elements of the effluent reuse system. While treatment plants can be very small, especially those such as membrane bioreactors (MBRs), which can have a small footprint, the size of effluent

impoundment ponds can be very large. The typical isolation distance of 300 feet is difficult to meet.

**Case Example, Scioto Reserve, Delaware County Ohio**

This is a golf course community that was constructed in 1998 and 1999. Effluent is treated in an extended aeration wastewater treatment plant, pumped to an effluent impoundment (pond) and then applied to a 185 acre, 18 - hole golf course.

A summary of the various features of the Scioto Reserve Development follows:

Entrance to Scioto Reserve



*continued on page 50*



**PLANNING AND DESIGN ISSUES**

Design flow: 423,400 GPD  
 Treatment level: 10 mg/l CBOD5, 12 mg/l TSS,  
 5 mg/l NH3-N, < Fecal Coliform  
 23 cts/100 ml (goal is "0")  
 Application area requirements: 185 Acres  
 Effluent storage requirements: 52 Million Gallons  
 Treatment technology: Extended Aeration with Filtration

**WASTEWATER SIZING CRITERIA**

- ◆ Delaware County Census Data: 2.9 persons per home x 100 GPCD = 290/house
- ◆ Actual flow is less than 250 GPCD
- ◆ OEPA Green Book for other minor flows (e.g. school, swimming pool, condos, etc.)
- ◆ Developer tied in a handful of off-site users to project

**WASTEWATER TREATMENT PLANT**

- ◆ Pre-manufactured WWTP with custom equipment in building by Mack Industries, housed in a pole barn
- ◆ Unit processes included raw sewage pumping, mechanical screen, flow equalization, extended aeration, circular clarifiers, tertiary filters, UV disinfection, sludge storage/digestion, and effluent pumping
- ◆ Instrumentation: SCADA to OECC and turbidity readout for "catastrophic" failure

**EFFLUENT IMPOUNDMENT**

- ◆ Approximately 52 Million Gallons of storage for 120 days of winter storage
- ◆ Irrigation is handed by the golf course and not Delaware County

**IRRIGATION AREA MANAGEMENT**

- ◆ Delaware County manages the WWTP and sanitary sewer system
- ◆ Triangle Realty manages the golf course irrigation (e.g. the irrigation impoundment and the irrigation system)

**Conclusions and Practical Advice**

After being involved with the planning and design of three effluent reuse systems, I can offer a number of practical tips to anyone interested in the planning and design of effluent reuse systems:

- ◆ The project team should adopt the perspective of an environmental conservationist that it is good for the environment and take active steps along the way to demonstrate this to all concerned.
- ◆ Four major elements had to be considered: WWTP, effluent impoundment, irrigation area, and cover crop and storm run off controls. Everything is interrelated, and the "weak link" controls everything. Most developers are surprised by the size of the impoundment and how much space it occupies.
- ◆ Storm water quantity and quality control is imperative. Inadequate storm water controls can destroy the good intensions of a non-discharging system. Be innovative. Preserve and enhance wetlands, and incorporate generous buffer strips around non flowing streams. Storm water should be controlled with water quality ponds to retain flow and trap sediments.
- ◆ Even if it is not needed now, design a wastewater treatment plant with the ability to produce a high quality effluent with the ability to remove Total Nitrogen to at least 10 mg/l. MBR plants are a good application for effluent reuse systems given the excellent effluent that they provide, and the fact that membrane openings filter out fecal coliform bacteria.
- ◆ Seriously consider implementing a seasonal discharge and obtaining an NPDES permit. It may not be needed now, but may be needed in the future. It will provide the operations staff with a greater amount of flexibility for long winters and wet springs. Some developers do not want to risk exposure of the public notification process and possible hearings for "discharging systems" but the cost savings from having a smaller effluent impoundment will be worth it.
- ◆ Design the WWTP so it can be expanded by up to 50% in the future.
- ◆ Have more than enough area to do the project. Recognize some restrictions may occur during design requiring certain areas to be avoided. Such conservatism will go a long way to fostering a good working relationship with everyone.
- ◆ Ensure you own the land application area or it is available via a long-term lease agreement. The new Rule requires this.
- ◆ Last, but not least, it is imperative that feasibility be discussed with the appropriate Ohio EPA district office as soon as possible. It is important to be aware of 208 planning areas and TMDLs, which may effect aspects of the design.



## OWEA NEWS

### Membership Database - The Importance of Accuracy

**Communication** is key for any association to serve its membership. We need to have your current, correct contact information to mail to you Buckeye Bulletins, workshop notices, membership renewals, and to email you current and timely notices and information.

Your membership in the Ohio Water Environment Association (OWEA) includes membership in the Water Environment Federation (WEF), or vice versa if you joined WEF and selected Ohio as your Member Association (MA) state.

To maintain data continuity, OWEA imports the WEF database for membership management. As many of you know, there have been issues with WEF's database system during the past years. A new database system has been in the planning stages for well over a year. WEF staff members have been busy working with their Association Management System (AMS) vendor and expect to have the first beta testing delivered late March or early April 2010. WEF anticipates the "go live" date to be sometime mid May 2010.

OWEA Executive Administrator, Judi Henrich, attended a WEF Data Summit in July 2009 to make sure OWEA's needs were met during the database redesign. OWEA will participate in the beta testing in March and April.

Now we need you to do your part to verify the accuracy of your membership record before the transition to the new WEF database. Are you receiving your Buckeye Bulletin at the correct address? Do you receive periodic emails, such as Workshop Notices, via email? If not, you should verify your member profile. You can do this in one of two ways:

- ◆ Contact OWEA at [info@ohiowea.org](mailto:info@ohiowea.org) or 614.488.5800 to verify your membership profile
- ◆ Log on to [www.wef.org](http://www.wef.org) to verify and correct, if needed, your membership profile.

### Past Issues of the Buckeye Bulletin Available Online

2009 Buckeye Bulletin Issues I - IV are now available online as PDF files. As each 2010 issue of the Buckeye Bulletin becomes a "past issue", a PDF file will be available at [www.ohiowea.org](http://www.ohiowea.org).

### Biosolids Workshop Presentations Available

The presentations from the 2009 Biosolids Workshop technical sessions are now available online as PDF files.

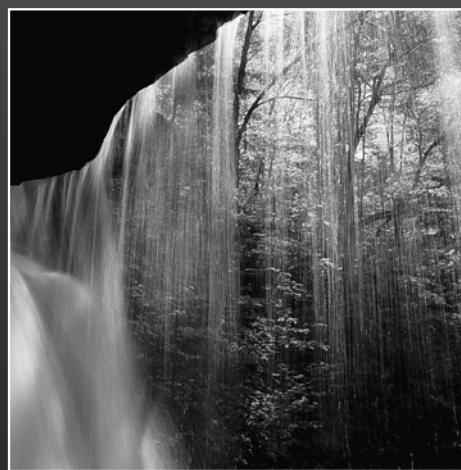
### OWEA Winter Term Intern

Samantha Moffett, a Communications major at Ohio State University, is serving an internship at the Columbus OWEA office. Samantha is already busy with Buckeye Bulletin editing, workshop registration, and 2010 Annual Conference duties as she learns about the Ohio water quality environment field.



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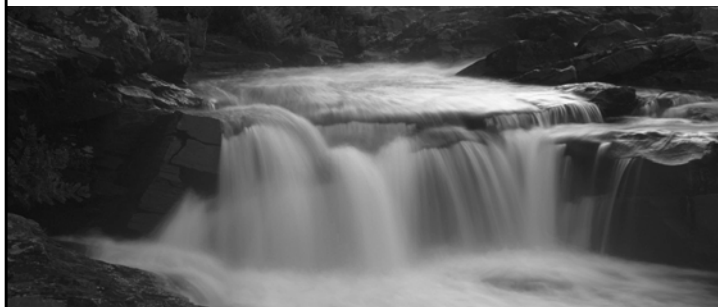
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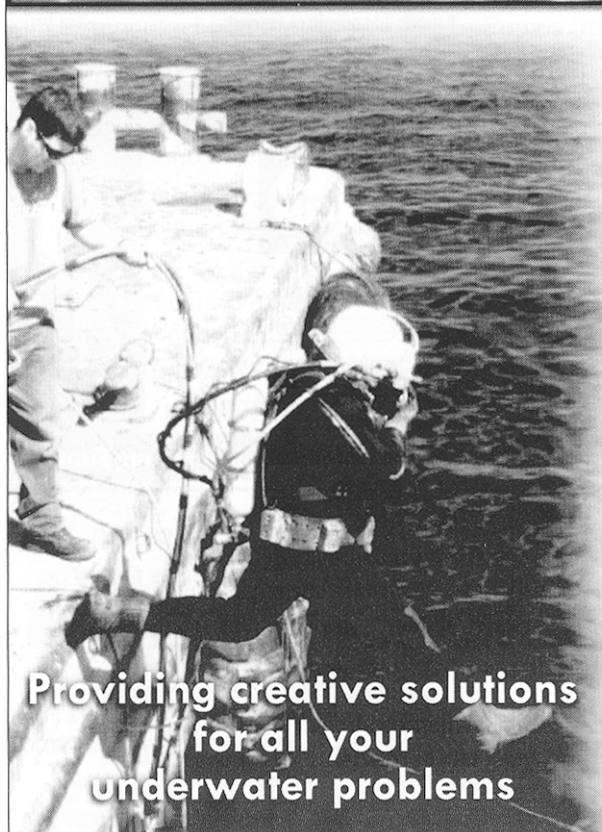
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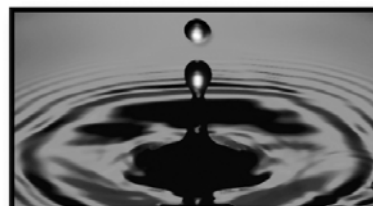
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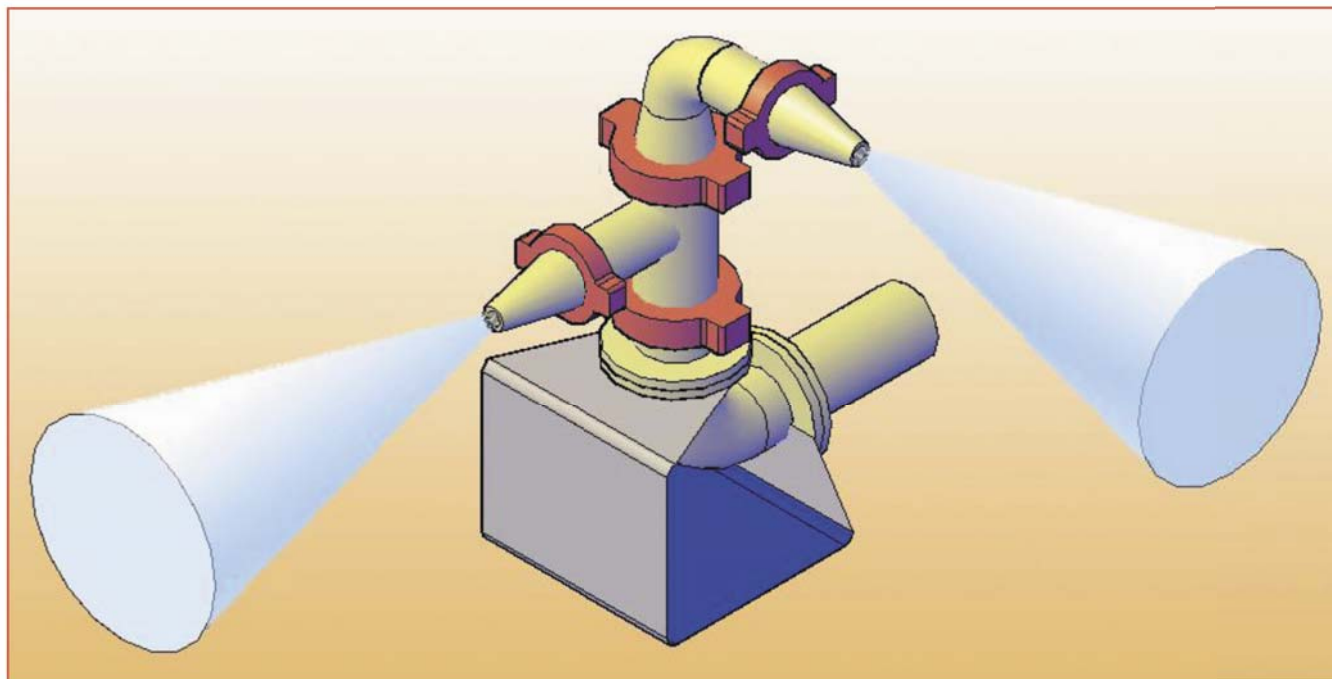
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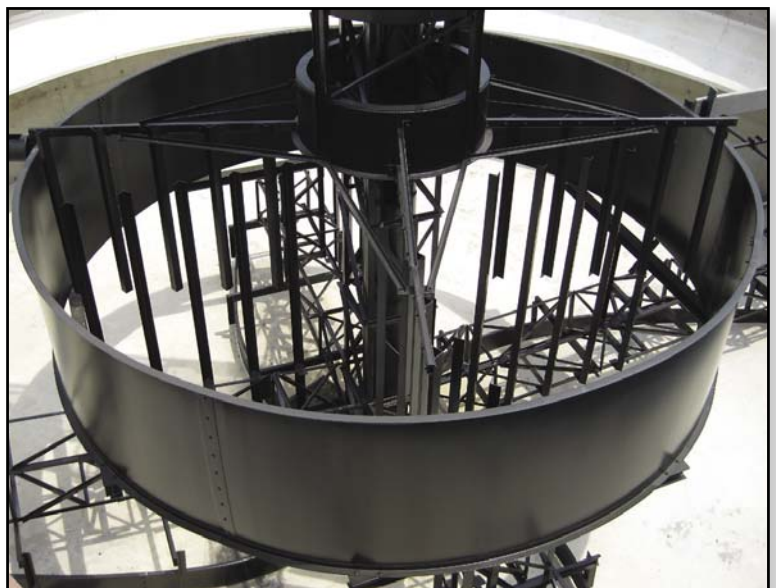
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