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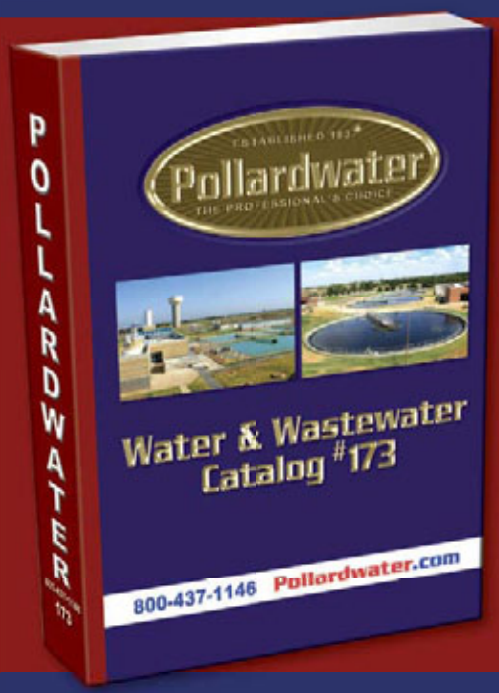

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Section News

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When Opportunity Knocks . . . Please Open the Door!

By Randy Wirtz

One of the reasons I joined WEF more than 20 years ago, and later joined CSWEA when I moved back to Wisconsin, was for opportunity. At that time, I had no idea how WEF/CSWEA operated and what work they really did, but I knew they were interested in the same things I was interested in. Over the last 20 years, the opportunities have been many – networking, advocating, committee work, learning and teaching, conference presentations, and the list goes on. Further to the point, since becoming involved on the executive committee of CSWEA, I've come to realize that the opportunities to become involved really are endless, and I'm taking the opportunity now to let all of our members and potential members know what opportunities exist right now within CSWEA – and these only include a handful of immediate opportunities for volunteers. We always have ample room for you to get involved in dozens of other activities! For contact information for any of the individuals listed below, please visit our website *(www.cswea.org)*.

> "I'm taking the opportunity now to let all of our members and potential members know what opportunities exist right now within CSWEA."

Opportunity #1 **Membership Committee.** In the summer issue of *Central States Water*, I indicated that my focus as the CSWEA president would be on two key issues – membership and strategic planning. I'm happy to report that we've made significant progress already on those initiatives at CSX 12, which took place in July at the Kalahari Resort in Wisconsin Dells. For more details on CSX, refer to the article in this issue. The three section Membership Committee chairs (Jay Kemp, Eddie McCall, and Tracy Ekola) are tasked with recruiting members to be on their committees, and following that will have a lot of work to do to get the membership committees active again. We need energetic members to get involved on these committees – will you help?

Opportunity #2 **Strategic Planning.** Our strategic plan was developed in 1989 and was updated two or three times since then, with the last update in 2003. At CSX 12, the group reviewed the current plan as well as the strengths, weaknesses, opportunities, and threats moving forward, and we decided that an update to the strategic plan was needed. Doug Hendrichsen, our Minnesota Trustee to CSWEA, has agreed to chair that ad hoc committee with a goal of developing the plan revision by the end of 2012. Doug is very interested in getting planning ideas from membership, and anyone who is interested can provide input and/or attend the ad hoc committee meetings over the next several months.

Opportunity #3 **Operations Workshop.** Over the last several years, CSWEA has hosted a digester foaming workshop to engage operators and other interested professionals on a specific operations focused topic – anaerobic digester foaming. One of my goals this year is to develop this grassroots effort into an annual operations forum/workshop to be held in February at the Midwest Industry Expo. The goal would be to continue to bring operations focused staff on specific WWTP operational issues. Troy Larson (Wisconsin Section Operations Committee Chair) has agreed to chair the ad hoc committee in developing this inaugural operations forum/workshop, and your help, assistance, and thoughts will be most welcome.

Opportunity #4 **Improving our annual conference.** An ad hoc committee was formed about a year ago in an attempt to improve our annual conference. We already have one of the best conferences of any member association, especially as it relates to technical content. What we're looking to do now is to make the conference more attractive to a larger audience, and to make our conference sponsors happy by attracting an audience that the sponsors are trying to reach. Patti Craddock (current 1st vice president of CSWEA) is the chair of this ad hoc committee if you have thoughts or would like to

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get involved. We also recently sent out a brief survey related to the annual conference via e-mail to all members. Please take a few minutes and respond to the survey request so we can get as much information as possible before considering changes to our annual conference.

Opportunity #5 **Planning the 2013 annual conference.** Preparations are already under way for the 2013 annual conference in Madison, WI. Alan Grooms is the conference local arrangement committee (LAC) chair and needs your help. Participation on the annual conference LAC is a great way to get to know CSWEA people, and no experience is necessary. The LAC will be getting heavily into the planning effort this fall and winter in preparation for another successful conference in May 2013. Please contact Alan or me with any questions or thoughts.

As I mentioned previously, the opportunities are endless, and the need for new volunteers is always there. Please consider getting involved, and feel free to contact me at any time to discuss the opportunities available to you *(randy.wirtz@strand.com,* 608-251-4843).

Switching topics a bit, I'd like to brag a little about the success of CSWEA with the 2012 WEF Awards. We had five national winners this year out of five award submittals (not a bad winning percentage). The following awards will be acknowledged at WEFTEC this year in New Orleans:

- Young Professional Award – Amanda Poole
- Industrial Achievement Award – Rahr Malting Co.
- Safety Award – Metropolitan Council Environmental Services East Business Unit
- Public Education/Other Category – Western Lake Superior Stormwater Protection Team
- Public Education/Individual Category – Andrew Sullivan

These are outstanding achievements and highlight the efforts of our deserving CSWEA members. I'd also like to thank Patti Craddock for her efforts in assisting the awards nominees in submitting the applications to WEF. Her diligence helped pave the way to these successful awards applications.

I hope to see many of you at WEFTEC in New Orleans this year (September 29-October 3), and I wish you all a successful end to 2012! CS

"I hope to see many of you at WEFTEC in New Orleans this year." (September 29-October 3)

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House of Delegates Meeting

By Dave Raby and Rusty Schroedel

Recent activities for your CSWEA directors (delegates) have included attendance and participation in the recent CSWEA CSX meeting in July at the Wisconsin Dells. That was a very productive and thought-provoking meeting that is summarized in this issue of *Central States Water*.

Going forward, your delegates are looking forward to their next House of Delegates (HOD) meeting to be held at WEFTEC in New Orleans in late September/early October. That meeting will include the following activities, among others:

- Reviewing the efforts and deliverables of the current HOD Work Groups which include:
  - Best Management Practices for Partnering – Dave Raby has been participating on this work group since WEFTEC 2011 and a draft manual of best management practices for collaboration partnerships has been developed by the group. It is currently being reviewed and should be finalized for submittal/approval by the HOD at the meeting.
  - HOD Strategic Planning – Rusty Schroedel has been participating on this work group since WEFTEC 2011 and the group has worked closely with the WEF Strategic Planning Committee to coordinate their efforts. A final memorandum with recommendations, including a recommended vision and mission statement has been completed.
  - Member Association (MA) to MA Relationships – This work group is working on ideas to nurture and strengthen relationships among MAs; particularly those in adjoining geographies who may have mutually beneficial opportunities to work together.
  - Operator Outreach – This work group is identifying ways to provide more benefits for WEF membership to operators by considering how WEF can better meet the needs of operators.
  - Delegates-at-Large – This work group is developing guidelines to help delegates-at-large (those delegates who don't represent a specific MA) understand how they can better represent their constituents in the HOD.
  - Removal of Non-Dispersible Materials from Wastewater – This work group was formed to focus specifically on best ways to remove non-dispersible materials (rags) from wastewater. This unique workgroup is developing a potential campaign to have non-dispersible products labeled to indicate they should not be flushed but handled as solid waste.
- There likely will be recommendations for new work groups to be formed for the 2012-2013 timeframe and delegates will be given opportunities to participate on those work groups.
- Voting on the slated of WEF officers and delegates-at-large recommended by this year's WEF Nominating Committee. That slate was developed to maintain a commitment of having WEF leadership be reflective of the diverse WEF membership and includes the following nominees:
  - WEF Vice President – Ed McCormick/Manager of Wastewater Engineering at the East Bay Municipal District in Oakland, CA. Many CSWEA members may remember Ed from our 2010 Annual Conference in MN. Ed attended and represented WEF at that conference. As has been the custom, Ed was initiated into the CSWEA 7S group at that conference and since that time,

"Going forward, your delegates are looking forward to their next House of Delegates meeting to be held at WEFTEC in New Orleans in late September/early October."

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he has worn his 7S shovel proudly at various WEF sponsored events around the country.

- WEF Treasurer – Rick Warner/ Senior Engineer for the Washoe County Department of Water Resources in Reno, NV.
- WEF Board of Trustees
  - George Martin/General Manager of the Greenwood Metro District in Greenwood, SC.
  - Ralph Exton/Chief Marketing Officer for GE Water & Process Technologies in Horsham, PA.
- Delegates-at-Large
  - Heather Cheslek/Engineering Manager for Black & Veatch in Indianapolis, IN.
  - Jamie Eichenberger/WEF Committee Volunteer and Consultant in Golden, CO.
  - Thomas Johnson/Senior Water/ Wastewater Technologist for CH2M HILL in Charlotte, NC.
  - Malcolm Nason/MHN Consulting in North Pole, AK.

As usual, WEF has been busy recently with several key initiatives. A couple of the more visible ones include:

- WEFCOM – This is a new connected community for WEF members that will be rolled out later this year. It will provide members an opportunity to share and comment on documents in an online workspace. Additionally, members will be able to create profiles and network between conferences and other events. WEF has provided a couple of training sessions recently for HOD members and others, and Rusty Schroedel provided a brief overview of WEFCOM to attendees at the recent CSWEA CSX.
- Water Industry Collaboration – In an ongoing effort to encourage more collaboration among leaders in the water industry, WEF and AWWA recently signed an agreement to explore opportunities for closer collaboration and partnership. Both organizations are driven by a desire to deliver better service and value to our members as both organizations respond to significant changes in the water industry and among their members. The agreement establishes an Exploratory Committee comprised of leaders from both organizations that will examine potential models for enhanced collaboration and partnership ranging from efficiencies in some combined business practices and member services to full integration of the two organizations.

As leaders in the water industry, all of you know that these are exciting times for us. Your CSWEA leadership is striving to represent you in WEF as well as we can. Your delegates are intended to be your conduit for input to the WEF HOD and Board of Trustees. To help us do a better job, we welcome input from every member of CSWEA. We hope you feel free to contact either of us at any time with your ideas and/or concerns about our MA or WEF. CS

Opportunities for Members

Dan Lynch

Well things don't seem to be slowing down. Over the summer the sections have held a number of events. Including several YP events. Illinois gets the award for the most original YP event with their YP golf instructional held at the Top Golf Academy. It sounded like something we could all benefit from (OK some of you are pretty good golfers). Wisconsin recently held their annual Brewers outing in the rain at Miller Park. Closeable roofs on baseball stadiums might have been a good thing after all. All three sections had representatives talking about YP issues and concerns at the Young Professional Exchange (YPX) that we started holding last year as part of the Central States Exchange (CSX). Speaking of CSX, there is a nice wrap-up article in this issue about our most recent CSX written by President Randy Wirtz. I think we had pretty good attendance this year, but we can always do better. CSX is where the leaders of Central States get together to prepare for our immediate future and plan for our long-term future. Every officer in the association, whether you are on the Executive Committee or on a Section Board, should definitely try very hard to get to CSX. To paraphrase some great person, you can't tell the players without a program. Well, CSX is where you get the CSWEA program. Plan to be there next year.

Getting back on track, collectively the sections also hosted a pretreatment seminar, three collection system seminars, an operations seminar, a management seminar and a technology conference. The Midwest Water and Wastewater Technology Conference is a new event co-hosted by the Illinois Section of Central States and the Illinois Section of the American Water Works Association. This conference incorporates multiple learning tracks related to the planning design, implementation and operation of water and wastewater based technologies. The multi-track approach makes this conference ideal for utility managers, IT professionals and operators. This event provides a new opportunity to industry professionals to learn about the technology that is presently available to help us do our jobs better. This is an event that the other sections may want to consider holding in their states.

All in all our sections have remained busy and continue to provide a multitude of opportunities to serve their members and other industry professionals. We want to continue this trend. It is something that we are very good at and something that provides a very good value for our membership.

Last but certainly not least is WEFTEC 2012. When you receive this issue of *Central States Water,* WEFTEC will only be a few days away (hopefully still in the future). It will probably be to late to attend this year, but you should start planning for next year. If you haven't ever gone to WEFTEC, you should go. It is a mind-expanding experience. We are currently at the beginning of the multi-year two-city rotation of WEFTEC. It will be held in New Orleans in 2012 and in Chicago in 2013 and continue alternating between these two cities for a number of future WEFTECs. WEFTEC is the Water Environment Federation Annual Technical Exhibition and Conference. It will have over: 17,000 attendees; 925 companies exhibiting; and 900 technical presentations as part of 114 technical sessions, and workshops. It is the largest annual water industry trade show in North America. If you go, you will be amazed, awe-struck and enthused. You will see things (good things) that you will never forget and that will help you in your professional career. This year at WEFTEC, Central States will again be sponsoring two Operations Challenge teams, the Pumpers and the Shovelers. Stop by the competition and cheer your teams on to success.

Also, all CSWEA members attending WEFTEC are invited to attend the Sunday Night reception we co-host with the Illinois Water Environment Association. We have over 250 people attend our reception and a good time is generally had by all. I hope to see you at WEFTEC. CS

Let's go have some fun.

Dan

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WATER NEEDS YOU YOUR LOYALITY

Clean water is critical to sustain life, yet we take it for granted. It's time for that to change.

This is a pivotal time in history for the water profession and society as whole. Environmental issues have come to the forefront. Climate change and going green have become everyday topics, but protecting our drinking water and wastewater systems has remained mostly overlooked.

In recent years, federal and state investment in water projects has declined dramatically. In many cases, current utility rates paid by customers do not reflect the true cost of service. Delaying work to rehabilitate and expand infrastructure will only increase future costs.

The world's water supply is finite. Unreliable access to clean water and water services, water shortages, and failing infrastructure systems are very real problems that we must work together to address. Water is a valuable resource that can be recovered and reused if managed wisely.

Future generations are relying on us to find innovative and holistic ways to ensure adequate and safe water supplies. Meaningful change requires a collective effort to change how we value and manage our water resources.

Everyone shares responsibility for our water. The decision-makers on Capitol Hill. The water professionals who have dedicated their careers to providing these vital services. And everyone who turns on a tap or flushes a toilet.

We must ALL work together to keep our water clean and healthy. To do that, we each need to learn to value water. We need to invest our time and energy in protecting our natural resources and infrastructure.

And we need to come together to share an important message:

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– Dan Lynch, CSWEA Executive Director

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WEFTEC 2012 Welcome Reception

On behalf of CSWEA and IWEA, I would like to invite you to the CSWEA/ IWEA Welcome Reception event being held during WEFTEC 2012. The reception will be held at the Hilton Hotel in the Versailles Ballroom on Sunday, September 30, 2012. We are expecting a great turn-out for the WEFTEC Reception with CSWEA/IWEA attendees, manufacturers, consultants, vendors and WEF dignitaries. This is a great time to connect with people we don't see and an opportunity make new friends. The Operation Challenge teams will be in attendance. Be sure to wish them good luck for the following day's events.

We will be using a similar format as we have in the past. There is a cash bar starting at 5:30, followed by an open bar from 6:00 to 8:00 which is then followed by a cash bar until 8:30. The food will be a cheese and vegetable platter and an array of cold appetizers.

This event is sponsored by donations from manufacturers, manufacturer representatives, and consultants. While you are enjoying your cocktail and appetizer be sure to thank the people who make this event possible. My suggestion is to buy them a drink during the open bar portion of the event. If you would like to become a sponsor, contact Dan Lynch or check out the CSWEA website for details.

Each guest will need to sign in, this is done because in the past we have had some issues with transient attendees from other receptions crashing the CSWEA/ IWEA event for free cocktails. Please be patient when signing in, we will have several sign-in sheets available in order to speed up this process. CS

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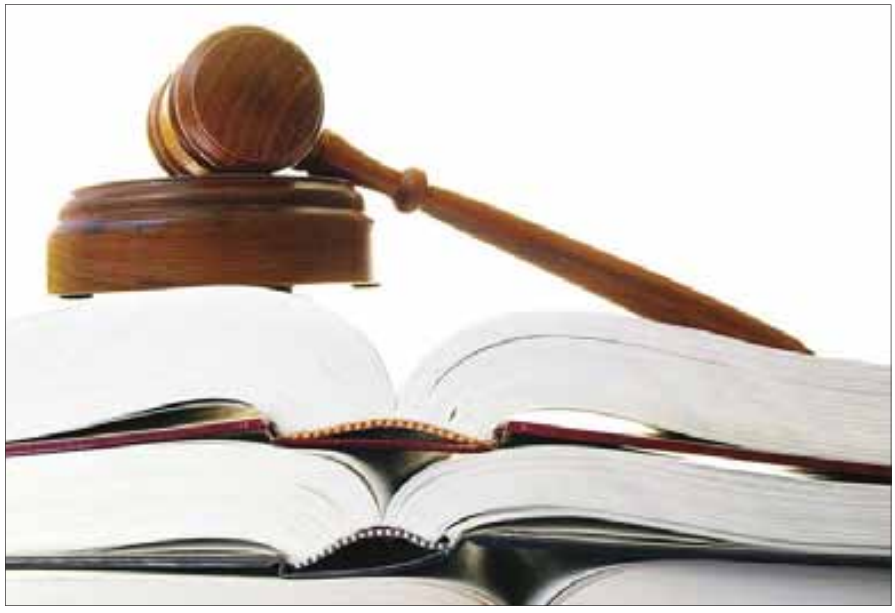
Your Facility's Engines/Generators Are Regulated

By Renee Lesjak Bashel, Project Manager and Megan Corrado, Project Engineer, SCS BT Squared

In 2004, the U.S. Environmental Protection Agency (USEPA) initiated what was to be a complicated set of regulations affecting reciprocating internal combustion engines (RICE) under the National Emission Standards for Hazardous Air Pollutants (NESHAPs). USEPA's RICE rule is known by many names: 40 CFR Part 63 Subpart ZZZZ, Quad Z NESHAP, or RICE MACT, to name a few. At first the rule only applied to big emitters of air pollution (otherwise known as major sources). After changes in 2008 and 2010, the rule now includes all stationary RICE, regardless of the amount of emissions a facility produces. The most recent rule changes have compliance dates that are quickly approaching. Depending on the engine type, deadlines fall in either May or October of 2013.

A wide range of industries as well as commercial and institutional operations (e.g., malls, hospitals, and local government) who have never had to meet state or federal air pollution standards may have to meet the RICE rule requirements. Newly regulated entities include water and wastewater utilities that have backup engines to keep their pumps on during power outages. While there are some exemptions for residential, commercial, and institutional facilities, USEPA guidance dated August 9, 2010, has established that wastewater treatment plants are not exempt from this rule.

The RICE rule has over 70 different applicability combinations, which depend on multiple variables: facility-wide emissions, engine age, size (hp), use (emergency or non-emergency), and fuel type. One requirement that will have a big impact on small sources of air pollution (otherwise known as area sources) is that those with old (pre-June 12, 2006) stationary engines on interruptible rate agreements (non-



"Newly regulated entities include water and wastewater utilities that have backup engines to keep their pumps on during power outages."

emergency) will be required to install emissions controls. These controls can cost on the order of roughly $20,000 to $30,000 per engine.

Earlier this year, USEPA proposed changes to the RICE rule that would allow emergency engines operating under interruptible rate agreements to run for up to 50 hours per year before controls are required. This possible reprieve will only be temporary. The 50 hours per year allowance will expire in 2017, if the rule is amended as proposed. If that proposed change does not make it into the final rule, then required controls will still need to be installed by the applicable compliance date in 2013.

Not all engines will need controls. Engines that are less than six years old (ordered on or after June 12, 2006), whether emergency or not, can simply comply with the rule if they can be certified as Tier 2 engines. Newer engines that cannot be certified as Tier 2 will likely have to install controls to meet the emissions standards in the RICE rule.

Older emergency engines can meet the regulatory requirements through maintenance and work practices that include oil and filter changes, and inspections of the air cleaner, hoses, and belts at pre-determined frequencies. Maintenance logs are also required to document compliance with the rule. Maintenance and recordkeeping requirements are still in force in 2013, irrespective of the proposed change.

In addition to money, coming into compliance also requires time. Because of the variables involved, it may take a while to figure out what emission limits apply to each engine, conduct a cost/benefit analysis to determine if an interruptible rate agreement is worth maintaining, submit notifications to the USEPA, and have controls installed. Anyone required to install controls will also have to conduct emissions testing to prove they meet the standards.

"Anyone required to install controls will also have to conduct emissions testing to prove they meet the standards."

Most of these actions are required by the RICE rule (with the exception of the cost/benefit analysis, of course). However, conducting a cost/benefit analysis may be worthwhile. Some have come to the conclusion that staying on an interruptible rate agreement is worth allowing large old diesel engines to be considered non-emergency under this rule, due to a two- to three-year return on investment.

The proposed amendment to this rule is not expected to be issued final until early 2013, possibly by March. With the current compliance dates coming as early as May 2013 for some, and the uncertainty of the final rule changes, it may be the right time to consider requesting an extension for meeting the RICE rule requirements. Extensions of up to one year may be granted, provided that the extension request is made at least 120 days prior to the applicable compliance date. This means that an extension request would have to be submitted by either February 2013 or July 2013 (again, depending on engine type).

It is important to note that ALL stationary RICE are regulated under this federal rule. If you do not know how your facility is affected, a good place to start is taking an inventory of all stationary RICE on your property, no matter how small.

For more information regarding how air rules apply to your facility's engines, please feel free to contact us at 608-224-2830 or see our article on page 40 of the Fall 2011 issue of *Central States Water*. CS

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Village of Bartlett
Wastewater Treatment Plant

From 1996 until July of 2012, Ron Johnson served as the Superintendent of Wastewater for the Village of Bartlett. During his tenure, the village received several awards and accolades including four conservation foundation Clean Water Awards, nomination for the Central States Hatfield Award, and the 2011 Illinois Section Operations Award from Central States WEA.

John Pullia (formerly of Glendale Heights) was appointed Superintendent of Wastewater in July of 2012, following Ron's retirement. John has 12 years of experience in operations and maintenance of treatment facilities. The remaining team members includes four Class I wastewater operators: Mike Wisniewski, Brig Palomo, Mark McCue, and Joe Hartray. These four individuals are responsible for day-to-day operations, laboratory process control and permit compliance as well as rotating for on-call emergency response.

Maintenance team members include John Jancik, Larry Lynch, Brian Kopolous, Gary Tenut, Jason Schwartz and Mike Wulff. The maintenance team is responsible for 98 miles of collection system, 20 lift stations, and general equipment maintenance throughout the plant, which includes 24/7 response for collection system issues and wet weather events.

Plant service area and background

The village is divided into three major basins. These three basins are served through an intergovernmental agreement between the village, Chicago Metropolitan Water Reclamation District, and the Fox River Water Reclamation District. The Bartlett Facility receives all flow from village residents that live within DuPage County.

The Bartlett Wastewater Treatment Plant service area includes approximately 8,139 acres. The plant provides treatment for a population equivalent of 29,430 with non-residential areas making up approximately 10%.

The plant was originally constructed in the early 1970s; however, major rehabilitation projects from the early 1980s and 1993 have replaced and improved the majority of the original equipment.

The average daily influent wastewater

Table 1: Inflow (MGD) and Average Effluent Concentrations (mg/L)

NPDES Monthly Average Limits (mg/L)		
BODS	TSS	NH-N
10	12	varies 1.5-4

flow into the treatment plant from 2008-2010 was 2.36 MGD, with each year's average shown in Table 1. The design average flow for the plant is 3.68 MGD. In a wet weather event, the peak wet weather flow for the plant is 15 MGD, with 5.15 MGD of the flow receiving full treatment and 9.85 MGD receiving only excess flow treatment.

Preliminary treatment

Wastewater flows into a raw sewage pump system through a 48" interceptor sewer. The pumping system consists of three 125 hp dry pit pumps. A pumping capacity of 9.78 MGD can be achieved with two out of the three pumps running. A project is currently under way to upgrade the capacity of the pumping station to address wet weather flows which operators have found to exceed 15MGD on occasion.

The raw sewage is then pumped through the headworks which consists of a fine, mechanical screen with capacity of 10,500 gpm and a scraped, Walker Process screw type grit conveyor designed to treat the projected Design Peak Hourly Flow (DPHF) of 5.15 MGD.

Table 2: Inflow (MGD) and Average Effluent Concentrations (mg/L)

Inflow (MGD) and Average Effluent Concentrations (mg/L)				
Year	Inflow	BODS	TSS	NH-N
2008	2.40	3.2	2.2	0.13
2009	2.46	3.8	1.7	0.11
2010	2.26	4.8	2.0	0.06
2011	2.44	5.7	2.4	0.04
Over the past decade, effluent concentration samples of BOD5, TSS, and NH-N have all held continuous compliance with their monthly average permit limits.				

Primary treatment

From the headworks, wastewater either flows to primary clarifiers or to excess flow treatment.

The plant has four 61-ft by 16-ft rectangular primary settling tanks arranged in pairs. Each clarifier tank uses chain and scraper mechanisms at the bottom that convey settled sludge to the head of the hopper to be withdrawn to a common sludge pit. Under current loading condition, operators only run two out of the four primary clarifiers to provide adequate treatment. Daily monitoring reports indicate removal of 32% BOD5 and 58% Suspended Solids though this process.

Excess flow treatment

In a wet weather event, any flow above 5.15 MGD is diverted to the excess flow treatment system. The system includes a flow equalization tank, first flush holding, and an excess flow clarifier. In 2010, the plant received five excess flow events lasting a total of thirteen days. During this time, all effluent characteristics were in compliance with NPDES permit limits.

Activated sludge

Bartlett's WWTP utilizes a two-stage process for BOD5 and nitrification. The process includes aeration basins for BOD5 removal followed by intermediate clarifiers and packed towers for nitrification.

Primary clarifier effluent is blended with RAS to form mixed liquor where it is then

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distributed to four aeration basins. These aeration basins provide 80-90 percent of the BOD5 removal with a detention time at 3.68MGD of 7.5 hours.

There are two 85-ft diameter intermediate clarifiers with a hydraulic differential design. The design includes center feed and peripheral take-off, with an Envirex To-Bro mechanism that rakes bio solids to a center hopper.

The effluent flow is then pumped by submersible pumps from a wet well through a five-chamber diversion structure to two nitrification reactors or to by-pass pipes. The nitrification towers are of a Fixed Synthetic Media design with a 61.5-ft diameter and 16-ft media depth.

Under typical loading conditions, the aeration basins have been sufficient in removing the ammonia and nitrogen from the effluent wastewater, thereby rendering the nitrification towers unnecessary. However, as the plant reaches design loading, the use of these towers is required to meet NPDES effluent standards.

Final clarifiers and tertiary filters

The effluent coming from the nitrification towers then flows to two final clarifiers where material which has sloughed off of the filter media is settled out.

Prior to disinfection, effluent from the final clarifiers is directed to four tertiary filters. These filters contain 30 inches of anthracite, which further polishes the wastewater.

Chlorine contact tank

NPDES regulations require seasonal disinfection from May 1 through October 31. This process utilizes a sodium-hypochlorite solution which destroys any remaining harmful bacteria in the effluent. Sodium thiosulfate is then added for de-chlorination to meet permit limits.

Rob Johnson (R) passing on the torch to John Pullia

Sludge stabilization

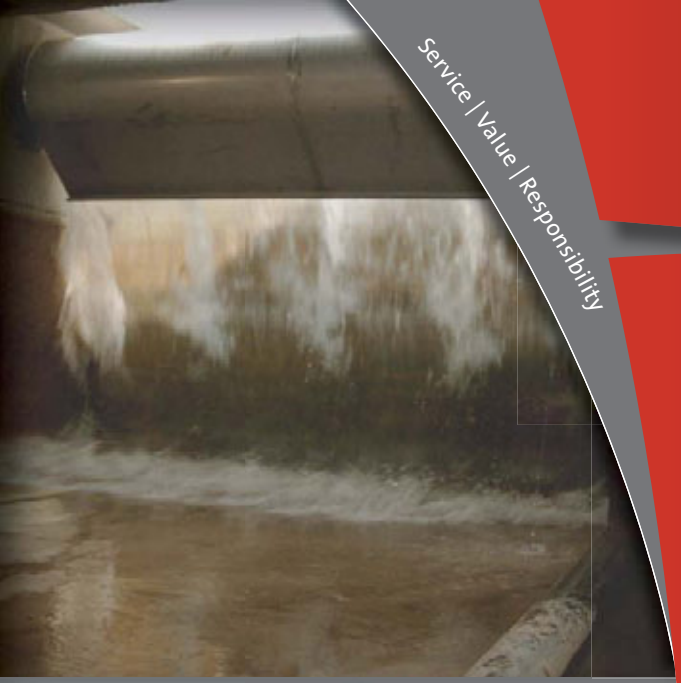
Raw sludge from the primary clarifiers and waste activated sludge are pumped to a system of eight aerobic digesters. In 2004, fabric covers were installed to increase heat retention allowing for improved digestion in cold weather months.

Once laboratory tests have determined the sludge has met volatile suspended solids standards, the sludge is pressed in a one-meter filter press. The resulting cake sludge is hauled away by an outside contractor for land application.

The addition of a centrifuge is currently under way to improve efficiency of the plant's sludge removal process.

Meeting permit limits

The Village of Bartlett's WWTP has consistently met NPDES standards regulating the quality of their effluent wastewater. Table 2 shows the plant's consistently low averages for significant effluent parameters. CS



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Optimizing an Induced Vortex Grit Chamber Using CFD (Computational Fluid Dynamics) for Small Size Grit Particle Removal

By Denis Aubin, Mike Bruneau, and John Cigana

Pre-treatment: An essential step in wastewater treatment

The pre-treatment, or headworks, of a wastewater treatment plant is not only the first step of the wastewater treatment process, but also an essential one, as it sets the tone for overall treatment performance. Generally speaking, the headworks is composed of a mechanical screen, grit chamber and solids handling equipment.

Modern grit chambers remove grit by inducing a vortex pattern. A drive paddle in the induced vortex unit maintains organics in suspension and circulation under all flow conditions. Grit slurry pumps periodically remove accumulated grit from the hopper at the bottom of the grit chambers.

Efficiency of the grit chambers is important for the remainder of the wastewater treatment process. Removing solids increases treatment efficiency, improves downstream hydraulics, and protects against excessive wear and tear in pumps. Traditionally, for design purposes, grit particle sizes have included particles larger than 65 mesh (0.008 in.) with a specific gravity of 2.65. Removal of at least 95% of these particles has always been the target of grit removal design, but empirical studies in the literature validating these performances have been rare.

Enhanced performance at the headworks stage is critical for advanced treatment technologies like membranes, MBRs and MBBRs. These are all sensitive to the presence of gross solids and grit deposition. Grit removal performance is also critical to lagoon-type treatment rehabilitation.

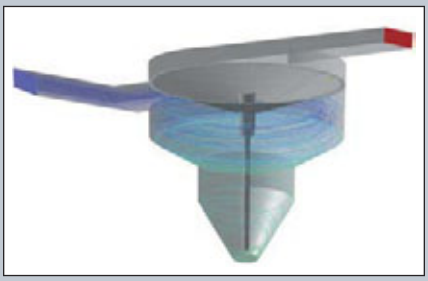
Research objective: defining a 360° Induced Vortex Grit Chamber

A research program was established recently to define a variangle (full 360° rotation) Induced Vortex Grit Chamber (IVGC) design, identified as the MECTAN V®. The objectives of this program were to create a new configuration that would:

- Position the outlet channel in any desired direction to facilitate the plant design without affecting the unit's performance, thus the Variangle.

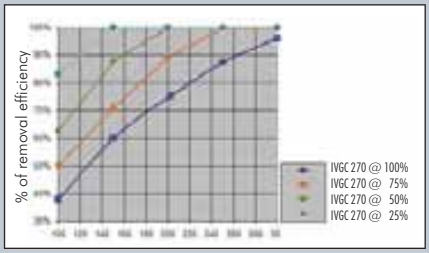
"Efficiency of the grit chambers is important for the remainder of the wastewater treatment process. Removing solids increases treatment efficiency, improves downstream hydraulics, and protects against excessive wear and tear in pumps."

Figure 1.



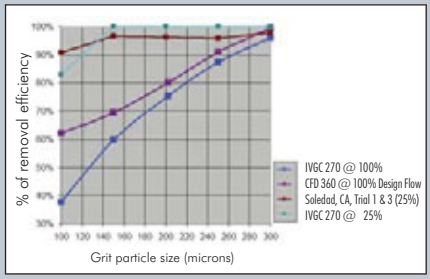
Original Fluent modeling of classic IVGC based on Ridgecrest, California, installation.

Figure 2.



Classic IVGC configuration grit removal efficiency vs. flow variations (typically, grit removal efficiency increases with flow-through reduction).

Figure 3.



Soledad, California, variangle field test results compared to CFD modeling.

- Provide enhanced grit removal efficiency compared to the classic results and general market requirements.

Finally, this research program would lead to a predictive model based on field performance and computer modeling.

Background and methodology

Classic grit chamber design is typically referred to as 270°, referring to the rotation angle of the water from the inlet channel to the outlet channel. This implies that the inlet and outlet of the unit are on the same side of the induced vortex tank. In order to fully understand the performance of the classic design, the exact geometry of a 270° induced vortex grit chamber was modeled through CFD (Computational Fluid Dynamics). The Fluent® software (ANSYS) was used for this modeling, as shown in Figure 1. The models were established using a classic design IVGC unit installed in Ridgecrest, California. The grit removal performance obtained through CFD simulations were then validated with empirical data from onsite trials. At the time of testing, the Ridgecrest WWTP was at 25% of nominal flow. Even though not considered close to the actual expected 100% design flow, but close to average daily flow for many WWTPs, these tests have provided considerable data for developing the new technology.

The sand dosage method was used during these performance tests in Ridgecrest. The quantity of injected sand was sufficient and the velocity in the channel was high enough to avoid the settling of sand before the grit removal system. While sand was injected, two samples, at equal flow rates, were taken simultaneously, one upstream and one downstream of the grit chamber, using two submersible pumps installed at the inlet and outlet of the grit chamber.

Samples were then sent to an external laboratory where analyses of sand granularity and density were done. Grit samples were sieved through three different mesh sizes: 50, 70 and 100 (corresponding to 300, 250 and 150 μm). Thus four ranges of grit were obtained, corresponding to particle sizes <100, 100-70, 70-50 and >50 mesh (corresponding to <150, 150-200, 200-300 and >300 μm).

Figure 2 is a typical grit removal efficiency curve for a classic design IVGC at 100%, 75%, 50% and 25% of design flow. The four computed curves on this figure clearly show one of the great benefits of the IVGC design: grit removal efficiencies increases with decreasing influent flow rate. This is extremely positive since 100% of design flow is rarely achieved on a continuous basis, removal efficiencies are therefore always better during average daily design flow, which is anywhere between 25% to 50% of design flow.

CFD development of the Variangle flow path design and test sites

The project's central objective was to develop a new and more efficient variangle configuration, while adapting the design to current approaches.

While very practical for bypass installation, the classic design requires the outlet channel to be parallel to the inlet channel in order to connect to the

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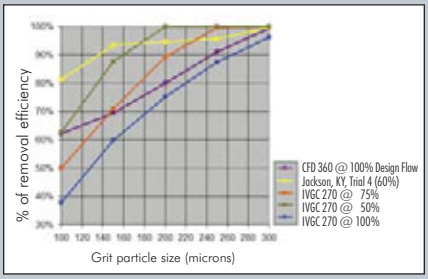
Figure 4.



Jackson, Kentucky, variangle field test results compared to CFD modeling.

Table 1.

Particle size (microns)	Particle size (MESH)	Grit removal efficiency
Above 300	Above 50	96%
Above 210 and below 300	Above 70 and below 50	87%
Above 150 and below 210	Above 100 and below 70	75%
Above 100 and below 150	Above 140 and below 100	68%

Expected grit removal performance for a Variangle design (2.65 specific gravity).

downstream treatment systems. In the late 1980s, configurations using in-line inlet and outlet configurations appeared. This approach addressed the flow direction issue, but did not fully address the grit removal performance.

Two sets of full-scale testing were completed at fully operational installations in Soledad, California, and Jackson, Kentucky. The sand dosage methodology described for the Ridgecrest test was also used for the validation in Soledad and Jackson.

Soledad Wastewater Treatment Plant

The unit in Soledad, California, was one of the first Variangle units to be installed. The municipal wastewater was fed by gravity into the 16-ft-diameter unit. The feed rate only provided 25% of total design flow to perform the tests of the Variangle concept.

Figure 3 compares different results obtained through CFD modeling and empirical data.

The black line represents the grit removal efficiencies that a classic IVGC would yield at 100% of design flow. The dashed magenta line represents the efficiency for the same 100% design flow but with a variangle configuration. It can be clearly seen that the grit removal performance is enhanced by a variangle design, across all grit sizes.

Furthermore, when comparing on this same figure the grit removal efficiencies at 25% of design flow (the conditions where the tests were performed in Soledad) for the variangle design and a comparable classic design, it becomes clear from the empirical sand dosage tests that the efficiency of the smallest grit sizes (between 100 and 150 microns) is enhanced by the variangle design.

It was determined that the sand dosage test method could typically exaggerate grit distribution in the channel, so, from a practical point of view, the curves for the classic and variangle design are essentially identical for grit sizes above 150 microns. However, for the grit sizes below 150 microns the efficiency is substantially higher when using a variangle design. This particle size is typically considered as very fine grit and very difficult to capture.

Jackson Drinking Water Plant

The Jackson, Kentucky drinking water plant uses a grit removal system, as it draws muddy and gritty water from the nearby river. The 7.5-ft-diameter grit tank was installed after the intake pumps. Although not tested at 100% design flow, this installation did provide the opportunity to test the variangle concept at 60% of total design flow.

Figure 4 also compares different results obtained both through CFD modeling and empirical testing.

The black, orange and pink curves present the CFD-generated grit removal efficiencies for an equivalent classic IVGC design at 100%, 75% and 50% of design flow. The dashed blue color curve shows what the expected grit removal efficiency would be with a variangle design at 100% of design flow. Again, it is clear that the variangle design offers better grit removal performance than the equivalent classic design at 100% of flow, as grit removal efficiencies are better across the board than with a classic design.

The sand dosage tests were performed at 60% of design flow. The real-world results obtained on grit removal efficiency again shows the superior performance of the variangle design over the classic design. For example, for a 100 micron grit size, it can be clearly seen from empirical data that grit removal efficiency is close to 80%. By interpolating between the 50% and 75% curves for the classic design, the expected efficiency would be in the range of 50% grit removal efficiency. This represents a huge improvement in grit removal performance at these grit sizes that are considered extremely difficult to intercept.

CFD backed performance for grit removal

Computational fluid dynamics is a powerful and flexible tool that allows the study of a wide variety of applications in the water industry. Field tests are bringing additional credit to the use of CFD as a design tool. This study combined both CFD evaluation and field results with the objective of developing and validating a variangle IVGC. As a conclusion, Table 1 presents the grit removal performances that were achieved through this study. Ongoing field results and continuous CFD modeling are being considered in order to enhance and provide for even more accurate prediction of grit removal performances with the Fluent® CFD program. CS

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CSX 12 July 12-13, 2012

By Randy Wirtz, CSWEA President

CSX 12 was held on July 12 and 13 in the Wisconsin Dells again this year. For those of you who are not familiar with CSX, it's our annual working meeting for our state section officers, association officers, and committee chairs. It's an opportunity to learn from each other and to exchange ideas, successes, and challenges that each of us have experienced through our involvement with CSWEA. The venue is perfectly suited for a summer get-away with family, and the agenda offers plenty of time to have fun in addition to working for the good of the association.

This year at CSX, we focused on the two main initiatives for the current year – membership and strategic planning. However, we also had great discussions on many other topics and initiatives, including:

- Potential changes to the annual conference format.
- Young professional topics, including the student design/paper competitions, social networking groups, and mentor/mentee programs with student chapters.
- CSX timing – Is July the right time?
- WEF initiatives related to strategic planning.
- Section exchange – opportunity for the sections to talk about themselves.

On the membership topic, our efforts were mainly focused on defining what the sections' membership committees could be doing to attract new members from the various professional groups involved in CSWEA – public sector/operators, consultants, manufacturers and equipment representatives, academics, and regulatory agencies. The ultimate goal will be to actively recruit new members from all of these groups, but to do that, the membership committees need people to help with the effort. The first task, therefore, for each of the membership committees, is to recruit new committee members – at least three per section – by September 2012. Hopefully we will get more volunteers than that, but it's a start! After that, the section committees will begin putting together plans to recruit new members, especially in the public sector/operations area.

Related to strategic planning, the CSX group spent a few hours conducting a SWOT analysis of the organization. SWOT stands for strengths, weaknesses, opportunities, and threats, and we developed a long list under each of these categories that are applicable to CSWEA. We then compared these

"If you have ever wanted to help CSWEA grow or meet our ongoing and future challenges, this is your opportunity. We would love to hear your thoughts and ideas for CSWEA."

lists to our current strategic plan to determine whether our current plan adequately addresses the opportunities we have and the threats to our viability that we face. Based on this comparison, it was fairly obvious that or current plan, last updated in 2003, did not adequately address CSWEA's needs. Doug Hendrichsen (Minnesota Trustee) volunteered to chair an ad hoc committee with the goal of updating the strategic plan by the end of 2012.

If you have ever wanted to help CSWEA grow or meet our ongoing and future challenges, this is your opportunity. We would love to hear your thoughts and ideas for CSWEA. What do we do well? Where do we fall short? What would add value to your CSWEA membership? Please contact me or Doug with your thoughts.

Finally, CSX 13 is already scheduled! We will meet again July 18 and 19, 2013, and the Kalahari Resort in Wisconsin Dells. Put it on your calendar now – you won't be sorry! CS

Operations Challenge 2012

By Jeff Mayou, CSWEA PWO

I'm excited to announce that the CSWEA Operations Challenge team members have had their first hands-on training for the upcoming WEFTEC Operations Challenge that will be held in New Orleans this October. Training was held at the Madison Metro Sanitary District Nine Springs Wastewater Treatment Plant that consisted of five events including collections systems, process control, maintenance, safety, and laboratory. A special thank-you goes out to the Madison MSD staff, including Paul Nehm and Rhonda Riedner for accommodating our teams and the use of their facilities. I'd like to also thank Montgomery Baker for the laboratory training he provided.

The 2012 team selection was held shortly after the Central States Annual Meeting. Protocol was followed by contacting the winners of the Operations and Collection System Awards giving them the opportunity to participate in this year's WEFTEC Ops Challenge. Second, the 2011 CSWEA Ops Challenge team members were contacted to return. With that, two teams were assembled.

The 2012 CSWEA Operations Challenge teams are:

PUMPERS: Coach Jim Huchel, Crystal Lake, IL; Captain Tom Dickson, Oconomowoc, WI; Chris Kliest, Hermantown, MN; Marc Majewski, Downers Grove, IL; and Justin Pratt, Moline, IL.

SHOVELERS: Coach Jim Miller, Buffalo, MN; Captain Matt Schmidt, Green Bay, WI; Brian Skaife, Janesville, WI; Todd Carlson, Duluth, MN; and Ken Bloom, Marathon City, WI.

The returning team members anticipate another exciting year while new members await their first national competition with enthusiasm. The Pumpers and Shovelers would like to thank Central States Water Environment Association, the sponsors, support staff, and their employers who helped make this opportunity possible. Please join the teams in New Orleans to cheer them on and give support while they are competing.

If you would like to become a sponsor of our teams, please contact Jeff Mayou at 715-587-9643 or *jsmayou@new.rr.com* for more information. CS

Submit for an Award – 2013 WEF and CSWEA

By Patti Craddock & Jim Huchel

Our role in protecting the public and the environment are often undervalued and invisible to the very public that we protect. Whether in design, academia, equipment manufacture and supply, management, or operations, we all know individuals who have successfully addressed unique and challenging issues. Our awards program offers the opportunity to receive recognition for these deserving professionals.

A top priority of CSWEA each year is to recognize the efforts of our members and water and wastewater professionals at all levels. We also seek to provide top quality nominees to the Water Environment Federation (WEF) each year for national level recognition. In 2012 we had members earn awards at the WEF level for Young Professional, Industrial, Safety and two Public Education categories. Sadly, many years, many awards have few or no nominations, resulting in missed opportunities to provide recognition to deserving water quality professionals. It's time to brag a little bit about the accomplishments of our members. To nominate someone is easy and takes five minutes – send the person the nomination form, and when they completed, you can submit it to CSWEA.

In order for you or a deserving colleague to be recognized, please submit a nomination to the Central States Water Environment Association and/or WEF for one of the many awards available.

Below is a listing of the award opportunities. Please carefully review the various awards available and nominate one of our many deserving members.

Please note that award submittals need to be made by December 1, 2012 to allow distribution to the respective CSWEA or WEF Awards Committees for consideration. CSWEA will present the winners with their awards at the 86th Annual Meeting Awards Banquet in May 2013, Madison, WI. WEF awards will be presented at WEFTEC 2013 in Chicago.

2013 CSWEA & WEF Award nominations now being accepted

Nominations are now being accepted for the following WEF awards and should you be aware of a worthy nominee we ask that you please complete and return the bottom portion of this page for consideration. Note that it is OK to self nominate. Each award is briefly described below and complete information may be found on the *www.CSWEA.org* or *www.WEF.org* websites.

Charles Alvin Emerson Medal: This award is presented by WEF to an individual whose contributions to the wastewater collection and treatment industry most deserve recognition. Areas of involvement include membership growth, water resource protection, improved techniques of wastewater treatment and fundamental research.

Harry E. Schlenz Medal: This award is presented by WEF and recognizes the achievements of an individual *outside* of the water environment profession, who takes up the banner of environmental public education. This person is typically in the journalism, film or video production field.

Richard S. Englebrecht International Activities Service Award: This award is presented by WEF and recognizes sustained and significant contributions to the furtherance and improvement of the activities of the Water Environment Federation in the international field.

Outstanding Achievement in Water Quality Improvement Award: This award is presented by WEF and CSWEA to the water quality improvement program that best demonstrates significant, lasting and measurable excellence in water quality improvement or in prevention of water quality degradation in a region, basin or water body.

Gordon Maskew Fair Medal: This award is presented by WEF and recognizes worthy accomplishments in the training and development of future sanitary engineers. Nominee must be a WEF member.

Public Education Awards: There are three categories of Public Education Awards: **Individual, Member Association** and **Other.** The awards are presented by WEF and recognize significant accomplishments in promoting awareness and understanding of water environment issues among the general public, through the development and implementation of public education programs.

George Bradley Gascoigne Medal: This award is presented by WEF to the author(s) of an article, which presents the solution of an important and complicated operational problem within a full-scale, operating wastewater treatment plant, which is

appropriately staffed. Article must have been published in a federation or member association magazine/newsletter during the previous year.

Thomas R. Camp Medal: This award is presented by WEF to a member who demonstrates a unique application of basic research or fundamental principles through the design or development of a wastewater collection or treatment system.

The Phillip F. Morgan Medal: The Morgan Medal is awarded by WEF and recognizes valuable contribution to the in-plant study and solution of an operational problem. A published paper is not required.

The George J. Schroepfer Medal: The Schroepfer Medal is awarded by WEF and recognizes a professional engineer for conceiving and directing the design of a project to achieve substantial cost savings or economic benefit over other alternatives, while achieving environmental objectives.

Member Association Safety Award: This WEF award is presented to a member association to recognize the success of the safety programs in their local wastewater works.

Arthur Sidney Bedell Award: The Bedell is a Federation award that is given annually to one recipient in recognition of outstanding achievement in the sewerage and wastewater treatment works field, as related particularly to the problems and activities of the Member Association. The Bedell award subcommittee selects the nominations, and the award is presented at the CSWEA Annual Meeting.

William D. Hatfield Award: The Hatfield Award is a Federation award given annually to one recipient in recognition of outstanding operation of a wastewater treatment plant. Each State Section may nominate one person per year and submit it to the Hatfield subcommittee. This award is presented at the CSWEA Annual Meeting.

Operations Award: The Operations Award is a Central States award that is given annually to one recipient in each state. The purpose of this award is to recognize operators of wastewater treatment facilities who are performing their duties in and outstanding manner and our demonstrating distinguished professionalism. The States Sections' Committee makes the selection and each State Section winner will receive the award at the CSWEA Annual Meeting.

Radebaugh Award: The Radebaugh Award is given to the author of a deserving paper presented at the previous year's annual meeting. The Radebaugh award subcommittee selects the winner from nominations received and the award is presented at the CSWEA Annual Meeting.

Academic Excellence Award: The Academic Excellence Award is given to one student per year from each eligible institution in the state section hosting the Annual Conference (Minnesota is hosting the next conference.). An eligible institution shall be a college or university having a recognized graduate or undergraduate program in engineering as accredited by the Accreditation Board for Engineering and Technology. The candidate shall be selected by the Department Chairman or other designated person at the eligible institution. Selected candidates are able to attend the CSWEA Annual Meeting with expenses paid, to receive their award and scholarship.

Collection System Award: This award is given annually to one member from each section in recognition of outstanding contributions in advancing collection system knowledge and direct or indirect improvement in water quality. Each State Section Collection System Committee can nominate one individual per year with the selected candidate receiving the award at the CSWEA Annual Meeting. The recipient of the Association Award shall be nominated annually for the WEF Collection System Award.

George W. Burke Safety Award: The Burke Award is made annually by WEF to a municipal or industrial wastewater facility for pro-

moting an active and effective safety program. Each State Section Committee can nominate a facility and the nominations are then sent to the general awards committee. The winner will be presented with the Burke Safety Award at the CSWEA Annual Meeting.

Central State Section Safety Award: The CSWEA Facility Safety Award is made annually by CSWEA to a municipal or industrial wastewater facility within each State Section in recognition of active and effective safety programs from Burke Award submissions and the awards are presented at the CSWEA Annual Meeting.

Industrial Environmental Achievement Award: The award is given at the CSWEA Annual Meeting to one industry per year in recognition of outstanding contributions in waste minimization, pollution prevention, environmental compliance and environmental stewardship. Each State Section Industrial Committee may nominate one facility per year.

Lab Analyst Excellence Award: This is a WEF award that is given annually to one recipient in recognition of outstanding achievement in the area of water quality analysis. Each State Section Laboratory Committee may nominate one person. This award is presented at the CSWEA Annual Meeting.

Industrial Environmental Achievement Award: The award is given to one industry per year at the CSWEA Annual Meeting in recognition of outstanding contributions in waste minimization, pollution prevention, environmental compliance and environmental stewardship.

Bill Boyle Educator of the Year Award: This award is given to one teacher per year in recognition of outstanding education assistance to students of any level in the study of the water environment. The award is presented at the CSWEA Annual Meeting.

CSWEA Outstanding Young Professional Award: This award recognizes the contributions of young water environment professionals for significant contributions to CSWEA and to the wastewater collection and treatment industry at the CSWEA Annual Meeting. CS

To submit nominations for any award, please complete and submit the following information to Patti Craddock by e-mail (preferred choice), fax, or regular mail to:

Patti Craddock
3535 Vadnais Center Drive, St. Paul, MN 55110
Phone: 651.490.2067 Fax: 888.908.8166 E-mail: pcraddock@sehinc.com

Nominations must be received no later than December 1, 2012 for consideration.

Award Name: _____ Nominee: _____

Nominee Contact Information (include as much info as possible):

Employer Name: _____ Phone #: _____

Email address _____ WEF member ID_____

Other: _____

Please provide a brief description of your nominee's qualifications for the award: _____

_____

_____

Your name: _____
(it's OK to nominate yourself!)

Your Contact Information:

Phone #_____ Email address _____

Other: _____

Additional information on these awards is located at *www.CSWEA.org*, *www.WEF.org*, or by contacting Dan Lynch, 608-751-2835, *cswea.exdir@yahoo.com*, Patti Craddock, 651.490.2067, *pcraddock@sehinc.com*, or Jim Huchel, *jhuchel@crystallake.org*.

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The Foam Wars

A Case History of Marquette's Fight Against Digester Foaming

By Curt Goodman & Tom Asmus, City of Marquette, Michigan
Bill Marten, Donohue & Associates

It was the summer of 2009, another quiet weekend evening in a small northern town. Folks had settled into their homes, safe in the surrounds of family and friends. Teens were out driving around, hanging out at burger joints and movie theaters. Parents were putting their young ones to bed. Young couples were strolling along the shore of Lake Superior, enjoying the starlit sky.

Then it happened. Was there a flash across the sky? Folks weren't sure. But suddenly, a thick, dark ooze started to slowly make its way across the landscape. Were there victims? There weren't any witnesses, nor remains to identify. So no one could say for sure, but one thing was certain, a new monster had come to town.

No, it wasn't the Blob, nor was Steve McQueen (or his ghost) present to combat it. The new monster in town was anaerobic digester foam, and it was up to the City of Marquette's wastewater treatment plant staff to take it down, without the help of McQueen and his teenage buddies. This is their story…

Marquette's WWTP

The City of Marquette operates a 3.85 mgd wastewater treatment plant that was upgraded in 2007-2008. Gone were rotating biological contactors (RBCs), replaced with a new activated sludge system designed for nitrification and enhanced biological phosphorus removal (EPBR or Bio-P). Other improvements included new secondary clarifiers, upgrades to the anaerobic digesters, a combination gravity belt thickener/belt filter press, and various other improvements.

The upgraded facilities officially came on line in the fall of 2008, with the Bio-P selector zones following in April 2009. Upon startup, the plant performed quite well, quickly achieving full nitrification and producing a very high quality effluent. In April, with startup of the Bio-P selector zones, the plant quickly transitioned from a chemical phosphorus removal plant to one rarely having to use ferric chloride, and then mainly for chemical polishing or side-stream treatment.

The Marquette anaerobic digestion process is comprised of

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two primary digesters, each of 350,000 gallons volume, and a single secondary digester with a volume of 400,000 gallons. The primary digesters were upgraded with new jet nozzle pumped mixing systems, new digester heating equipment, and new gas safety equipment.

The primary digesters are fed a mix of primary sludge, thickened to 4-6% TS in the primary clarifiers, and waste activated sludge, also thickened to 4-6% TS on the gravity belt thickener and then stored in a TWAS wetwell. Both the thickened primary sludge and TWAS are pumped at a low, continuous rate to the primary digesters. Since startup of the new facilities raw sludge loadings have averaged 12,000-15,000 gallons per day and 3,000-4,000 lbs VS/day.

The Foam Wars begin

Historically, as an RBC plant, the Marquette WWTP never had experienced digester foaming episodes. And through the upgraded plant's initial startup this continued to be the case. And then the foaming overflow episode of the summer of 2009 occurred, and from that point on plant staff became engaged in an ongoing struggle to understand why foaming was occurring, and how to control or prevent it. Foaming became so severe that by the winter of 2009 the digester gas collection piping had plugged and plant staff were forced to purchase natural gas for digester and building heating (when normally biogas would have been sufficient for these purposes).

Initial suspected causes were quickly ruled out:

- The activated sludge system had not experienced significant foaming episodes due to Microthrix or Nocardia type organisms.
- Primary digester overloading was not occurring, as noted by:
  - Average digester detention time ranged from 47-55 days.
  - Average digester VS loadings ranged from 0.037-0.045 lb VS/cf/day.
  - VA/alkalinity measurements falling in the range of 0.11-0.23.
  - Temperatures maintained in the range of 90-100 degrees F.

As investigations continued, a few factors were identified as potentially contributing, if not causing the foam to propagate. These factors are discussed below.

Digester mixing – too much of a good thing?

It is often accepted that continuous mixing of digesters leads to better and more stable performance, due to promotion of uniform temperature profiles in the digesters and avoidance of localized hot spots of high VS loading – potentially creating localized overloading conditions.

The Marquette staff had operated their pumped nozzle jet mixing system continuously from startup, but as the foaming problems developed and worsened, staff began to question this practice and began operating the mixing systems intermittently. It seemed like, while foaming continued, it wasn't as bad with such intermittent operation.

It is generally becoming accepted that these jet mixing systems provide excess energy and shear at the nozzle outlets, and that such systems should be operated intermittently or with VFDs so the pumping rates can be reduced much of the time. Marquette staff tried throttling the pump discharge valves to reduce the pumping rate, but results were inconclusive (i.e., no noticeable change in foaming), and as a result went back to intermittent operation.

Digester temperature – range and stability?

With regard to anaerobic digester temperatures, there is a rule of thumb that one shouldn't change the temperature of the digester by more than 1 degree F per day. In other words, not only is it important to stay in the mesophilic temperature range (90-100 degrees F), but it is also important to maintain relatively stable temperatures in this range, to avoid upsetting the microbial population performing digestion.

During the first year and a half after startup, the Marquette digesters were effectively maintained in the mesophilic temperature range. However, upon inspection of daily readings it was observed the temperature of the primary digesters at times changed by as much as 3-5 degrees F in a 24-hour period. It was discovered a valve controlling the hot water bath temperature to the sludge heat exchangers was not operating properly, resulting in these temperature swings. This problem was corrected in May 2010, and primary digester temperatures have been much more stable (i.e., no more than 1 degree F change per day) since. Unfortunately, resolution of this problem did not lead to elimination of digester foaming, but may have helped make it less severe.

Summer 2009 – the beginning of the Foam Wars.

Testing of foam suppression nozzle with bottom flat plate discharge at WAS storage tank. Note evidence of brown scummy foam at tank surface.

WAS storage – a breeding ground?

As part of the upgrade project, the plant's original secondary clarifier was converted to an aerated WAS storage tank. This tank allows staff to waste from the activated sludge system continuously, but thicken intermittently such as after a long weekend. In observing the surface of this tank, which has a submerged withdrawal, it is often covered with foam even though the activated sludge system itself is not experiencing foaming problems. It may be that the surface detention time in this tank is long enough to allow foam-causing filaments, which usually require long sludge ages, to propagate. The question then is, does the WAS storage tank grow these organisms and seed them into the digester?

In early 2012 plant staff experimented with bypassing this tank and wasting directly to the GBT. Results were inconclusive with regard to this bypassing and whether it had any impact on digester foaming. As a result plant staff have resumed using the WAS storage tank.

"Does the WAS storage tank grow these organisms and seed them into the digester?"

When all else fails – deal with it

Frustrated in trying to understand and eliminate the cause of their digester foaming, the plant staff decided to see if they could knock the foam down to protect the digester gas collection piping. To do this, they installed nozzles located above the level of the foam in each digester, and connected these nozzles to the jet mixing pump discharge lines. The results showed the foam was able to be knocked back down into the liquid, even with the jet mixing systems operating continuously.

As a result plant staff installed smaller, dedicated foam suppression pumps which were hard piped to the foam suppression nozzles. These pumps began operation in the summer of 2011 and have effectively controlled foam to manageable levels for over a year now.

Where we go from here

WERF has an ongoing research study focused on digester foaming causes and control, being led by Krishna Pagilla out of Illinois Institute of Technology. As part of this study the project team is performing case studies of several WWTPs with significant digester foaming problems. Marquette is one of the plants participating, and has been implementing suggested process and operational changes suggested by the research team. This research effort is expected to continue through the rest of 2012, and it is hoped that the end product will provide guidance information to help Marquette and other plants fight their foam wars.

Meanwhile back in Marquette, it's another peaceful, starlight summer evening. And plant staff are relaxing much more easily, enjoying a show of Northern Lights with the comforting knowledge that their foam suppression system is keeping things from oozing in the night. CS

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Multiple Benefits with **Reclaimed Water Use** in Mankato, Minnesota

By Mary Fralish, City of Mankato and Patti Craddock, Short Elliott Hendrickson Inc.

The City of Mankato, Minnesota supplies reclaimed water for cooling water at the Mankato Energy Center (MEC), a peaking power plant with an ultimate design capacity of 640 MW. The first phase of the energy project was initiated in 2005 and included the installation of a 365 MW plant with two natural-gas fired combustion turbines, two heat recovery steam generators, and one steam turbine generator estimated to operate about 60% of the year. Calpine Corporation approached the City of Mankato about a water supply and through a collaborative process, the decision was made to use reclaimed water for cooling water.

The City of Mankato uses groundwater and shallow wells under the influence of the Minnesota River for its potable supply. Aquifer limitations in the area posed concerns for use of the groundwater supply for the MEC. The local surface water supply, the Minnesota River, is heavily influenced by upstream agricultural land use and would require treatment prior to use as cooling water. As the power plant was being constructed, a fast-track project to provide new water reclamation facilities at the wastewater treatment facility (WWTF) was also initiated. Calpine's experience with use of reclaimed water at other facilities, city staff who embraced and understood the value of reclaimed water for their community, and early involvement with the state regulatory agency provided for a collaborative environment for the facility improvements.

Treatment facilities

A new water reclamation building and related treatment processes were added at the existing WWTF site. The system was sized to provide up to 6.2 mgd of water to meet the maximum water supply needs of the MEC. The supply is provided on an intermittent basis, and through 2011 the peak daily flow has not exceeded 2.6 mgd. Additional capacity was added to provide a peak flow of 18 mgd for phosphorus removal, for more efficient operations and capacity to meet more stringent effluent standards in the future.

The MEC uses the reclaimed water for cooling water on an intermittent basis to meet peaking power needs. The cooling water blowdown, which is approximately 25% of the reclaimed water used by the power plant, is returned to the Mankato WWTF for discharge under the WWTF's NPDES discharge permit.

The process train improvements added at the WWTF to provide reclaimed water include: high-rate clarification process with ferric chloride and polymer addition; cloth media disk filtration; chlorine contact basins; secondary pump station, and a standby generator. Existing sodium hypochlorite and bisulfate chemical systems are used for disinfection and dechlorination.

The state of Minnesota permits water reuse projects on a case-by-case basis. The California Title 22 reuse criteria are the basis for design and effluent standards in Minnesota. The City of Mankato was required to provide tertiary treated water that meets a total coliform limit of 2.2 cfu/100 ml and provides for 90-minutes of chlorine contact time.

Project funding and management practices

The new water reclamation center capital project was funded by Calpine Corporation. The City of Mankato was able to select an engineering firm to design the new processes and building, with construction provided by Calpine Corporation. The City of Mankato owns, operates and maintains the facility. There is no cost to Calpine for the water until cumulative O&M costs exceed the capital cost or 20 years is reached, and then Calpine will be charged on a per gallon basis. A 20-year agreement was established with four 10-year renewal options. One item specifically requested by the city and identified in the agreement is that the city has priority to use the reclaimed water for their internal plant and other city uses.

This project provided a unique opportunity for the City of Mankato to incorporate more flexibility in their operations to meet their existing phosphorus effluent discharge limits, as well as the ability to meet more stringent future limits, by adding capacity for phosphorus removal. The city also made improvements to their internal water systems to replace use of secondary effluent water with reclaimed water, which has resulted in fewer issues with effluent pump screen clogging and maintenance.

The City of Mankato is expanding its use of reclaimed water to include urban irrigation of a new city park and for street washing and vehicle cleaning. The reclaimed water facility has provided the city a secondary supply for their nonpotable water uses.

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"The city also made improvements to their internal water systems to replace use of secondary effluent water with reclaimed water, which has resulted in fewer issues with effluent pump screen clogging and maintenance."

Lessons learned and successes

While the facility has operated well since startup in 2007, there was a learning curve related to providing a chlorinated supply for intermittent use. Chlorine and bisulfate feed systems were manipulated and practices were implemented so that overdosing did not occur and the residual chlorine levels were not exceeded. Intermittent production also required establishing a good communication system with the energy facility and laboratory staff to ensure efficient operations for intermittent demand and proper laboratory sampling.

One impending issue for the City of Mankato and other Minnesota communities is the potential for new dissolved solids constituent discharge limits. While many industrial NPDES permits have limits for chlorides, sulfates, and other anions/cations, municipal WWTFs do not. For Mankato, this could be a concern given the MEC cooling water blowdown has elevated dissolved solids constituent levels. It is possible that future partnerships like Mankato and the MEC may not be viable if there are new salty discharge limits *(http://www.pca.state.mn.us/index.php/view-document.html?gid=16079)* imposed and the costs associated with equalization facilities or other management technologies make reuse less financially attractive.

This project was a collaborative partnership of an industry, municipality, contractor, design engineer, and regulatory agency to provide a system to meet both the needs of the energy facility and the short and long term needs of the municipal WWTF. The energy facility met its schedule and continues to receive high quality water for their operation. Use of reclaimed water has reduced use of the local aquifer by 130 million gallons per year which extrapolates to over 300 million gallons per year with the MEC operating at design capacity.

The municipality has also provided a significant environmental benefit to the Minnesota and downstream Mississippi River watersheds, and helped numerous communities and industries delay major capital improvements. The City of Mankato has supported the phosphorus trading permit framework established for the Minnesota River by using their excess capacity to remove phosphorus for other permitted dischargers that do not have the infrastructure to meet new phosphorus limits. The trading program resulted in meeting phosphorus goals for the watershed ahead of schedule. (Condensed version of case study presented in: U.S. EPA. 2012. Guidelines for Water Reuse. Environmental Protection Agency. Washington, DC, in production). CS



Plan on Attending our 8th Annual Midwest Water Industry Expo

The 8th expo will be on Tuesday and Wednesday February 6-7, 2013 at the Kalahari. The expo is everybody's favorite mid-winter getaway. Our past expos were great and we have even more fun events and good sharing of information planned for 2013. If you've never attended the expo or haven't attended recently, come see what you've been missing; great exhibitors, cost-effective CEUs and great fun!

The expo has been enjoyed by the attendees and exhibitors. Both groups found it to be a productive and valuable use of their time. Everyone leaves looking forward to next year. Over the years, a lot of people have brought their families so they can give them a little break from winter at the Kalahari's water park. You get a room with up to four water park passes for only $99.

The expo provides exhibitors the opportunity to present their goods and services to their customers and potential customers early in the year when purchases are being considered and to provide the opportunity for open dialogue with the vendors for awareness of upcoming projects and utility needs. The Midwest Water Industry Expo accomplishes that goal.

Planning is already under way for the expo, but it's not too late to get involved. If you would like to help on the EXPO committee, send an email to Dan Lynch at *cswea.exdir@yahoo.com*, or talk to anyone on the committee.

Vendors and attendees alike enjoy MWIE; here's a rundown on what you can expect at MWIE 2013:

- The fundraising raffle will raise over $1,500 for Water For People and Wisconsin Water for the World. Over $2,500 in prizes including a flat screen television and many other exciting prizes will be raffled. Over the years, the raffle has given away $25,000.
- More than 400 individuals, not counting exhibitors, attended the expo each year.
- Visit nearly 100 exhibitors providing a wide range of products and services.
- 32 half-hour vendor presentations where vendors talk specifically about a product or service they represent in classroom sessions.
- Many 10-minute booth talks throughout the two days, look for the "blue light special."
- Four CEUs per day, up to a total of eight for water or wastewater.
- Continental breakfast and lunch provided both days.
- Meet and greet from 3:00 to 5:00 on Tuesday, February 6. CS

86th ANNUAL MEETING

This is a request for abstracts of papers to be considered for presentation at the 86th Annual Meeting of the Central States Water Environment Association, Inc., which will be held May 14-17, 2013 at the Monona Terrace in Madison. To receive consideration, abstracts with the Abstract Information Sheet must be submitted to the Technical Program Committee **before Tuesday November 27, 2012.**

As a part of the technical program in 2013, as in past years, we hope to offer concurrent sessions of papers dedicated to specific topics associated with wastewater collection and treatment. Topics of special interest for the 2013 technical program include:

Collection Systems:
- CMOM program development and implementation
- Collection system design and operation
- Green infrastructure – examples in practice
- Infiltration/inflow management
- Stormwater and combined sewer overflow management

Operations and Maintenance:
- Automation/instrumentation and control/information management
- Energy conservation, production and utilization
- Membranes, biofilm treatment and related options
- Nutrients
- Process control, optimization and start-up issues

Research and Design:
- Nutrient removal technologies
- New/innovative technology research and application
- Sustainability in design and construction
- Toxics/emerging pollutants monitoring and control
- Treatment design
- Wastewater reuse, applications, technology and regulatory issues

Residuals, Solids, and Biosolids:
- Environmental management systems
- Standard or advanced treatment and stabilization

Watersheds:
- Anti-degradation issues
- Habitat or groundwater protection or restoration
- Non-point pollution sources and management
- Water quality/watershed management issues and initiatives

General:
- Laboratory issues
- Management, employment, succession, and financial issues
- Pretreatment, industrial treatment, and pollution prevention
- Regulatory issues
- Security issues

The Technical Program Committee is particularly interested in operations-oriented papers and case studies of completed projects. Papers on other subjects which you feel may be of interest to members are, of course, also welcome. All written papers submitted are eligible for the Radebaugh Award.

To receive consideration, please submit a copy of your abstract via email to the Technical Program Committee, care of Trevor Ghylin, to the email address below. PDF files are greatly preferred, but not required. Word processing files must be PC, MS-Word 2007 compatible. The Abstract Information Sheet and submission instructions are available at *www.CSWEA.org,* or please contact me via email and I can forward it to you. Thank you.

Trevor Ghylin
Chair Technical Program Committee
Phone: 701-610-6362 • Email: *ghylin@wisc.edu*
University of Wisconsin
1530 Church Street, Wauwatosa, WI 53213

ABSTRACT INFORMATION SHEET

2013 ANNUAL MEETING • Central States Water Environment Association • May 14-17, 2013 • Monona Terrace, Madison, WI

CALL FOR ABSTRACTS

Paper Title: _____

Author(s), title, affiliation, & address: (underline person presenting paper): _____

_____

_____

Will this or similar work have been presented or published elsewhere by the time the Annual Meeting is held? ☐ Yes ☐ No

If yes, where? _____

An electronic copy of the abstract should be forwarded to:
Trevor Ghylin, Chair, Technical Program Committee
University of Wisconsin, 1530 Church Street, Wauwatosa, WI 53213
Telephone: 701-610-6362 • E-mail: *ghylin@wisc.edu*

For the use of the Technical Program Committee:	**Rating***	**Remarks**
1. Originality & Status of Subject	_____	_____
2. Technical Content	_____	_____
3. Water Environment Significance	_____	_____
4. Adequacy of Abstract Preparation	_____	_____
Total Points	_____	_____

* 5 = Excellent, 4 = Good, 3 = Average, 2 = Fair, 1 = Poor

Please note, Abstracts are due before November 27, 2012.

INSTRUCTIONS FOR THE SUBMISSION OF ABSTRACTS & CRITERIA FOR PAPER SELECTION

The Central States Water Environment Association (CSWEA) Technical program Committee has the responsibility for technical sessions at the Annual Meeting. Participants in any sector of the water environment field are cordially invited to submit abstracts for evaluation. The basis for selection will be the excellence of the abstracts as judged by the committee.

The abstract should be submitted to the technical program chair whose contact information is shown on the abstract information sheet. In order for an abstract to be considered by the Technical Program Committee, the abstract information sheet, which serves as the cover page of the abstract, must be included with each abstract. Abstracts should *summarize* the talk in about 250 words and must be less than one page single-spaced, or two pages double-spaced using standard fonts and margins (about 500 words). The total number of abstract pages, including all tables and figures, must not exceed six (6) pages. Papers provided at presentations should be longer provided that the oral presentation fits into the timeframe allotted after allowing time for questions.

The presenting author of each abstract will be notified in February of the acceptance or rejection of the abstract.

The following should serve as a guide in the preparation of the abstract and will serve as a guide for the reviewers of the abstracts.

Originality and status of subject: The paper should deal with new concepts or with new and novel applications of established concepts. It also may describe substantial improvements of existing theories or present significant data in support or extension of those theories. Studies of incomplete or ill-defined problem situations should be avoided. Previously published data should be introduced only in summary form and for comparative or supportive purposes.

Technical content: A summary of the conditions under which data were obtained should be presented along with the methodology used. The conclusions should be presented in the abstract and should follow directly from the investigation or evaluation that was conducted.

continued on page 52

CALL FOR ABSTRACTS

The abstract should substantiate that the project has been fully developed, that the theory or experimental procedure has been firmly established, and that data have been collected and subjected to analysis. It should be evident that the abstract clearly describes the entire content of the conclusions of the paper to be presented.

Water environment significance: The paper should relate clearly and significantly to the water environment field. Papers of a truly fundamental scientific nature are desired, but the author should make evident the relationships of the work to a practical problem area or situation in water quality and wastewater control.

Adequacy of abstract preparation: The committee has noted that historically the adequacy of an abstract is often indicative of the quality of the final paper. As a result, authors are urged to prepare their abstracts with care, following the instructions noted above. As a reminder, an abstract is meant to summarize the presentation. The summary should include objectives, scope, and general procedures, insofar as the limited length of the abstract permits. An indication of results or conclusions is required.

VISIT www.cswea.org FOR ASSOCIATION UPDATES

$500 Scholarship

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A Message from Craig Kelman & Associates, publishers of *Central States Water:*

To demonstrate our admiration and respect for the industry association, *Central States Water*, its members and the water industry as a whole, we have established a yearly educational scholarship of $500 to be funded through a percentage of advertising sales generated in the association's namesake magazine, *Central States Water.*

On behalf of our professional publishing team and our advertisers who use the pages of *Central States Water* to convey their important messages, we offer this scholarship to a deserving individual who is or will be studying to become a wastewater professional in one of the member states.

Please visit the Central States Water *website, for more details –* **www.cswea.org**

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CSWEA 2012 BUYERS' GUIDE

Welcome to the annual *Central States Water* Buyers' Guide. When making purchasing decisions about products and services in the wastewater industry throughout the Central States region, please support the companies whose advertising makes *Central States Water* possible.

Our CSWEA Buyers' Guide consists of two sections:

1. A CATEGORICAL LISTING of products and services, including a list of companies which provide them.
2. An ALPHABETICAL LISTING of the companies appearing in the first section. This listing includes name, contact info, website, and more.

Listings by Category

Activated Carbon
Calgon Carbon Corp.

Adsorption Equipment
Calgon Carbon Corp.

AMR, AMI, MDM
Master Meter, Inc.

Chemical Processing & Feed Systems
Crane Engineering
Donohue & Associates, Inc.
Energenecs
Force Flow
LAI Ltd.
Metropolitan Industries
Pollard Water
USEMCO

Coatings, Lining & Corrosion Control
Crane Engineering
Sealing Systems, Inc.

Construction Castings
HD Supply Waterworks

Continuing Education
University of Wisconsin-Madison

Contractors
Process Equipment Repair Services

CSO/SSO Controls, Water Resources, Distribution & Collection
AECOM
Black & Veatch
Brown and Caldwell
CDM
Clark Dietz
Degremont
Donohue & Associates, Inc.
Greeley and Hansen
Hydro International
John Meunier Inc.
Mulcahy Shaw Water
Sealing Systems, Inc.
Strand Associates, Inc.
Symbiont, Inc.

Dechlorination
Pollard Water

Diffused Aeration Systems
Sanitaire

Digester Gas Safety Equipment
Shand & Jurs,
an L&J Technologies Company

Disinfection/Equipment
Calgon Carbon Corp.

Electrical, Instrumentation/ Controls/Generators
Baxter & Woodman, Inc.
Brown and Caldwell
CDM
Clark Dietz
Donohue & Associates, Inc.
Energenecs
Force Flow
McMahon
Metropolitan Industries
Pollard Water
Strand Associates Inc.
Swanson Flo
Symbiont, Inc.
USEMCO

Engineers/Consultants
Advanced Engineering and Environmental Services, Inc.
AECOM
Baxter & Woodman, Inc.
Black & Veatch
Bolton & Menk, Inc.
Brown and Caldwell
CDM
Clark Dietz, Inc.
Crawford Murphy & Tilly, Inc.
Donohue & Associates, Inc.
Force Flow
Foth
Greeley and Hansen
HR Green
McMahon
SCS BT Squared
SHE
Stantec
Strand Associates, Inc.
Symbiont, Inc.
TKDA
Trotter and Associates, Inc.

Equipment Repair & Rehabilitation
Process Equipment Repair Services

Filter Media
Degremont
Kruger Inc.

Filtration
Black & Veatch
Carbon Enterprises Inc.
Degremont
Kruger Inc.
Mulcahy Shaw Water
Smith & Loveless Inc.

Financial Services
Advanced Engineering and Environmental Services, Inc.

Fire Hydrants
American Flow Control

Fire Hydrant Flow Testing
M.E. Simpson Co., Inc.

Flow Measurement & Testing
M.E. Simpson Co., Inc.

FRP Doors & Grating
Van Bergen & Markson, Inc.

General Industrial
Smith & Loveless

Geographic Information Systems
Advanced Engineering and Environmental Services, Inc.
Baxter & Woodman, Inc.
Bolton & Menk, Inc.
Foth
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Stantec
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Green Water Systems
Metropolitan Industries

Grit Removal Systems
Hydro International
Smith & Loveless Inc.

Headworks, Screening and Grit Removal
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Manhole Covers & Frames
HD Supply Waterworks

Manhole Rehab
Sealing Systems, Inc.

Meter Reading Systems
HD Supply Waterworks
Master Meter, Inc.

Meters/Meter Testing
HD Supply Waterworks
M.E. Simpson Co., Inc.
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Odor Control Solutions
Kruger Inc.
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Operation Services
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Bolton & Menk, Inc.
McMahon
Process Equipment Repair Services
Stantec

Packaged Pump Stations
USEMCO

Pipe & Appurtenances
American Flow Control

Process Mechanical
AECOM
Amwell Inc.
Black & Veatch
Donohue & Associates, Inc.
Energenecs
Foth
HD Supply Waterworks
Mulcahy Shaw Water
Process Equipment Repair Services
Sanitaire
Swanson Flo
Van Bergen & Markson, Inc.

Pumps/Pump Systems
Brown and Caldwell
CDM
Crane Engineering
Flygt
HD Supply Waterworks
LAI, Ltd.
Metropolitan Industries, Inc.
Pollard Water
SEH
Smith & Loveless Inc.
USEMCO
Van Bergen & Markson, Inc.

Renewable Energy Systems
Energenecs
Unison Solutions, Inc.

Residuals/Waste Management
Degremont
Greeley and Hansen
Hydro International

Safety Products
HD Supply Waterworks

Storage Tanks/Reservoir Systems
Clark Dietz
DN Tanks
Foth
John Meunier Inc.
Oldcastle Precast
SEH

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Surveys
Bolton & Menk, Inc.
Stantec
Trotter and Associates, Inc.

UV Disinfection
Calgon Carbon Corp.

Valve Assessment
M.E. Simpson Co., Inc.

Valves
American Flow Control
Amwell Inc.
Crane Engineering
HD Supply Waterworks
J&S Valve
LAI Ltd.
Shand & Jurs,
an L&J Technologies Company
Swanson Flo

Waste Gas Burners and Equipment
Shand & Jurs, an L&J Technologies Company

Water Quality Monitors
Carbon Enterprises Inc.
Mulcahy Shaw Water
SEH

Water Treatment Chemicals
Hawkins, Inc.
Kruger Inc.
PVS Technologies

Water/Wastewater Treatment Systems
AECOM
Amwell Inc.
Baxter & Woodman, Inc.
Black & Veatch
Bolton & Menk, Inc.
Brown and Caldwell
Calgon Carbon Corp.
CDM
Carbon Enterprises Inc.
Clark Dietz
Crawford Murphy & Tilly, Inc.
Crane Engineering
Degremont
Donohue & Associates, Inc.
Energenecs
Force Flow
Foth
Greeley and Hansen
Hawkins, Inc.
HD Supply Waterworks
Hydro International
John Meunier
Kruger Inc.
LAI, Ltd.
McMahon
Metropolitan Industries, Inc.
Mulcahy Shaw Water
Process Equipment Repair Services
Sanitaire
Sealing Systems, Inc.
SEH
Smith & Loveless Inc.
Stantec
Strand Associates, Inc.
Symbiont, Inc.
Trotter and Associates, Inc.
Van Bergen & Markson, Inc.
Walker Process Equipment

Listings by Company

Advanced Engineering and Environmental Services, Inc.
Water Tower Place
Business Center
6901 E Fish Lake Rd.,
Ste. 184
Maple Grove, MN 55369
763-463-5036
Glenn.Gustafson@ae2s.com
www.ae2s.com

AECOM
303 E Wacker Dr., Suite 600
Chicago, IL 60601
312-938-0300
john.lannon@aecom.com
www.aecom.com

American Flow Control
21695 Highview Ave.
Lakeville, MN 55044
612-865-1550
dwaldoch@
american-usa.com
www.american-usa.com

Amwell Inc.
600 N Commons Dr.
Aurora, IL 60504
630-892-3900
Kelly@amwell-inc.com
www.amwell-inc.com

Baxter & Woodman Inc.
8678 Ridgefield Rd.
Crystal Lake, IL 60012
815-459-1260
dwold@baxterwodman.com
www.baxterwoodman.com

Black & Veatch
125 Ottawa Ave. NW,
Ste. 380
Grand Rapids, MI 49503
616-459-2360
HuntDB@bv.com
www.BV.com

Bolton & Menk, Inc.
1960 Premier Dr.
Mankato, MN 56001
507-625-4171
hermandh@
boldton-menk.com
www.boldton-menk.com

Brown and Caldwell
4700 Lakehurst Court,
Suite 100
Columbus, OH 43016
614-410-6144
mnelson@brwncald.com
www.brownandcaldwell.com

Calgon Carbon Corporation
500 Calgon Carbon Dr.
Pittsburgh, PA 15205
412-787-6700
info@calgoncarbon-us.com
www.calgoncarbon.com

Carbon Enterprises Inc.
28205 Scippo Creek Rd.
Circleville, OH 43113
800-344-5770
rick@ceifiltration.com
www.ceifiltration.com

CDM Smith Inc.
125 South Wacker Dr.,
Ste. 600
Chicago, IL 60606
312-346-5000
urekjf@cdmsmith.com
cdmsmith.com

Clark Dietz, Inc.
5017 Green Bay Rd.,
Ste. 126
Kenosha, WI 53144
262-657-1550
John.boldt@clark-dietz.com
www.clark-dietz.com

Crane Engineering
707 Ford Street
Kimberly, WI 54136
920-733-4425
m.baxter@
craneengineering.net
www.craneengineering.net

Crawford Murphy & Tilly, Inc.
2750 West Washington
Springfield, IL 62702
217-787-8050
bheld@cmtengr.com
www.cmtengr.com

Degremont Technologies
8007 Discovery Dr.
Richmond, VA 23229
804-756-8423
sylvie.roy@degremont.com
degremont-technologies.com

Listings by Company *continued*

DN Tanks
4247 Grove Ave.
Gurnee, IL 60031
847-782-0357
sarah.potts@natgun.com
www.dntanks.com

Donohue & Associates, Inc.
3311 Weeden Creek Rd.
Sheboygan, WI 53081
920-208-0296
mgerbitz@donohue-associates.com
donohue-associates.com

Energenecs
W59 N249 Cardinal Ave.
Cedarburg, WI 53012
262-377-6360
doralee@energenecs.com
www.energenecs.com

Force Flow
2430 Stanwell Dr.
Concord, CA 94520
925-686-6700
info@forceflow.com
www.forceflow.com

Foth
Lincoln Center II,
2514 S. 102nd St., Ste. 278
West Allis, WI 53227
414-336-7900
tludwig@Foth.com
www.foth.com

Greeley and Hansen
100 S. Wacker Dr.,
Ste. 1400
Chicago, IL 60606
312-578-2341
dveal@greeley-hansen.com
www.greeley-hansen.com

Hawkins, Inc.
3100 East Hennepin Ave.
Minneapolis, MN 55413
612-331-6910
www.hawkinsinc.com

HD Supply Waterworks
15800 West 79th Street
Eden Prairie, MN 55344
952-937-9666
mark.smith@hdsupply.com
www.hdsupply.com

HR Green
Court International Building
2550 University Ave. W,
Suite 400N
St. Paul, MN 55114
651-644-4389
draby@hrgreen.com
www.hrgreen.com

Hydro International
2925 NW Aloclek, Suite 140
Hillsboro, OR 97124
503-615-8130
wastewater@hydro-int.com
www.hydro-int.com

J&S Valve
2323 1st Street
Huffman, TX 77336
281-324-3990
sale@jandsvalve.com
www.jandsvalve.com

John Meunier Inc.
2209 Menlo
Glenside, PA 19038
855-564-3747
sales@johnmeunier.com
www.johnmeunier.com

Kruger Inc.
401 Harrison Oaks Blvd.,
Ste. 100
Cary, NC 27513
919-677-8310
krugerincmarketing@veoliawater.com
www.krugerusa.com

LAI, Ltd.
5400 Newport Dr., Ste. 10
Rolling Meadows, IL 60008
847-392-0990
ttack@lai-ltd.com
rhussey@lai-ltd.com
http://lai-ltd.com

Master Meter, Inc.
101 Regency Parkway
Mansfield, TX 76063
817-842-8000
innovate@mastermeter.com
mastermeter.com

McMahon
1445 McMahon Dr.
Neenah, WI 54956
920-751-4200
dvogt@mcmgrp.com
www.mcmgrp.com

M.E. Simpson Co., Inc.
3406 Enterprise Ave.
Valparaiso, IN 46383
800-255-1521
salesinfo@mesimpson.com
www.mesimpson.com

Metropolitan Industries, Inc.
37 Forestwood Dr.
Romeoville, IL 60446
815-886-9200
mpindelski@metropolitanind.com
www.metropolitanind.com

Mulcahy Shaw Water
N57 W6316 Center St.
Cedarburg, WI 53012
262-241-1199
info@mulcahyshaw.com

Oldcastle Precast
9333 North Meridian,
Suite 108
Indianapolis, IN 46260
888-965-3227
mark.bauer@oldcastle.com
www.oldcastleprecast.com/pumpstations

Pollard Water.
17515 NE 67th Ct.
Redmond, WA 98052
800-437-1146
info@pollardwater.com
www.pollardwater.com

Process Equipment Repair Services
5991 Division Rd.
West Bend, WI 53095
414-412-4403
perslamont@aol.com

PVS Technologies
10900 Harper Ave
Detroit, MI 48213
800-337-7428
customerservice@pvschemicals.com
www.pvschemicals.com

Sanitaire, a xylem brand
9333 N. 49th St.
Brown Deer, WI 53223
414-365-22000
www.xyleminc.com

SCS BT Squared
2830 Dairy Dr.
Madison, WI 53718
608-216-7364
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pam@ssisealingsystems.com
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651-490-2000
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www.symbiontonline.com

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www.unisonsolutions.com

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epd.engr.wisc.edu

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bruhling@usemco.com
www.usemco.com

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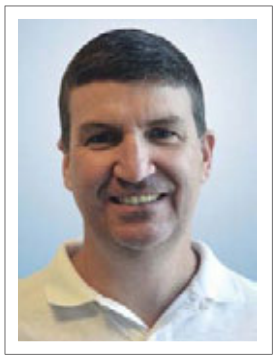
Minneapolis, MN 55427
763-546-4340
info@vbminc.com

Walker Process Equipment
840 N. Russell Ave.
Aurora, IL 60506
800-9WALKER
walker-process@walker-process.com
www.walker-process.com

Flygt, a xylem brand
8402 W. 183rd St., Ste. A
Tinley Park, IL 60487
708-342-0484
www.xyleminc.com

Membership Rejuvenation

By Rob O'Connell



As I write to you today, I am in the midst of my annual late August lawn reseeding program. Each August I make the effort to reseed areas of my lawn that have either burned over the hot summer months or have been exposed to too many visits from my neighbor's dogs. When I bought the house that I currently live in, the lawn was in rough shape – years of neglect had taken its toll – creeping charlie, crabgrass, dandelions, and various areas where weeds far outweighed anything that resembled fescue. However, today my lawn looks good, as green as a field in western Ireland and nary a weed to speak of.

An analogy can be made between the slow rejuvenation of my lawn with what I hope is the future rejuvenation of the Minnesota membership. Our existing combined student and young professional membership stands at less than 25. I can't help but think that with a little effort and some creating thinking, these numbers can surely be increased. Thus, over the past month the chairs and vice chairs of the Student and the Young Professionals Committees have met to develop ways in which they can increase their membership rosters with both students and younger people who are interested in the wastewater industry here in Minnesota. Together they are working on continuing to engage the engineering programs at the U, Mankato and UMD and to utilize these programs to reach out to students studying water and wastewater treatment engineering. Classroom visits to each campus have been planned in early September to introduce the group, explain to them how involvement in CSWEA can help them further their careers, to invite them to upcoming conferences, and to ask them to attend field trips with our young professionals (Metro Plant Tour – Fall 2012). As I challenged myself to rejuvenate a sad and weed filled lawn, I challenge each of you to assist in rejuvenating the student and YP membership so that they can be engaged and available when the time comes for them to lead the organization. I ask that each of you look to your younger staff and get them involved in CSWEA. Perhaps you can bring them to the Conference on the Environment (November 13, 2012), volunteer with them at one of our upcoming events such as the Children's Water Festival in September 2012, or to attend an upcoming event such as the Innovative Conference (February 2013). I also ask out existing younger members to become involved. We are always looking for ideas and suggestions to make our outings as useful and enjoyable as they can be. As we all know, there are many ways to get involved and more often than not all it takes is time and a little push.

The use of social media was discussed during a recent CSEWA leadership meeting. It's obvious that web-based sites such as LinkedIn can be used in ways that will benefit our ability to inform and coordinate future programs and topics. Currently, CSWEA Executive Director Dan Lynch and Association Level Young Professional Representative Eric Lynne (Wisconsin) are examining how LinkedIn sites could be implemented both on the association level as well as the section level. I am hopeful that a Minnesota Section CSWEA LinkedIn site is in place by the end of my tenure as chair and is being used to reach current and potential members within our industry.

Finally, I would be remiss were I not to mention the sudden passing of Alva Rankin this past summer. As many Minnesota members know, Alva was a longstanding and active member of the Minnesota Chapter. He was instrumental in developing the *Liquid Assets* documentary. And, he was a mainstay in the collection systems industry both in the Duluth area as well as in the Twin Cities metropolitan area. Alva will be missed by all. May you rest in peace, Mr. Rankin. CS

Growing Our Membership

By Mark Eddington

It must be fall; kids are back in school, days are getting shorter, my Sundays are lost to fantasy football, and the WEF Annual Conference in New Orleans is right around the corner. Where did the summer go? I'm starting to sound like my dad. In any event, the Illinois Section of CSWEA is continuing toward the initiatives of growing our membership and reaching out to parts of Illinois that have been historically underrepresented on our committee rosters. Part of our goal is to achieve greater membership but we cannot sacrifice the quality of our members in the process. I know these quarterly section pieces are supposed to be light, but sometimes we need to take a good hard look in the mirror. What are our section's strengths and weaknesses? Where can we improve in the short term? Long term? How do we sustain our strengths and at the same time shore up our weaknesses? To borrow a football metaphor, how do we "move the ball" of this section and of the entire association on a continuous basis? Like with my dad, how do we maintain the perspective and insight of our more experienced members while keeping up with our changing industry and present challenges?

Certainly our section has many strengths; our committees are numerous and have greater depth than any time in our history. We continue to encourage YPs to join our association and feel that we are improving in reaching young professionals. We are excited about the development of a mentoring program that will engage young professionals in their college years and continue the mentoring into their professional careers. We maintain a unique group of members who seek to continue balancing hard work with having fun. We also understand that both professional networks and personal relationships are an important fiber of our section and of CSWEA as a whole.

We can't talk about our strengths without taking a critical look at our section as well. While we have 345 members in the Illinois contingent, we have a fraction of that number who are active on a continuous basis. Not only do we need to commit our outreach to new membership, we need to recommit our outreach into our existing membership to encourage a greater level of participation. While I don't currently have the data to back it up, my general feeling (and I have heard many others comment likewise) is that our association is getting older. While there isn't anything inherently wrong with that, perception is reality. (It would be extremely interesting to know and track the average member's age. It could be tracked on an annual basis and would likely tell us a lot.) The problem is, if it feels like we are trending older, then it doesn't really matter whether we are or not.

How do we reach tomorrow's leaders? There is a new generation in school right now; they have never known life without the Internet, a cell phone, or email. We need to talk their language and understand their perspective. We need to educate this generation about the great opportunities CSWEA has to offer them and their careers. Who knows, some of us "old dogs" may actually learn something along the way. The Illinois section leadership feels that we are currently behind the curve when it comes to the use of social media (Facebook, LinkedIn, etc.) in both promoting CSWEA events and recruiting new members. Like it or not, our world is changing and our individual sections and this association need to embrace these changes and become proactive. Of course, this will take a greater commitment from our leadership and our membership, but if we don't move forward to bring our outreach, communication, and recruiting into the information age we will be left at the station watching the train head down the line.

Every entity goes through transitions; it is the natural progression of things. The old guard moves on and the young Turks come up. The true test of our depth is how well we collectively react to change, technology, and our challenges.

"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change." – Charles Darwin CS

"We are excited about the development of a mentoring program that will engage young professionals in their college years and continue the mentoring into their professional careers."

Starting the Race

By Bill Oldenburg

As I write this message, the Summer Olympics have just come to a close. I have been reflecting on the last three months as Wisconsin Section Chair as well as looking ahead to the remaining nine months of my tenure. I am reminded that the Wisconsin Section year between annual meetings is a lot like a decathlon. Each committee is a different event and a fraction of the whole race that defines the success of the Wisconsin Section year. In my humble opinion, we have a VERY strong team!

As of this writing, we are days away from our summer meeting. Our agenda is packed with critical issues and educational opportunities. We will be hearing reviews of CSX 2012, the Classic and Northwoods Collection System Seminars, Pretreatment Seminar, and Management Seminar. In addition to these events that have already taken place, there is a YP Brewers Outing scheduled for August 16 following the Wisconsin Section summer meeting. This is an excellent opportunity to meet and get to know the youth in our section. These people will be the leaders of our future! Lastly, WEFTEC'12 will take place September 29-October 3 in New Orleans, LA.

Starting in August 2012, the State of Wisconsin has changed the requirements for renewing professional engineers licenses. Jon Butt has researched the new requirements in an effort to clarify for our members what is necessary for proper license renewal. In addition, members of the Wisconsin Section are working to get the CSWEA approved to be on the list of other continuing education providers so we can offer educational credits to licensed engineers at our conferences/seminars as well as for publication in *Central States Water*. There will be much more to come on this subject this fall.

Brandon Koltz, Chair of the Government Affairs Committee, was able to be part of the Technical Advisory Committee (TAC) for Water Quality Trading and Antidegradation Rule Revisions. It is good to know we now have representation and a strong voice on such an important issue.

I want to continue to encourage committee chairs to include the current strategic plan as an agenda item when meetings take place. The Wisconsin Section Strategic Plan is consistent with the goals and objectives of WEF itself. These plans are necessary for membership to clearly understand the direction leadership foresees the organization going so we can work together for the greater good of our organization and the environment. I hope this strategic plan can be the foundation for similar plans for Illinois and Minnesota.

The Wisconsin Section decathlon started in May at the annual meeting, and is now well under way. From my vantage point, we made a strong start. Now we need to maintain our endurance by building on the successes of the summer for the next leg in the fall. I am encouraged and excited at what we can accomplish this year! CS

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SEPTEMBER

WEFTEC'12
September 29-October 3, 2012
New Orleans, LA

CSWEA-IWEA – WEFTEC 2012 Welcome Reception
September 30, 2012
Hilton New Orleans Riverside, New Orleans, LA

OCTOBER

Wisconsin Wastewater Operator's Conference
October 9-12, 2012
Kalahari Resort and Conference Center,
Wisconsin Dells, Wisconsin

NOVEMBER

MN Section – Conference on the Environment
November 13, 2012
University of Minnesota-Continuing Education Conference Center, St, Paul, Minnesota

WI Section – Annual Business Meeting
WI Section – Watershed Management Webinar
November 13, 2012
University of Wisconsin-Milwaukee-Continuing Education Center, Milwaukee, Wisconsin

DECEMBER

WI Section – University of Wisconsin-Madison Student Chapter's Night with Industry
December 2012
Madison, Wisconsin

JANUARY

IL Section – Government Affairs Seminar
February 2013
(Date and Location to be determined)

FEBRUARY

CSWEA – 8th Annual Midwest Water Industry Expo
February 5-6,2013
Kalahari Resort and Convention Center,
Wisconsin Dells, Wisconsin

MN Section & MWOA – Innovative Conference 2013
February 2013
Holiday Inn, St Cloud, Minnesota

WI Section – Government Affairs Seminar
February 28, 2013
Marriott Madison West, Middleton, Wisconsin

WI Section – University of Wisconsin-Platteville Student Chapter's Dinner with Professionals
February 2013
Platteville, Wisconsin

MARCH

WI Section – 31st Annual Spring Biosolids Symposium
March 13, 2013
Holiday Inn Hotel and Convention Center, Stevens Point, Wisconsin

APRIL

CSWEA – 3rd Annual YP Leadership Academy
April 1, 2013
Monona Terrace, Madison Wisconsin

CSWEA – 18th Annual Education Seminar
April 2, 2013
Monona Terrace, Madison Wisconsin

MAY

CSWEA – 86th Annual Meeting
May 14-17, 2013
Monona Terrace, Madison WI

JUNE

WI Section – Pretreatment Seminar
June 2013
(Specific date and location to be determined)

WI Section – Classic Collection System Seminar
June 2013
Watertown, WI
(Specific date and venue to be determined)

JULY

WI Section – Northwoods Collection System Seminar
July 2013
Marshfield, WI
(Specific date and venue to be determined)

COMPANY	PAGE	TELEPHONE	WEBSITE
Advanced Engineering and Environmental Services (AE2S)	6	763-463-5036	www.ae2s.com
AECOM	49		www.aecom.com
American Flow Control	17		www.acipco.com
Amwell	35	630-898-6900	www.amwell-inc.com
Baxter & Woodman, Inc	41	815-459-1260	www.baxterwoodman.com
Black & Veatch	31	IL 312-346-3775 MN 952-545-6695	www.bv.com
Bolton & Menk, Inc.	20	507-625-4171	www.bolton-menk.com
Brown and Caldwell	53		BrownandCaldwell.com
Calgon Carbon Corporation	13	800-422-7266	www.calgoncarbon.com
CCI Spectrum, Inc.	31	800-284-2030	www.spectrashield.com
CDM Smith	14	651-772-1313	www.cdmsmith.com
CEI Carbon Enterprises, Inc.	35	800-344-5770	www.ceifiltration.com
Clark Dietz, Inc.	52	262-657-1550	www.clark-dietz.com
Crane Engineering	16	920-733-4425	www.craneengineering.net
Crawford, Murphy & Tilly, Inc.	62	217-787-8050	www.cmtengr.com
Degremont Technologies	9	804-756-7600	www.degremont-technologies.com
Donohue & Associates, Inc.	OBC	920-208-0296	www.donohue-associates.com
Energenecs	34	800-343-6337	www.energenecs.com
Farnsworth Group	61	309-663-8435	www.f-w.com
Flygt- a Xylem brand	4	IL 800-661-9944 WI 800-232-1417	www.flygtus.com
Force Flow	29	800-893-6723	www.forceflow.com
Foth	3	800-236-8690	www.foth.com
Greeley and Hansen	30	800-837-9779	www.greeley-hansen.com
Hawkins, Inc. (Water Treatment Group)	55	612-331-9100	www.hawkinsinc.com
HD Supply Waterworks	22	800-752-8112	www.waterworks.hdsupply.com
HR Green, Inc.	37	800-728-7805	www.hrgreen.com
Hydro International Wastewater	13,15	866-615-8130	www.hydro-international.biz
I.Kruger, Inc.	18	919-677-8310	www.krugerusa.com
J&S Valve, Inc.	11	281-324-3990	www.jandsvalve.com
John Meunier Inc.	26	208-771-3346	www.johnmeunier.com
LAI, Ltd.	45	847-392-0990	www.LeyAssociates.com
Master Meter	8	817-842-8000	www.mastermeter.com
McMahon Associates, Inc.	24	920-751-4200	
M.E. Simpson Co. Inc.	36	800-255-1521	www.mesimpson.com
Metropolitan Industries, Inc.	41	800-323-1665	www.metropolitanind.com
Mulcahy/Shaw Water, Inc.	39	262-241-1199	www.mulcahyshaw.com
Natgun a division of DN Tanks	55	847-782-0357	www.natgun.com
Oldcastle Precast	28	888-965-3227	www.oldcastleprecast.com/wastewater
Pollardwater.com	IFC	800-437-1146	www.pollardwater.com
Process Equipment Repair Services, Inc.	31	262-629-1059	
PVS Technologies Inc	64	313-903-3397	www.pvstechnologies.com
Sanitaire - a Xylem brand	IBC	414-365-2200	
Sanitherm	55	888-821-5451	www.sanibrane.com
SCS BT Squared	19	800-767-4727	www.scsengineers.com
Sealing Systems Inc.	44	800-478-2054	www.ssisealingsystems.com
Shand & Jurs, an L&J Technologies Company	21	708-236-6000	www.shandandjurs.com
Short Elliott Hendrickson (SEH)	45	800-325-2055	www.sehinc.com
Smith & Loveless Inc.	45	800-898-9122	www.smithandloveless.com
Stantec formerly Bonestroo	30	800-880-4700	www.stantec.com
Strand Associates, Inc.	33	608-251-4843	www.strand.com
Swanson Flo-Systems Co.	35	800-288-7926	www.swanflo.com
Symbiont	44	800-748-7423	www.symbiontonline.com
TKDA	47	651-292-4400	www.tkda.com
Trotter & Associates Inc.	25	630-587-0470	www.taiengr.com
Unison Solutions, Inc.	52	563-585-0967	www.unisonsolutions.com
University of Wisconsin-Madison	3	800-783-6526	www.epd.engr.wisc.edu
USEMCO	56	608-372-5911	www.usemco.com
Van Bergen & Markson, Inc.	41	800-422-0791	
Varec Biogas	32	866-4-BIOGAS	www.varec-biogas.com
Walker Process Equipment	48	800-9WALKER	www.walker-process.com

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Total Process Treatment Solutions

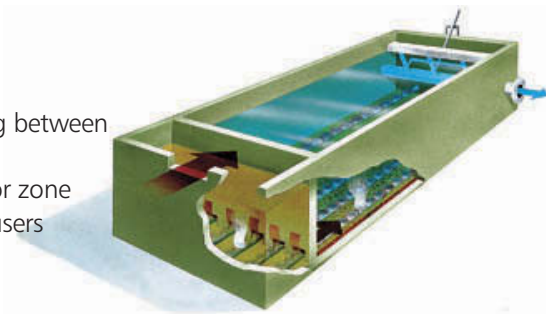
SANITAIRE® and ABJ are world leaders and industry standard in wastewater treatment plants throughout the world with equipment operating in thousands of facilities. Years of dedicated and knowledgeable engineering have led to the development of our various process treatment solutions.

Fine Bubble Aeration Equipment

- High oxygen transfer capabilities and low operating costs
- Proven piping and support system for long-term reliability
- Ceramic disc and membrane disc configurations available
- Minimal maintenance requirements

Sequencing Batch Reactors (SBRs)

- Continuous flow operation yields smaller basin volumes, equal loading between basins and allows for single basin operation
- Enhanced biological nutrient removal with the use of pre-react selector zone
- Low cost operations with high-efficiency SANITAIRE® fine bubble diffusers
- Easily expandable to account for increasing future plant flows



Oxidation Ditch

- Excellent effluent quality including biological nutrient removal
- No submerged mechanical aerator devices
- Lower maintenance costs than comparable technologies
- Low cost operations with high-efficiency SANITAIRE® fine bubble diffusers

DrumFilters

- Low energy consumption - power only required during backwash cycle
- Wide range of capacity: 100 - 2,500 gpm per unit
- All corrosion resistant components for long term reliability
- Minimal maintenance requirements

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We have one goal in mind: to provide client-centered, cost-effective engineering services on wastewater, drinking water, and stormwater projects.

At the heart of Donohue are dedicated, highly talented engineers and specialists who average over 20 years of experience. These individuals work collaboratively with our clients to develop creative yet practical solutions to solve the most difficult engineering and operational challenges.

Our employee-owned firm is proud to have worked with both large and small clients throughout the Midwest to sustain and improve water quality for this generation and generations to come.

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