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20th Annual Education Seminar

April 7, 2015
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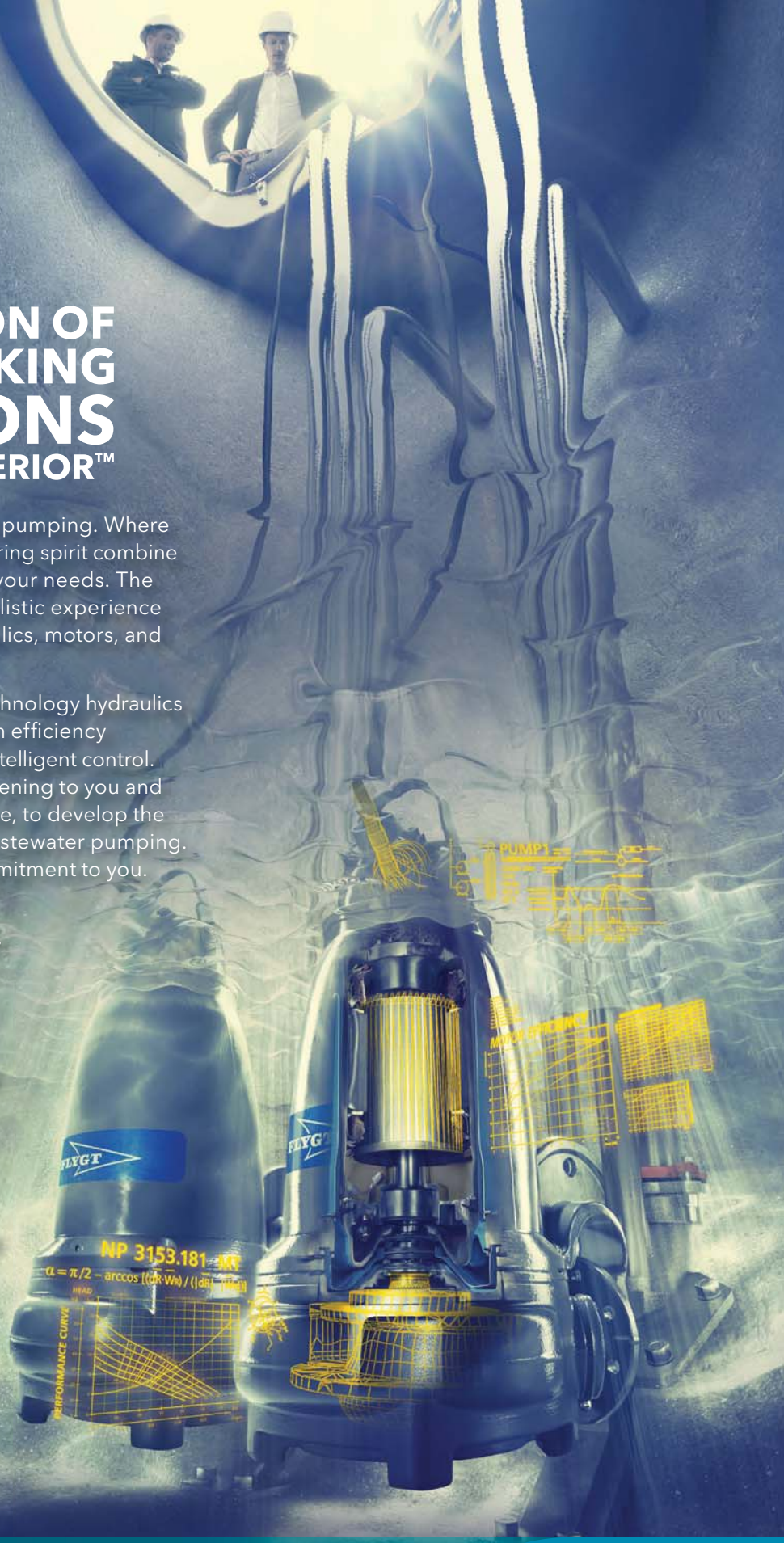

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IN THIS ISSUE

FEATURES

DEPARTMENTS

Messages

CSWEA News

Section News

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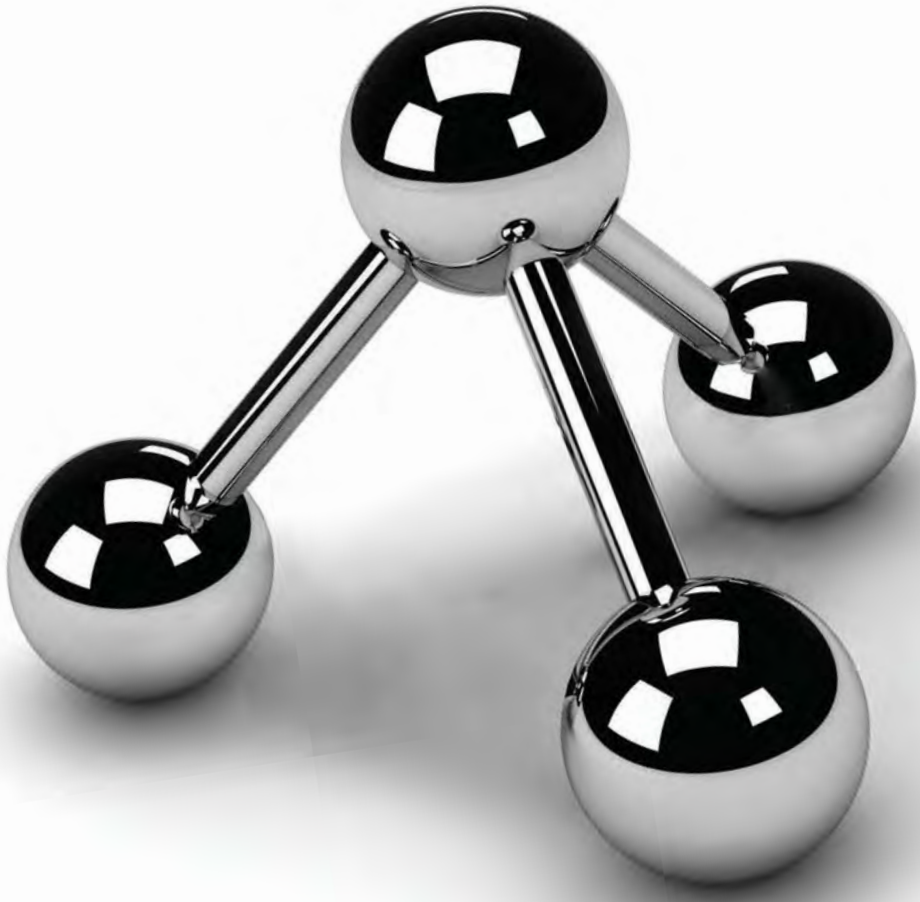

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Inside CSWEA

By Jim Huchel

As you get this, some of us will be working on our budgets and year-end reports, and I'm sure you're employing the same diligence to look at the utility rate structure for this year's annual conference (see page 47). The price of admittance includes all of the high-level programming that the CSWEA Conference boasts every year, and it will allow us to send more of our staff to this valuable learning event. I would like to thank the many volunteers who have worked tirelessly throughout the year to make sure this event is a great success. The amount of work that is donated each year for this event is incredible, and certainly does not go unnoticed or unappreciated. If you can't make it this year due to travel restrictions, be sure to check out all the presentations on the CSWEA website.

In all of my meetings and interactions as CSWEA president this year, I've been paying attention to the diversity of our organization and the unique contributions and perspectives that each member offers.

The operators have a vast knowledge base, which is only broadened by the differing state regulations and operating conditions. Our operation skills are demonstrated each year at WEFTEC during Operations Challenge. Their competitors are in general from the same region or, in some cases, the same facility. For the last several years, they have not only competed, but have taken home wins in the Laboratory and Process Control events. The competition is a fun way to show our talent, but the real value is in the interaction with our peers. They are a priceless resource when we need a different viewpoint.

Other valuable contributors to this organization are our consultants and engineers. I may give them a hard time whenever possible, but this group does some outstanding work as designer of our facilities and as educators to our staff. I encourage the operators in our group to get to know these members, as they are often your best ally when problems are encountered at your facilities.

Vendors and vendor representatives are another group that offer a unique perspective to this organization. Vendors can provide benefit to the operator in their day-to-day lives by providing reference material on processes or equipment. I learned several years ago, in a car trip to an annual conference, just how to use this group's knowledge to my benefit, and they have been a tremendous asset to me and my career ever since. Take the time to get to know these individuals at their booths during our events. I can promise you that it will help you at some point in your career.

Young Professionals (YPs) and students are our future. During this last quarter, another birthday passed for me; "one year closer to retirement," as I like to say. If you have volunteered in the past but currently are not committed to a committee, find a YP and coach them. Introduce yourself to them at our seminars and be an advocate to get them involved. The next generation is our future, and it is vital to get them involved early so that they can continue to build upon and improve on this organization's goals and objectives.

Our teamwork and knowledge is shown each year at our annual conference and in seminars throughout the year. Our ability to educate our members is second to none. If you are looking to become involved more in this organization, check the website for information. If we all donate a little time, it makes a huge difference.

I wish you all a safe and Happy Holiday season and New Year, and look forward to seeing you at the annual conference in the spring. CS

WEF House of Delegates Meeting

By Eric Lecuyer and Doug Henrichsen

The WEF House of Delegates (HOD) held their annual meeting on Saturday, September 27, 2014 in New Orleans during WEFTEC. CSWEA's outgoing WEF Delegate Rusty Schroedel, Eric Lecuyer, and incoming Delegate Doug Henrichsen all attended. In the morning, outgoing Speaker of the House Janet Hurley Cann oversaw several reports, which included confirmation of the incoming WEF President, Board of Trustees, and Delegates. A year in review by outgoing WEF President Sandra Ralston was given, followed by presentations of the WEF Business Plan, Budget, and the Value of Membership. A presentation by the 2013-2014 standing committees was provided, as well as a presentation from the Operator Strategy Task Group. HOD members in attendance then broke up into groups to perform table-top discussions to review the Strategic Plan, Business Plan and Budget, Public Awareness (VOW Campaign), and WEF Operator Strategy.

In the afternoon, committees for the 2014-2015 term were established, as well as confirmation of the Speaker of the House and Speaker-Elect. The HOD Standing Committees and Work Groups formed for 2014-2015 are:

- MA Leadership Development
- MA Sustainability
- Operators of the Future
- Water Advocacy/Value of Water (VOW)

At the conclusion of the meeting, incoming WEF President, Ed McCormick, presented the vision for 2014-2015, which was followed by incoming Speaker of the House, Duyen Tran's, call to action.

> "WEFMAX offers an opportunity for MA leaders at all levels to join together, share success stories and ideas on how MA members can be better served."

WEF HOD STANDING COMMITTEES AND WORK GROUP UPDATE

For 2014-2015, the WEF HOD Standing Committees and Work Groups were formed as presented above. Eric Lecuyer continues to serve on both the Budget Committee and the MA Sustainability WG. Doug Henrichsen will also serve on the Budget Committee, and the MA Leadership Development WG. Many of the Work Groups tasks are inward looking, how we can improve the House of Delegates, WEF, and better support MA's success and sustainability. For the Budget Committee, the primary task is to report to the HOD on how WEF's annual budget aligns with the strategic plan and provide feedback to both the Board of Trustees and Member Associations on funding priorities. The MA Sustainability WG continues to work to create a repository of sample fiscal policies to assist MAs in maintaining sound business practices and is looking for ways that MAs can diversify revenue streams and increase income. The MA Leadership Development WG is in the process of developing a web-based guidance document and PowerPoint Presentations that will focus on leadership training needs for all MAs. These documents will summarize WEF's direction, as well as provide examples from MAs around the country as to what is working for them. This new leadership development guidance document is planned to be available to MAs in early 2015.

WEFMAX 2015

Four locations have been chosen to host WEFMAX in 2015. WEFMAX offers an opportunity for MA leaders at all levels to join together, share success stories and ideas on how MA members can be better served. These fast-paced, interactive meetings are open to all members and provide for both enlightenment and networking with other leaders of the water profession from throughout North America and beyond. The locations and dates are as follows:

- April 15-17, 2015: Virginia Beach, VA (Host is Virginia WEA)
- April 29-May 1, 2015: Kansas City, MO (Host is Missouri WEA)
- May 13-15, 2015: Coeur d'Alene, ID (Host is Pacific Northwest CWA)
- May 27-29, 2015: Quebec City, Canada CS

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20th Annual CSWEA Education Seminar

April 7, 2015

Nutrients

Mark your calendars and budget for the CSWEA 20th Annual Education Seminar to be held on April 7, 2015 at Monona Terrace in Madison, WI. An exciting program focused on nutrients will be featured. This is an excellent, affordable event to learn about issues and technical advances from national and local experts. In addition, attendees will earn approximately seven (7) professional development hours (PDHs) for professional engineers and operator's license requirements. Early registration will be open by February, and the registration cost will be $200 for full registration, and $30 for students.

Tentative Schedule

Time	Speaker	Title
8:00-8:10		Welcome
Keynote 8:10-9:00	Dr. James Barnard	Nutrient Removal and Activated Sludge from BPR to Anammox
9:00-9:30	Brian Thompson (TBD)	EPA Regulatory Update: Incorporating Nutrient Criteria into Permits
9:30-9:50		Q&A
9:50-10:10		Break
10:10-10:25	Bob Mosher	Illinois Regulatory Update
10:25-10:40	Katrina Kessler, P.E.	Minnesota Regulatory Update
10:40-11:00	Jim Baumann, P.E.	Update on Wisconsin's Statewide Social and Economic Impact Variance Analysis
11:00-11:30	Rick Manner	Phosphorus Removal Overview - Illinois Perspective
11:30-12:00		Morning Q&A
12:00-1:00		Lunch
1:00-1:40	Dr. James Barnard	Fermentation Technologies to Increase Bio-P Removal
1:40-2:20	Alan Grooms, P.E.	Opportunities and Challenges of Struvite Harvesting
2:20-2:40		Break
2:40-3:10	David Austin, P.E.	Low to no energy nitrification and deammonification: Lessons learned from high-rate treatment wetlands
3:10-3:40	Dr. Jeremy S. Bril	Evaluating the Options for Phosphorus Compliance: The City of Fond du Lac WPCP's Experience
3:40-4:10		Afternoon Q&A
4:10-4:20		Closing Remarks

The Student Design Competition will be held April 6, 2015. If you would like to be a judge, please contact Mike Holland at *mholland@dekalbsd.com*.

Speakers and Topics

Dr. James Barnard
Keynote

Dr. Barnard will trace the history of nutrient removal and activated sludge technologies from the early work in biological nitrogen and phosphorus removal, to more recent advances including the Anammox nitrogen cycle. Dr. Barnard will also review future trends, which includes mainstream Anammox and granular activated sludge processes.

Fermentation Technologies
(Second Presentation)

Biological nutrient removal processes have demonstrated cost-effective and reliable performance at treatment facilities that receive adequate soluble organic material. Mostly there is not adequate soluble organic material to drive the biological process, due to lack of fermentation within the collection system. This soluble organic material can be generated at the treatment facility using sludge acid fermentation technology. Dr. Barnard will review the theory and design of primary sludge fermenters, and introduce the rapidly emerging technology of mixed liquor fermentation.

Bio: Dr. James Barard is a Global Practice and Technology Leader for Black & Veatch in Kansas City, MO. Dr. Barnard is recognized internationally for developing the BARDENPHO Process (BARnard DENitrification and PHOsphorus removal), Phoredox (later AO and A2O), the Modified Balakrishnan/Eckenfelder (later called the MLE) process and the Westbank Process. With over 40 years of experience, Dr. Barnard has done process design for more than 100 nutrient removal plants and extensions around the world and introduced BNR to North America with the design of the Palmetto plant in Florida and the Kelowna plant in British Columbia for nitrogen and phosphorus removal.

Brian Thompson, USEPA
EPA Regulatory Update: Incorporating Nutrient Criteria into Permits

Bob Mosher, Illinois Environmental Protection Agency
Illinois Regulatory Update

Bio: Bob Mosher has been with the Illinois EPA for 29 years with more than 26 years as the supervisor of the Water Quality Standards Unit. He is an aquatic biologist by training specializing in stream ecology and laboratory aquatic life toxicity studies. Current projects include

development of water quality standards for nutrients, ammonia and *E. coli* bacteria for eventual adoption by the Illinois Pollution Control Board as well as water quality standards implementation support for the NPDES Permit and 401 Water Quality Certification Sections of the Bureau of Water.

Katrina Kessler, P.E., Minnesota Pollution Control Agency
Minnesota Regulatory Update

Minnesota adopted eutrophication criteria for lakes and reservoirs in 2008 and complimentary criteria for rivers and streams in June 2014. Katrina will talk about our experience developing and implementing those criteria through assessments, watershed scale restoration and protection plans, and our work to implement phosphorus effluent limits on a watershed basis with particular emphasis on facilities that have already achieved significant phosphorus reduction in order to protect downstream lakes/reservoirs.

Bio: Katrina Kessler has been at the MPCA for 11 years and had several roles at the Agency. Currently she is manager of the Water Assessment Section at the MPCA in St. Paul. The Water Assessment Section responsibilities include: development of new (and review of existing) water quality standards, assessment of waters and identification of impaired waters under CWA Section 303(d), development of water quality based effluent limits for wastewater treatment discharges, and research into the effect of new and emerging contaminants such as pharmaceuticals and personal care products on aquatic life.

Jim Baumann, Wisconsin Department of Natural Resources

Update on Wisconsin's Statewide Social and Economic Impact Variance Analysis

Act 378 of the 2013 laws of Wisconsin requires a variance analysis for all WPDES municipal and industrial wastewater treatment facilities statewide based on substantial and widespread social and economic impact. The final Wisconsin determination should be completed prior to this meeting and EPA review should be underway. The talk will provide an update on the process, what determinations have been made and what it will mean to Wisconsin wastewater facilities.

Bio: Jim Baumann has worked on a variety of water quality topics for the Wisconsin Department of Natural Resources over a period of more than 38 years. The topics include: managing nonpoint sources through watershed implementation projects; developing total maximum daily loads plans; coordinating development of phosphorus water quality standards criteria; developing administrative rules for developing and implementing phosphorus water quality based effluent limits; and coordinating development of Wisconsin's nutrient reduction strategy. Presently he is a member of a small interagency team overseeing the development of the statewide social and economic variance analysis for phosphorus control at wastewater treatment facilities.

Rick Manner, Urbana & Champaign Sanitary District

A POTW Operator's Perspective of Illinois' Nutrient Reduction Loss Strategy

The talk will review some of the history and background about Illinois' Nutrient Reduction Loss Strategy from the perspective of the treatment plant operator. In this case, Rick has been involved since 1998 with Illinois' various nutrient initiatives. His District has two treatment plants. One has been removing phosphorous for 30 years and is Illinois' first AO bio-P facility, and the other is a 90-year-old trickling filter plant that he hopes doesn't get phosphorous limits during his tenure.

Bio: Rick received his bachelor's in Chemical Engineering and master's in Environmental Engineering from the University of Illinois at Urbana Champaign. He worked at the Fox River Water Reclamation District in Elgin for 22 years before accepting the Executive Director's at the Urbana & Champaign Sanitary District, in 2011. He's had an interest in nutrients since working in the same lab space as Nancy Love, who was researching biological phosphorous removal for sewage plants – a concept he was certain had no practical application, which nonetheless has been operating at UCSD for years. Since 1998 he's been a part of almost all of IEPA's efforts at evaluating what regulations make sense for Illinois.

Alan Grooms, P.E., Madison Metropolitan Sewerage District

Opportunities and Challenges of Struvite Harvesting

Recovery of resources from "used water" is currently getting a lot of attention, and recovery of the nutrient element phosphorus is now a common consideration for facilities evaluating options. This presentation will touch broadly on struvite and commercial harvesting techniques, and then explore

deeper some of the specific considerations and operational challenges viewed through the perspective of a Midwest utility completing the first full year of operation of one such system.

Bio: Alan is the Process and Research Engineer for Madison Metropolitan Sewerage District, a position he has held for over five years. Prior to coming to the District, Alan worked as a consulting engineer engaged in water and wastewater infrastructure design and planning for over 11 years, and for two years with an equipment manufacturer. Alan holds both BS and MS degrees in Civil Engineering from Iowa State University, and is both a certified wastewater operator and a licensed professional engineer in the State of Wisconsin.

David Austin, PE, CH2M Hill

Low to no energy nitrification and deammonification: Lessons learned from high-rate treatment wetlands

Advances in treatment wetlands in the last ten years have increased nitrification rates by 200 times using the ammonium exchange capacity (AEC) of treatment media with flood and drain hydraulics. For wastewater of high ammonium concentration, or media with high AEC, deammonification occurs. The energy cost of fill and drain is very low. Emerging process theory learned from these systems suggests application beyond treatment wetland technology.

Bio: David Austin works for CH2M HILL as the Global Technology Leader for Natural Treatment Systems. In addition to conference and peer-review publications, he is the principal author of 11 US wastewater patents. He has a BA in mathematics from UMN-Twin Cities, an MS in Water Resources Management from UW-Madison, and an MS in Civil and Environmental Engineering from UC-Davis. He is an environmental PE in MN and NC and a Certified Senior Ecologist (Ecological Society of America). He is the 2014 vice-president and will be the 2015 president of the American Ecological Engineering Society.

Jeremy S. Bril, Ph.D., Strand Associates, Inc.

Evaluating the Options for Phosphorus Compliance: The City of Fond du Lac WPCP's Experience

Like many wastewater treatment facilities in the Central States, the City of Fond du Lac WPCP's discharge permit was recently reissued with an extremely low total phosphorus limit (0.04 mg/L). As part of the compliance schedule, the City is required to complete a study of feasible alternatives to evaluate options for meeting the low limit. The cost and feasibility of advanced total phosphorus removal, watershed adaptive management, and water quality trading that have been developed to date will be discussed along with the evaluation of possible regulatory alternatives.

Bio: Jeremy Bril is a project engineer in the wastewater group at Strand Associates, Inc. in Madison, WI. He has a B.S. in environmental engineering from the University of Wisconsin-Platteville and an M.S. and Ph.D. in environmental engineering from the University of Iowa. Jeremy's background is in nutrient management and during his time at Strand he has been involved in multiple projects related to phosphorus compliance. CS

Reception April 6

All seminar attendees are invited to a reception (cash bar) on Monday, April 6 from 5:30-7:00 p.m. at the Monona Terrace Convention Center. The seminar speakers will be available for networking and conversation.

Register online at *www.cswea.org*

Continuing to Innovate

By Mohammed Haque

CSWEA continues to make strides to improve our member offerings. With a passionate group of members and amazing talent in the three states we cover, we are truly blessed. We continue to improve our seminars, sections, annual meeting and the resources and value we bring to our members. As an industry, we also continue to innovate and work together to make our environment incrementally better each year.

OPS CHALLENGE @ WEFTEC 2014

If getting down to WEFTEC was not enough of a challenge this year, our Ops Challenge team performed wonders. The entire team was able to make it down, with some people driving down there due to all the flight cancellations. Thankfully, this stellar group of devoted individuals got there in time to make CSWEA really proud. The Shovelers pulled off first place for the Lab event and third place in the Process Control event. A big thanks to the Pumpers and Shovelers for their wins and great success. Well done, guys and gals!

88TH ANNUAL MEETING

88th Annual Meeting is shaping up to be a fantastic meeting. It will be held from May 18-20, 2015 at the Drury Lane in Oakbrook Terrace, IL. This year we will feature a Soft Skills/ Leadership session. We will also be bringing back our Leadership Academy, Utility Management Track and Utility Pricing. Make sure to check our Save the Date in this issue for more information on the meeting. Thanks to the stellar group of individuals who are part of the Local Arrangements Committee, and a big thank you to Jillian Goodlove (Trotter & Associates) and Dean Wiebenga (Peterson & Matz) for co-chairing the committee.

GLOBAL WATER STEWARDSHIP

The Global Initiative has been renamed as the *Global Water Stewardship*. Congratulations to David Arnott for coming up with the name, on his flight back from Piedras Blancas, Costa Rica in August. This committee is doing amazing things, having just rolled out the Student Design Competition. The Piedras Blancas design challenge and problem statement is in the pages that follow. What makes this design challenge unique is that we have survey data, geotechnical data and aerial photos for this project. It is very rare to get such a wealth of data for a student-based design challenge. We encourage you to help spread the word to university students who may be interested in working on this challenge. Design submittals will be judged on April 6 at the Monona Terrace in Madison, WI.

Look out for more information on the Global Water Stewardship, as we look to implement more initiatives in 2015. If you want to join this committee, please get in touch with Mohammed Haque at *mhaque@cswea.org*, or Eric Lynne, Chair at *elynne@donohue-associates.com*.

Thanks to all our sponsors and partners for the Global Water Stewardship. Make sure to donate an item for the Silent Auction at the Annual meeting in May 2015. CS

"We continue to improve our seminars, sections, annual meeting and the resources and value we bring to our members. As an industry, we also continue to innovate and work together to make our environment incrementally better each year."

Click HERE to return to Table of Contents

CSWEA's Global Water Stewardship

Piedras Blancas, Costa Rica Problem Statement

Project Understanding
Location: Piedras Blancas, Costa Rica
Population: 543
Number of homes: 157
Number of people per home: 3.5
Water usage per home: 19.32 m^3/d per month (~50 gal/d/capita)
Average precipitation: approximately 6000 mm/yr
Design Competition: April 6, 2015,
Monona Terrace, Madison, WI

There are very few centralized treatment systems in Costa Rica. In the rural areas, septic systems are very common, with greywater typically being discharged directly overland. The leach fields are very small and very shallow. In the tourist areas with higher populations, holding tanks are used along with trucking to a treatment system.

The area of concern is a specific development in Piedras Blancas, Costa Rica. Piedras Blancas is a community in the southern part of Costa Rica, approximately 10 miles east of the Gulf of Dolce. Most of the residents in Piedras Blancas are mid-to-lower middle class. The main source of employment is harvesting palm trees on the nearby palm plantations. The wage rate is approximately $2 per hour on the palm plantations.

The development was built by the Costa Rican government in 2004. It is a planned subdivision of 157 tightly packed homes with a municipal water system, sidewalks and paved roads. There is a curb and gutter storm drainage system in place, with catch basins that drain to a storm sewer which eventually flows into the Piedras Blancas River. The Piedras Blancas River eventually flows in to the Gulf of Dolce. The Gulf is highly protected and many environmental stewards are involved in protecting it. In 2010, commercial fishing was banned in the Gulf.

Each home located in Piedras Blancas is typically 500 to 600 square feet in size measuring about 25 feet by 25 feet. There is a two to three foot separation between the homes. The home construction is slab-on-grade. There is no crawl space to access pipes coming from underground. The single bathroom is located in a back corner of the house and sewage from it flows to the septic tank.

The septic system for each home is located in the back of the house,

Figure 1 - Aerial View of the Piedras Blancas community and river.

approximately three feet from the house. The system consists of a single concrete tank where toilet water is routed. The depth of each tank is about six feet. A pipe near the top of the tank routes water free of solids, to a leach field measuring approximately six ft by six ft. The leach field is very shallow and likely consists of a few inches of imported sand. In most of the homes, the septic system encompasses the entire rear yard, which is no greater than 500 sf. The native soil is clay with small rocks.

Some residents have indicated that their septic tank is earthen and not concrete. These systems were described as hole in the ground lined with plastic held down by rocks. It is not clear if these systems have a leach field.

Approximately 20% of the homes were expanded over the top of the septic systems. These systems are not accessible and not maintained. An exact number of expansions and size of the rear yards can be seen on an aerial photo that was taken by a drone.

A septic hauling service comes to the development three to four times per year. The charge of the clean-out service ranges from $40 to $120 per home. The cost is variable depending on the number of homes being serviced that day and how thoroughly the tank is cleaned out. The number of service providers is very limited. The trucks have a long way to travel to the nearest treatment system. Both these factors contribute to the high price of pump-out service. Based off conversations with residents, it is estimated that less than 30% of homes use the pumping service. The remainder either have never serviced their tank, do not do it routinely, or their tanks are inaccessible.

Greywater from sinks and washing machines are routed to a pipe that discharges at the front of the home through the face of the curb to the gutter and subsequently to the storm sewer system. Discharge to the storm sewer system is ultimately to the Piedras Blancas River. Some grey water is discharged directly to the yards where it flows overland to the curb and gutter, and then into the storm sewers. Due to the density of the subdivision, the greywater discharges through the storm sewers to the river at a high concentration during dry weather.

From walking the streets, there were several areas where the unmistakable smell of sewage was prevalent. Residents said that the some of the septic systems were routed to the curb and gutter instead of the leach field.

Monitoring of the wastewater or grey water has not been completed. The INOGO Initiative of Stanford University will be conducting water quality monitoring of the Piedras Blancas River upstream and downstream of the development in December of 2014. Water monitoring of greywater directly from the development could take place during this same trip by the INOGO group.

In the rural areas of Costa Rica, toilet paper is not disposed of in the toilet. This is due to low water pressure and a small pipe size (2 to 3 inch-diameter) from the toilet to the septic field. Toilet paper is disposed of along with the other solid waste. A lot of refuse in rural areas is burned.

The specific areas of concern with the wastewater treatment system are described as follows:

- In general, the septic tanks are not maintained and are original to the construction of the homes in 2004.
- There is evidence that the tanks leak based on the water level in the tank being lower than the outlet pipe to the leach fields. There is likely groundwater contamination.
- The septic tank leach fields are very small and shallow. The native soils are not conducive to treatment through a leach field.
- During and after heavy rains, the leach fields drain backwards to the septic tank.
- Several septic systems have a direct connection to the curb and gutter.
- Several septic systems are not accessible due to home additions.
- Some grey water is routed over the yards to the curb and gutter.

Several residents expressed a concern about the water service as well. Water comes from a natural spring upstream of Piedras Blancas known as an area called the Black Hills. Once or twice per month, the water is turned off with no advance notice. The water is also occasionally discolored. Residents said the water has made them sick. There is a high likelihood of cross contamination of the water

Click HERE to return to Table of Contents

service from the faulty sewage treatment system. The water service consists of half-inch diameter schedule 40 PVC pipe. There are shut-off valves in the sidewalk in front of each house. The cost of water service is approximately $25 per month and is provided by the Costa Rican municipal water authority named AyA.

Village officials have also expressed the need for additional water capacity to the village. This would be a separate project. However, the design of this project should take into consideration the potential for higher household daily flows and lower pollutant concentrations with additional water usage.

Project Approach

For this project, CSWEA is soliciting designs for a long-term solution to the sanitation problem in this development. In general, the two solution approaches are as follows:

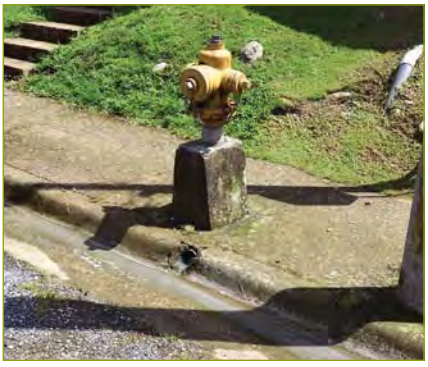
- Construct clusters of on-site treatment systems with a limited collection system.
- Construct a centralized treatment system with a complete collection system.

A design submission may review either or both of these solution approaches as well as any new solutions for consideration.

Design Objectives & Constraints

The following are items that should be discussed or implemented as part of the design project. The design that best accomplishes these goals will have the highest level of long-term success.

- The project must be culturally acceptable.
- The project must take in to consideration the local weather and heavy rainfall.
- The equipment must have a high level of reliability. The resources are not available for many equipment breakdowns.



- The equipment must have a level of redundancy to maintain treatment if some equipment is in temporary disrepair.
- The solution must have a low operation and maintenance cost due to the residents' limited income. Special consideration will be given to designs that are energy efficient and/or partially self-sustaining from an energy standpoint.
- The project capital cost must be low due to limited funding.
- The project must be easy to operate and maintain. There is no wastewater training available in the area or wastewater operators' associations. Local staff will have to be trained on the system operation and maintenance, but may only be able to operate the system part time, so the system should be fairly self operational.
- The wastewater treatment equipment must be easily replaceable with parts readily accessible.
- Treatment equipment would presumably be compatible with the existing electrical system.

Design Basis

Each submittal should include a summary of the following items as needed for the project:

- What should be the pipe material, size, depths and slopes?
- Where is the ideal location for a potential collection system (under roadway, rear yards, etc.)
- What pipe bedding and cover should be used?
- What manhole spacing should be used?
- What levels of treatment should the design be based upon (perhaps 30 mg/L BOD and 30 mg/L TSS)? Are there levels of treatment that a governing body requires (Ministry of Heath, Ministry of Environment (MINAE), Department of Water, etc.)?
- What degree of expandability should be built into the design (perhaps 20%)? Would the system be used in the future as septic hauler receiving station? Would this be acceptable by the village? How much would this help with the ongoing operation and maintenance costs? What will be the design year? What will be the design average daily flow and peak hour flow?

Local home with addition built over septic tank.

- What type of odor control should there be, if any?
- Should the equipment be provided through a US equipment supplier or a Costa Rican equipment supplier?
- Should back-up power provisions be made in the design? If not, should a holding tank be included at the treatment system to store water during times of power outage?
- What laboratory facilities, if any, should be included at the treatment system? Would the University of Costa Rica be willing to assist in testing of any sampling requirements?
- What Supervisory Control and Data Acquisition (SCADA) systems, if any, should be at the treatment system? Should the SCADA system be operational-based or monitoring-based?
- What is the maximum level of water in the Piedras Blancas River? What will the hydraulic grade line be for the rest of the treatment system and collection system?
- Would the electrical utilities have to be upgraded (e.g., higher amperage rating) for the treatment system?
- How should the variable plumbing needs in each home be handled through this project (individual house allowance, new standard plumbing plan, etc.)?
- Develop a realistic project timeline with critical milestones.

Project Implementation

It is unclear at this time what project delivery method will be used. It may be possible to use Costa Rica's program Manos a la Obra where community labor is used with wages paid by the government. This program may save money if it is able to be used. However, the program could also potentially complicate the project delivery as a contractor would be forced to use local individuals for a portion of the project as opposed to using all their direct labor.

Reference Information

Information obtained by CSWEA on the Piedras Blancas project has been saved here for your use: *https://www.dropbox.com/sh/eeg27yl3s6todvq/AAB4pIPBhwlXedhn7RnCEJLka?dl=0*. Teams are encouraged to use credible sources for additional information needed to complete their designs. Coordination with an academic advisor and/or water treatment professional(s) is highly encouraged.

Refer to the WEF and CSWEA websites or contacts for the latest design competition guidelines: *http://wef.org/PublicInformation/page.aspx?id=136* and *http://cswea.org/SYP/Competition/*. If the posted guidelines are outdated, teams are advised to use the previous year's guidelines. Deadlines will be similar to years previous, but interested teams should contact their CSWEA student representative for more information.

Want more info on the competition?

Contact Mike Holland at *mholland@dekalbsd.com* CS

WEFTEC 2014
CSWEA/IWEA Welcome Reception

Despite a troubled worker at the air traffic control center disrupting flights throughout the Midwest, the 2014 WEFTEC CSWEA/IWEA Welcome Reception was a success once again. Thanks to our many sponsors and all other members who worked the phones, emails and sign-in table to make this event a success. This year's event, held at the Hilton New Orleans Riverside, was the 19th year that CSWEA and IWEA joined to host this event. An impressive turnout of over 300 members, sponsors and friends were in attendance, which is a great turnout in spite of/in celebration of the pounding that the Packers delivered to the Bears earlier in the day. There was food and drink aplenty and the noise level was high as friends met and made plans for the week of WEFTEC. Of course, this was all made possible by our generous sponsors. Even with the great turnout, their donations allowed us to sustain our thirsty members and still manage to nearly break even for the event. Make a note now to plan to attend the 20th Annual Welcome Reception at WEFTEC 2015 in Chicago, September 27, 2015.

Thank You, Sponsors!

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Student Paper/ Design Competition

By Mike Holland

Central States was once again well represented at the WEF Student Paper and Design Competitions at WEFTEC 2014 in New Orleans.

CSWEA developed the competition criteria based on WEF guidelines and Student chapters were notified of the competition during the fall semester of the 2013-14 school year. This year, the lack of entries in the Student Paper Competition was more than made up for in the quality of submissions for the Student Design Competition. The Student Design Competition is intended to promote real-world and hands-on design experience for student interested in pursuing an education and/or career in water/wastewater engineering and sciences field. There are two levels of competition, conventional wastewater design, which includes traditional wastewater design project, and environmental design, which includes contemporary engineering design topics such as sustainability, water reuse, wetland construction and Engineers Without Borders projects.

This year, CSWEA had entries in both levels of the competition which was held the day before the Education Seminar in Madison. The team from Marquette University consisting of Sarah Walsh, Sara Breitzman, Andrea Dunn and Matthew Fueston presenting their project on the *Southeastern Wisconsin Regional Resource Recovery Facility* was determined to be the competition winner at the Wastewater Design level. At the Environmental Design level the winning team came from the University of Illinois – Urbana/Champaign consisting of Lance Langer, Reggie Jansen, Amanda Caldwell-Jacques and William Cheng presenting their project *Providing Sanitation to Peri-Urban Slums in Nairobi, Kenya*. Both teams presented their projects at the WEF competition held during WEFTEC where they faced stiff competition from schools throughout the country.

Marquette University, L-R Andrea Dunn, Sarah Walsh and WEF President Ed McCormick (Wastewater Design Team)

University of Illinois - Urbana Champaign (Environmental Design Team)

Unfortunately, the teams' hard work and exceptional presentations at the WEF competition did not result in them being victorious. However, they did a great job and should be very proud of their accomplishments, as we should be proud in having them represent CSWEA at the WEF level. CS

WEFTEC 2014 Operations Challenge

By Todd Carlson

Shovelers take 1st Place in Laboratory and 3rd place in Process Control and place 16th overall; Pumpers take 9th in Laboratory and 5th in Process Control and place 21st overall at the 2014 Operations Challenge (OC).

These past few months, I had the good fortune and pleasure getting to know 10 wastewater professionals. I was able to watch them grow as individuals, and form life-long bonds that will provide incredible opportunities in the future. My hope is that they will work together again to overcome difficulties at the wastewater plants or collection systems they operate. The Operations Challenge team members started the process of getting to know each other at the CSWEA annual meeting in May, and through the wonder of Facebook, e-mail, and text messages they were able to share ideas, videos, and discuss the five events of the Operations Challenge.

Like last year, our team members worked very close with each other to refine all the tasks they would perform during the five operations challenge events at WEFTEC. The five events are Process Control, Laboratory, Collections, Maintenance and Safety. The OC teams had two practice sessions prior to WEFTEC where they continued to build relationships and form friendships that allowed them to work together as a well-oiled team. Both practice sessions were held at the Madison Met Nine Springs Wastewater Plant in Madison, WI. Montgomery Baker with the Madison wastewater facility laboratory worked tirelessly with both teams to help develop the skills needed to perform each task with precision and without penalty. Thank you, Monty for everything you have given to the Operations Challenge teams.

The 2014 teams have done an outstanding job representing the Central States WEA showing other WEF member associations that operators from Central States are the best in the industry. Our Central States teams have shown me that the Operations Challenge is about stepping out of one's comfort zone, performing tasks that you don't know anything about, always supporting your team, and if you work together most anything is possible. Central States is able to compete in the operations challenge at such a high level due to the commitment our members have, that includes the individual team members, sponsors, and Central States members that come out to cheer on the teams at WEFTEC.

I would like to say thank you to everyone who has supported the Operations Challenge. If you have an opportunity to talk with a current or past team member, please ask them about their experience with the OC. I bet you will be surprised by the passion they have for the OC and the industry that we all work in.

Cheers, Todd CS

2014 Team members

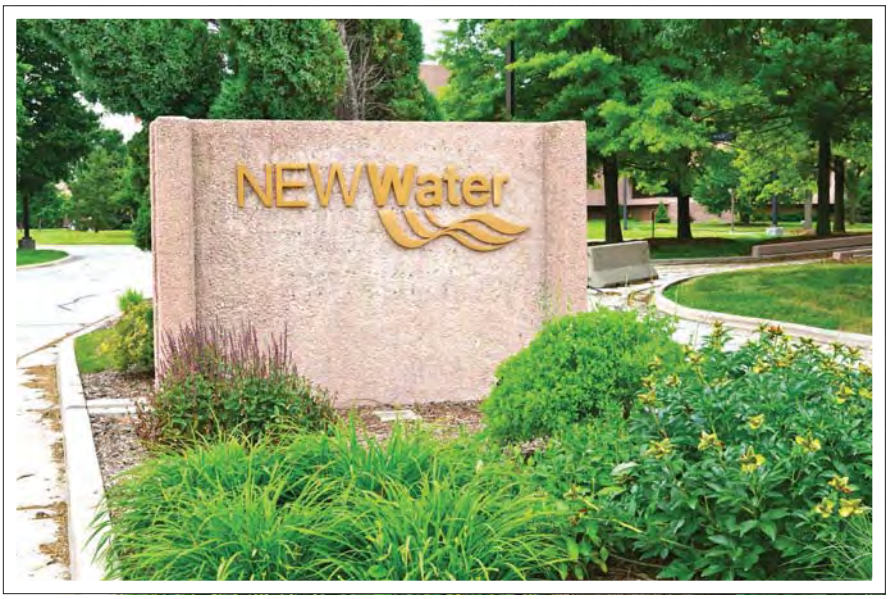
Pumpers

Captain Todd Sheridan, Northern Moraine WRD; Joe Rubbelke, Infertech, MN; Mike Murphy, Green Bay Metropolitan Sewerage District; Kathy Hammel, Western Lake Superior Sanitary District (WLSSD); and Coach Tom Dickson, City of Oconomowoc, WI.

Shovelers

Captain Chris Kleist, City of Duluth; Brain Skafe, Janesville WWTP; Justin Pratt, City of Moline; Chris Lefebvre, Stevens Point WWTP; Coach Jim Miller, Wenck Associates.

Click HERE to return to Table of Contents



NEW Water's new front gate sign, reflecting the rebranding from the "Green Bay Metropolitan Sewerage District"

NEW Water's Green Bay Facility

NEW Water
The brand of the Green Bay Metropolitan Sewerage District

NEW Water's Green Bay Facility (GBF), located at the mouth of the Fox River, receives on average 32 million gallons per day of wastewater from 18 surrounding communities. The GBF has been treating wastewater since 1935, and has had numerous upgrades through the years to maintain the ever-changing effluent permit requirements. The current GBF was built in 1975 and was the first wastewater treatment facility in the country to treat both municipal and paper mill waste.

In 2008, NEW Water acquired the De Pere wastewater treatment plant. As a result, conveyance pipelines and interceptors were built to transport waste sludge, mill waste, and raw wastewater to the GBF for further treatment.

The GBF is staffed 24/7/365 by four rotating crews that continually monitor plant operations to ensure permit compliance. In fact, the Green Bay Facility is recognized as a Platinum award winner by the National Association of Clean Water Agencies (NACWA) for 100% permit compliance for 11 years running.

Green Bay Facility process description

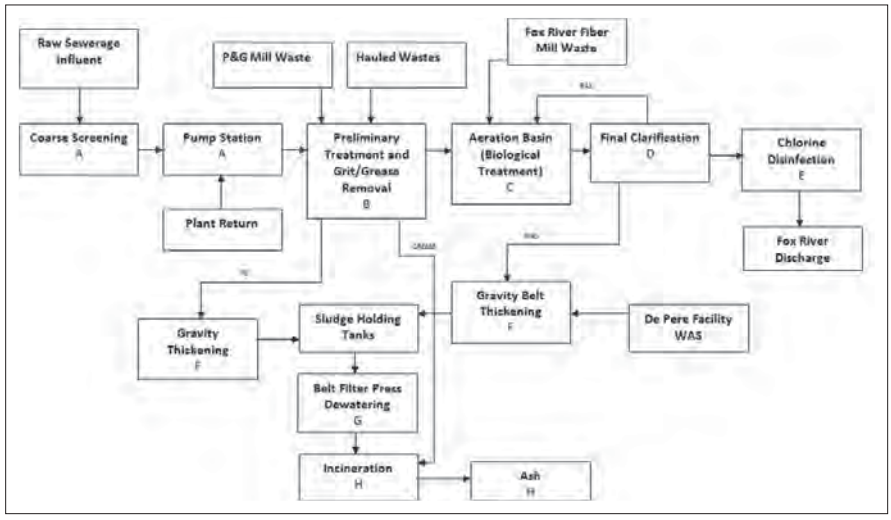
A. Influent Pumping Station – Domestic wastewater arrives at the facility near the bottom of the Pump Station through a large (108") interceptor. The domestic wastewater passes through one of two coarse bar screens where material larger than two inches are removed. Four 900hp pumps, with the ability to pump 40mgd each, lift the wastewater to the start of the treatment process.

B. Headworks/Primary Clarifiers – Fine screens and grit removal teacups are used to remove rags, grit and other debris from the waste stream before the flow enters the primary clarifiers. The primary clarifiers allow solids to settle out where they are then removed for further processing. The liquid portion is sent to the aeration basins for further treatment.

C. Aeration Basins – The liquid flows from the primary clarifiers to the aeration basins which were redesigned for biological phosphorus removal. Air is provided by four centrifugal air compressors which can output 20,000-55,000 scfm each. Air outputs are controlled to achieve the desired aeration basin dissolved oxygen concentration.

D. Final Clarifiers – Following aeration, the treated wastewater and

Green Bay Facility Process Flow Chart



Click HERE to return to Table of Contents

biological floc flows to the clarifiers. Settled solids (RAS) are returned to aeration and a portion is wasted (WAS) and pumped to the thickening process. The clean water flows over the weirs to be disinfected.

E. Disinfection – The current chemical disinfection system uses sodium hypochlorite to kill disease-causing bacteria. Before the flow is discharged to the river, sodium bisulfite is added to remove any residual chlorine. Following disinfection, the final effluent is discharged into the Fox River.

F. Thickening: Gravity and Gravity Belt – Both gravity belt thickeners and gravity thickeners are used to thicken both the primary sludge and waste activated sludge produced earlier in the process. Sludge is thickened to 4-6% solids before it is dewatered further.

G. Dewatering: Belt Filter Presses – The thickened sludge is then dewatered using a belt filter press. Sludge is simply compressed between two belts producing 17-20% dry cake for incineration.

H. Incineration – The dewatered belt filter press sludge is burned to an ash within two multiple hearth incinerators. Incinerator off-gas is treated using an advanced wet scrubber system and the leftover ash is then collected and sent to the landfill.

Green Bay Facility design data

Design Flow, million gallons per day (MGD)
- Average Flow 32
- Maximum Daily 112

Design Loadings, thousand pounds per day
- Biochemical Oxygen Demand (BOD_5) Design 74
- Suspended Solids (SS) Design 64
- Phosphorus (mg/l as P) Design 15

Influent Pumps
- Number 4
- Total Installed Capacity, MGD 160

Primary Clarifiers .....
- Number 4
- Volume, MG 1.25

Activated Sludge System

Anoxic Basins
- Number 6
- Volume, MG (North Plant) 0.33
- Volume, MG (South Plant) 0.25

Contact Basins
- Number 6
- Volume, MG (North Plant) 3.85
- Volume, MG (South Plant) 2.5

Final Clarifiers (North)
- Number 8
- Volume ..... 1.7 MG each

Final Clarifiers (South)
- Number 2
- Volume ..... 1.93 MG each

Thickening – Gravity Belt Thickeners
- Number 3
- ..... 2 meter belts

Thickening – Gravity Thickeners
- Number 4
- Volume, MG 0.15

Dewatering – Belt Filter Presses
- Number ..... 43 meter belts

Incinerators
- Number 2

Emergency Generators
- Number 2
- Capacity each unit (KW) 1,600

Plant Effluent Quality Requirements
- Carbonaceous Biochemical Oxygen Demand CBOD, mg/l ... 25
- Suspended Solids, mg/l 30
- Phosphorus, mg/l 1.0

NEW Water De Pere Facility overview

NEW Water's De Pere Facility (DPF), located on the north end of the City of De Pere, sits on a 23-acre site along the west side of the Fox River. The service area is comprised of the City of De Pere, a major part of the Village of Ashwaubenon, and portions of the Towns of Lawrence, De Pere, Bellevue, Hobart, and Rockland. The DPF has been treating wastewater since 1937, and has had numerous upgrades through the years to maintain the ever-changing effluent permit requirements. The facility incorporates single stage aeration with biological phosphorus removal, Tertiary Treatment, and UV Disinfection. The average daily flow is 8 million gallons per day (MGD), but receives close to half of NEW Water's total loadings.

In 2010, the DPF was upgraded for remote operation from NEW Water's Green Bay Facility (GBF) which allows for the facility to run unstaffed during evenings, overnight, and on weekends; this upgrade also decommissioned the solids operation at the DPF. In its place, conveyance pipelines and interceptors were built to transport waste sludge, mill waste, and raw wastewater to the GBF for further treatment. The DPF is now only staffed during the hours of 7:00 a.m. to 3:00 p.m. Monday through Friday, and three hours on Saturday and Sunday.

NEW Water De Pere Facility process description

A. Influent Pumping Station – Interceptors bring wastewater to the plant from East De Pere, West De Pere, and Ashwaubenon. The flow passes through fine screening where the material removed is washed and compacted and sent to the landfill. Six variable speed influent pumps send flow to the Preliminary Treatment Units for future treatment at the DPF, or can divert up to 5.5 MGD of influent to the GBF.

B. Preliminary Treatment Units (PTU) – As raw wastewater flows through the PTU, the velocity is slowed to one foot per second, allowing sand and other coarse non-organic material to settle at the bottom. The settlings are removed, washed, and sent to the landfill. Oil, grease, and other materials less dense than water rise to the surface of the tank and are skimmed off for further processing at the GBF.

C. Aeration Basins – The liquid flows from the PTU to the aeration basins which were redesigned for biological phosphorus removal. Air is provided by six energy-efficient HST Integral high speed centrifugal air compressors which have variable speed drives to match compressor output with demand. Compressor output is 2100-5300 scfm each. They are controlled to achieve the desired aeration basin dissolved oxygen concentration.

D. Waste Activated Sludge (WAS) and Mill Conveyance Systems – In 2010, conveyance lines and pumps were added to convey mill waste and WAS to the GBF. Two 10" pipelines, seven miles long, provide the ability to pump all WAS flow and a portion of mill waste to the GBF. Each pipeline has a service water flushing system as well as chemical addition. WAS flow rates range from 250-650 gpm. Mill waste transferred to the GBF varies up to 750 gpm to aid in biological phosphorus removal. The remaining flow is diverted to the DPF aeration basins.

E. Intermediate/Final Clarifiers – Following aeration, the treated wastewater and biological floc flows to the clarifiers. After settling, the secondary effluent flows to the Tertiary Treatment process. Settled solids (RAS) are returned to aeration and a portion is wasted (WAS) and pumped to the thickening process at the GBF.

F. Tertiary Treatment – The secondary effluent is passed through filtering media in five gravity sand filters which captures any remaining suspended solids not removed in the clarifiers. These filters backwash automatically during off-peak hours to conserve energy.

G. Disinfection – The current Ultraviolet Disinfection system was installed in the spring of 2014. The UV system is a vertical lamp, two channel Ozonia low pressure high output system, which is energy efficient and capable of treating up to 30 MGD. Following disinfection, the final effluent is discharged into the Fox River.

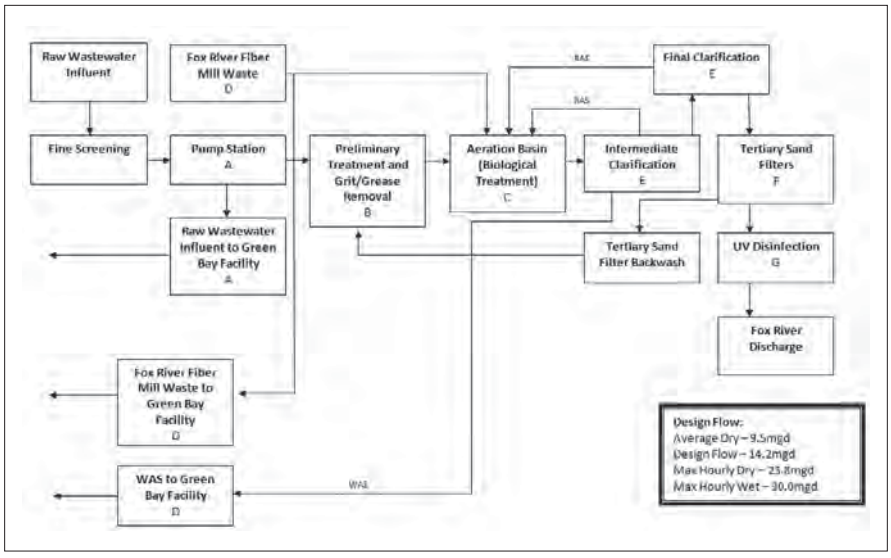
"The average daily flow is 8 million gallons per day (MGD), but receives close to half of NEW Water's total loadings."

Aerial view of NEW Water's De Pere Facility

Photo taken in October 2014 of NEW Water's award-winning effluent, which is cleaner than the receiving waters in the Fox River

Click HERE to return to Table of Contents

NEW Water De Pere Facility Process Flow Chart



NEW Water De Pere Facility design data

Design Flow, million gallons per day (MGD)
- Average Dry Weather Flow 9.5
- Design Flow 14.2
- Maximum Hourly – Dry Day Flow 23.8
- Maximum Hourly – Wet Day Flow 30

Design Loadings, thousand pounds per day
- Biochemical Oxygen Demand (BOD_5) Design 41
- Suspended Solids (SS) Design 28.9
- Phosphorus (mg/l as P) Design 15
- Total Available Ammonium (mg/l as N) Maximum 22.2

NEW Water Treatment Operator Aaron Eichhorst (promoted to Treatment Leader since this photo was taken!) braving one of the worst winters in Green Bay on record, 2014

Influent Pumps
- Number 6
- Total Installed Capacity, MGD 55
- Horsepower each pump 150

Preliminary Treatment Units
- Number 2
- Size, Feet 50x50

Activated Sludge System

Anoxic Basins
- Number 2
- Volume, MG (Both Basins) 2.2

Contact Basins
- Number 2
- Volume, MG (Both Basins) 4.4

Intermediate Clarifiers
- Number 2
- Diameter, Feet 100
- Sidewater Depth, Feet 13.7
- Overflow Rate at Design Flow, gpd/ft2 1000

Final Clarifiers
- Number 3
- Diameter, Feet 125
- Side Water Depth, Feet 10.9
- Overflow Rate at Design Flow, gpd/ft2 420

Tertiary Filtration Sand Filters
- Number 5
- Hydraulic Loading at Design Flow, gpm/ft2 5

UltraViolet Disinfection
- Number of Channels 2
- Design Flow per Channel, MGD 15.0

Plant Effluent Quality Requirements
- Carbonaceous Biochemical Oxygen Demand CBOD, mg/l 9
- Suspended Solids SS, mg/l 10
- Phosphorus P, mg/l 1

The Water Council: BREWing Water Technology

The past year has been an exciting whirlwind for The Water Council since moving into the now year-old Global Water Center in Milwaukee's Historic Walker's Point neighborhood. The Center is nearly fully leased and the energy within the building is palpable as soon as you walk in; entrepreneurs chat over coffee in the lobby café, as a meeting convenes in the executive board room, meanwhile engineers and researchers work in the Flow Lab, which is now fitted with multiple pieces of key equipment used for teaching, learning, testing and demonstrating the technologies BREWing in Milwaukee.

The Water Council, a non-profit organization with members encompassing the full water cycle, is the leading national water technology cluster recognized by the federal government. While The Water Council is expanding in membership, programming, and staff, a new Leadership Strategic Vision was recently unveiled to communicate the next key directions and set forth a vision for The Water Council's growing and changing opportunities, roles, and responsibilities as the Epicenter of the Global Water Industry.

The core principles of The Water Council (Economic, Technology and Talent Development) remain the same, in the form of The BREW accelerator and endeavors on the horizon made possible through partnerships with JPMorgan Chase & Co. and the U.S. Small Business Administration. The global water crisis is growing, approaching and affecting an even greater population both abroad and in our own backyards. The Water Council and Wisconsin's thriving water technology cluster are working to address and solve these issues through technological innovations, increased investment in disruptive water technologies and deployment of these solutions.

The BREW – Unleashing Water Innovation

Now in its second year, The BREW, which stands for Business – Research – Entrepreneurship – In Wisconsin, was renamed to reflect the program's roots in Milwaukee, once known as the beer capital of the U.S. due to its long history in brewing. The same way that those breweries played a key role in the economic development of the city in the last century, The BREW and water technology will play a pivotal role in the next wave of economic development for the city and the southeastern Wisconsin region as more water-related businesses and entrepreneurs are attracted to the area.

The BREW is the first mentor-driven seed accelerator to focus on addressing global freshwater challenges. Entrepreneurs apply to the program in the spring, from those applicants a panel of international expert judges determine which have the most potential and promise for commercialization, and invite those applicants to do live-streamed pitch sessions. After careful consideration and deliberation, six winners are chosen to participate in the program and each receive a $50,000 grant, low cost office space, and business training with the University of Wisconsin-Whitewater's Institute for Water Business. Unique to this year's judging process was the recognition of two runners-up due to the competitive nature of this year's applicants. Adhering to the theme of brewing, each class of entrepreneurs are known as "Batches."

The BREW Batch I

The BREW Batch I winners, highlighted in the Spring 2014 issue, have now completed intensive business training and officially graduated at The Water Council's annual Water Summit during a special ceremony officiated by Wisconsin Governor Scott Walker. At that time, the startups were heralded for the many successes accomplished over the past year, including contracts and partnerships formed with several Water Council Members, patents received and pending for their technologies, and the successful creation of a spin-off company, STEM Hero, which educates educators on the importance of inclusion of STEM (Science, Technology, Engineering, Mathematics) in the classroom and offers software and programming that can be built into their respective agendas.

Many of the Batch I startups remain within the Global Water Center. NEW Works, the quick-turnaround water management training company occupies space within UW-Milwaukee's School of Freshwater Sciences, while the company's water management stand is proudly displayed in the Global Water Center's Flow Lab; Rice Technology has lab space on the 7th floor and shares an office with another startup Stonehouse Water Technologies, as they partner on developing a mini, self-contained, water treatment system called the Water POD; Vegetal i.D., the American subsidiary of the French green-roof company Le Prieuré, now occupies space on the 4th floor. Meter Hero, formerly H2OScore, has opened an office in the San Francisco Bay area and continues to maintain ties to spinoff company, STEM Hero. Microbe Detectives has also moved out of the building and is currently recruiting additional support staff to oversee the growth of the company as they look to scale-up.

The BREW Batch II

Batch II of The BREW began their 12-month program in September 2014. Since then, the entrepreneurs have moved into the Global Water Center and began "entrepreneur boot-camp" training. Batch II covers a wider range of companies from Wisconsin, Illinois, Canada and France, from water pre-use to post-use, tackling various issues in the water sector including water data mining to treatment and measuring.

"Batch II covers a wider range of companies from Wisconsin, Illinois, Canada and France, from water pre-use to post-use, tackling various issues in the water sector including water data mining to treatment and measuring."

Cadens

According to Randy Mueller, co-owner/co-founder, there are vast untapped resources here in the U.S. and globally, where energy from moving fluids is being wasted. The solution: small, hydro-power turbines, a technology that Cadens has developed. Using their own software, they design custom turbines, manufacture the complex turbine shapes and combine the finished turbine sets with off-the-shelf parts and generators to build modular, plug-and-play hydropower systems (cadensllc.com).

Hydro-Lite

The idea for Hydro-Lite emerged after time spent helping overseas in refugee camps and disaster-stricken areas by company founder Dr. Eric James, and seeing many people suffering from water-born disease. He came to the realization that ultraviolet light can be used to eliminate micro-organisms from water; by harnessing that power, clean water can be made accessible to people around the world. Hydro-Lite's water sterilization device uses a small UV light and a hand-powered electrical source, requiring no batteries, and is made for individual use, ideal for anyone without access to clean drinking water (neverest.com).

Pellucid Water

Pellucid Water develops and markets applications for Dense-Medium Plasma used for water treatment and decontamination. Unlike conventional water treatment technologies, Dense-Medium Plasma does not require chemical additives, membrane filters or ion exchangers. "The premise is, when you think of Pellucid Water, there are no wastes, wastewater is a very old concept that we have to get out of our minds," said Mark Raabe, co-founder of Pellucid Water. "What we have are resources in water that are discarded at the expense of precious revenue, instead of reusing those resources and the water itself." Pellucid Water's technology can separate the resource from water, and once you do that, all types of possibilities exist for recovery and reuse of the extracted resources and water.

"WellIntel will launch their program in December 2014, essentially establishing and leading the market with the very first groundwater monitoring information system."

pHinding Solutions

pHinding Solutions works hand-in-hand with scientists from commercial laboratories to create new technologies by assessing their individual needs inside the laboratory. Many times these scientists and researchers are distracted by dealing with manual data collections, software problems, and instrumentation issues, taking away from the time they use to actually work on their technology. pHinding Solutions is creating a platform to eliminate the waste of resources and ultimately launch new, innovative technologies (*phindingsolutions.wordpress.com*).

WatrHub

WatrHub is a water-data mining and analytics company that matches water technologies and solutions with the needs of water and wastewater systems. WatrHub can strategically pull out, or scrap, information that customers can find useful for bringing new technologies to the water industry, thus accelerating the adoption of these new technologies (*watrhub.com*).

WellIntel

WellIntel has developed simple, smart technologies and information systems that are cloud-based tools that are able to measure groundwater levels. This information helps homeowners, farmers and communities learn about and sustainably manage their groundwater resources. WellIntel will launch their program in December 2014, essentially establishing and leading the market with the very first groundwater monitoring information system. "Gone are the days of simply guessing the levels and state of our groundwater systems, due to drought and other water environment conditions, we need to accurately and precisely know these levels," says Marian Singer, co-founder of WellIntel. This simple non-invasive sensor system will collect water level information from your well or other groundwater source continuously, updating and displaying the information in graphs and charts available to owner's in a private, personalized website and smartphone application (wellntel.com).

Have you noticed a theme? The BREW's Batch's of start-ups not only empower themselves to start a business, they empower their customers to make more accurate decisions, accelerate results and ultimately, wisely use and

understand water and all its powerful potential. The BREW is advancing freshwater technology solutions for the world and propelling The Water Council to be the epicenter of freshwater technology, research, education and business development. The BREW truly unleashes water technology and innovation.

The Water Council's Road Ahead

The past year has truly been transformative for Milwaukee's water technology cluster; as the cluster continues to expand and new companies inevitably relocate here, they will have a place and support system to set-up shop in Reed Street Yards. This 15-acre site created for water technology businesses has been fitted with several green infrastructure components, including pervious pavement, bio-swales, rain gardens, and the state's first installation of

a purple pipe system, used in the capture and reuse of gray water. The future global water technology business park lies adjacent to the Global Water Center and expects to break ground on the first planned building called "Water Tech I" in Spring 2015.

The Water Council has recently announced new partnerships creating buzz amongst water entrepreneurs, small water businesses and water organizations around the country.

Matching Capital with Water Innovation

JP Morgan Chase & Co.'s Small Business Forward initiative is a $30 million, five-year initiative to support small businesses around the U.S. by connecting them to critical resources to help them grow faster, create jobs and strengthen local economies. Announced in August, The Water Council will bring together North America's investment community and water technology entrepreneurs to match capital to water technology innovation. The Water Council will identify and train potential investment sources on the importance and potential of investing in water technology. An investor conference will also be held with entrepreneurs to showcase the various technologies available for investment dollars. The program is expected to expand nationally and internationally in subsequent years.

U.S. Small Business Administration Regional Innovation Cluster

Most recently announced was an award from the U.S. Small Business Administration, designating The Water Council as a Regional Innovation Cluster. This partnership will establish the Center of Excellence (CoE) of Freshwater Innovation and Small Business Development, which will be a major resource for small to medium-sized water companies in need of the tools that will enable them to grow. Some of the services offered include: international training, programming with the Department of Defense, and matchmaking and mentoring. Another component of this partnership is the creation of the Water Collaborative Innovation Platform, a software-based platform, linking Milwaukee's water technology cluster to companies, researchers and projects across the country, in ways never before seen. It will allow users to initiate challenges, propose solutions, improve proposals through comments and co-authorship, and rate, rank and vote for proposals. The software is currently in beta, and will launch in 2015.

The Global Water Center is buzzing with activity, and that energy, once contained within the walls of the building has begun to spill out to the surrounding area; Reed Street Yards is prime for development, the Historic Walker's Point Neighborhood has seen long shuttered warehouses find new life with new commercial and residential uses, and The Water Council has garnered significantly more attention from a global audience. With the continued success of The BREW accelerator, the creation of the Center of Excellence for Freshwater Innovation and Small Business Development, and the JPMorgan Small Business Forward programming, The Water Council's vision of being the globally connected epicenter of freshwater research, innovation, education and business development is truly being realized. Looking for innovative water technology solutions or interested in applying to The BREW? Visit The Water Council's website at *thewatercouncil.com* or call 414-988-8750. CS

Click HERE to return to Table of Contents

Regulatory Update
Waters of the United States

By Brandon Koltz,
Brandon Koltz Water & Environmental Consulting LLC

The *Clean Water Act* and its amendments establish a detailed framework for the preservation and restoration of the chemical, physical and biological integrity of the nation's surface water waters. The United States Environmental Protection Agency is charged with implementation and enforcement of the *Clean Water Act* in collaboration with state environmental regulatory agencies. Even after 42 years, a precise definition of which waters are subject to federal regulation is not clear. Court cases (*Rapanos v. United States,* 547 U.S. 715 (2006)) and (*Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001)) created further questions regarding federal authority over local waters by excluding certain waters from coverage by the Clean Water Act. U.S. EPA does not regulate groundwater directly, except as a drinking water supply, but the health of our surface water is increasingly recognized as being dependent on the nexus of groundwater, wetlands and surface waters.

U.S. EPA has published a draft proposal to clarify the definition of Waters of the United States for comment. The clarification is intended to better define:

- Which seasonal and rainfall dependent streams are protected.
- Wetlands near streams and rivers would be protected.
- Waters with less certain connections to downstream waters would be evaluated on a case by case basis.

The U.S. EPA details concerning the rule can be reviewed at *www2.epa.gov/uswaters/proposal-protect-clean-water*.

Many organizations, including WEF, have examined the proposal and provided comments. Some questions still remain:

- When is a constructed ditch covered?
- When are agricultural water supply channels covered?
- Could storm water control BMP components, implemented as part of a MS4 permit program be themselves waters of the United States?
- Might constructed treatment facilities, such as treatment ponds or wet weather retention facilities be interpreted to be waters of the United States?

WEF presented a webinar November 6 with different perspectives on the proposed rule. For our membership, key issues are further definition of the regulatory framework for MS4 facilities and specific exclusion of wastewater treatment impoundments. The WEF Government Affairs Committee has prepared draft comments proposing further clarifying and exclusionary language:

- Specific exclusion of wastewater effluent storage ponds and recycling facilities.
- Does the proposal open the door for NPDES permitting of currently non-point sources?
- Clarify the relationship between this proposal and "Waters of the State."
- Wastewater spreading grounds, wastewater treatment ponds/lagoons and constructed wetlands should be specifically excluded.
- Clarification that the wastewater facilities located adjacent to rivers and lakes do not become designated "WOTUS."
- "Tributary" is still too broadly defined and may bring many ditches and stormwater control features under WOTUS jurisdiction.
- Design Storm Issue for "Nexus" Determinations – very large storms may bring a significant area and infrastructure features into the consideration for adjacent regulated areas.
- Stormwater management and treatment systems should be specifically excluded.

U.S. EPA also received a report from the Local Government Advisory Committee (LGAC) with respect to the proposed revisions. The LGAC is a formal advisory committee chartered under the *Federal Advisory Committee Act* and has been in existence since 1993. It is composed of 28 local, state, and tribal elected and appointed officials, from around the country and provides advice and recommendations to the EPA Administrator from the local perspective. Their report can be found at *http://www.epa.gov/ocir/pdf/11.5.14_w.o.t.u.s._report.pdf*.

The LGAC presented a portion of the WEF webinar focused on "Potential Impacts of Waters of the U.S. Rulemaking on Stormwater Infrastructure." The webinar content can be found at *http://www.wef.org/MS4_WOTUS/*. Key recommendations from the presentations include:

There is agreement for a foundational premise of support for clean water.

- Permitting process is a key issue.
- Definitions in the rule need more clarity.
- Exemptions need to be clear – especially for agriculture.
- Implementation cost at the local level remains a concern.
- MS4s and other opportunities to innovate locally must be preserved.

For MS4 issues specifically, the committee recommends:

1. The LGAC recommends that manmade conveyance components of MS4s be exempt from Waters of the United States. This includes manmade green infrastructure, roads, pipes, manmade gutters, manmade ditches, manmade drains, and manmade ponds.
2. The LGAC recommends that natural conveyance components of MS4s are included in Waters of the United States. This includes natural wetlands and associated modifications to natural wetlands.
3. The LGAC recommends that the rule incentivize green infrastructure projects.
4. The LGAC recommends that the EPA work directly with stormwater associations to provide guidance to best address MS4s and stormwater controls and their jurisdictional determinations.

The proposed rules, inclusion of recommended additions and modifications should provide clarity to the regulated community with respect to waters federally regulated.

States have varying authority and regulations that have developed out of their specific water use, availability, and history. Our three states in fact have regulatory authority over more water issues than the federal government. This stems all the way back to English common law and the original Northwest Territory Charter. The Central States have authority over groundwater withdrawals as well as groundwater quality protection, greater oversight for wetlands and control of drainage issues.

Illinois broadly defines state waters in the Illinois Administrative Code:

Section 301.440 Waters

"Waters" means all accumulations of water, surface and underground, natural, and artificial, public and private, or parts thereof, which are wholly or partially within, flow through, or border upon the State of Illinois, except that sewers and treatment works are not included except as specially mentioned; provided, that nothing herein contained shall authorize the use of natural or otherwise protected waters as sewers or treatment works except that in-stream aeration under Agency permit is allowable. *http://www.ipcb.state.il.us/documents/dsweb/Get/Document-33352*

Minnesota has evolved regulated waters since statehood inception in 1858:

> The conservation and protection of Minnesota's surface waters began to evolve shortly after Minnesota achieved statehood. In addition to promoting the doctrine of riparian rights, legal protection was generally afforded to deeper "meandered" lakes and "navigable waters." However, these early laws were primarily intended to promote the drainage of Minnesota's numerous shallow lakes and marshes. The intent was to convert these "waste" lands to productive agricultural lands.
>
> In 1897, Minnesota Law first adopted the term **public waters**. These public waters included only those larger meandered lakes and streams that were capable of beneficial public uses such fishing, fowling, boating, or water supply. All other waters were considered "private" and their fate was of no interest to the state. Even public waters could be legally drained provided the project was approved by the county board of commissioners.
>
> In 1919, the Office of State Drainage Commissioner was created to oversee the administration of the already numerous and conflicting drainage laws. The effect of this action was to transfer the power to regulate "legal" drainage from county to state government. By 1933, the new Department of Conservation (now known as the Department of Natural Resources) acquired the authority over drainage and water matters. The severe drought of the mid-1930s finally demonstrated the need for

> "The severe drought of the mid-1930s finally demonstrated the need for more serious protection of our surface and underground waters as waters of the state."

more serious protection of our surface and underground waters (i.e., within soils, water basins, watercourses, and aquifers) as **waters of the state**. The state would exercise permitting authority over these waters with respect to their use or appropriation for commercial, industrial, or agricultural purposes. The intent was to protect the public's interest in the amount of water available for use.

The state's second authority was set forth in 103A.201. This section stated that those waters of the state that served beneficial public purposes were public waters subject to control by the state for any work that would change the waters' course, current, or cross section. The state intended to protect not only the amount of public waters but also the "container" (i.e., lake, stream, wetland) that confined these waters.

During the next 39 years, a considerable controversy developed over which waters of the state were public waters, where these waters were located, and how much authority the state [i.e., the Department of Natural Resources (DNR)] had over them. The major cause of the controversy was the accelerating destruction of wetlands for agricultural use and urban development. These problems were further aggravated by a general feeling of distrust for government regulation. The DNR largely rectified the issue of how much authority it exercised over public waters by promulgating specific rules governing the issuance and denial of public waters work permits. The Minnesota Legislature, in 1976 and 1979, attempted to address the issues of which waters of the state were public waters and where they were located by establishing the **Public Waters Inventory Program** (re: Laws of Minnesota 1976, Chapter 83 and Laws of Minnesota 1979, Chapter 199). (Source: *http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/history.html*)

Wisconsin also broadly regulates surface waters, wetlands and groundwater.

> Wisconsin lakes and rivers are public resources, owned in common by all Wisconsin citizens under the state's Public Trust Doctrine. Based on the state constitution, this doctrine has been further defined by case law and statute. It declares that all navigable waters are "common highways and forever free," and held in trust by the Department of Natural Resources
>
> The court has ruled that DNR staff, when they review projects that could impact Wisconsin lakes and rivers, must consider the cumulative impacts of individual projects in their decisions. "A little fill here and there may seem to be nothing to become excited about. But one fill, though comparatively inconsequential, may lead to another, and another, and before long a great body may be eaten away until it may no longer exist. Our navigable waters are a precious natural heritage, once gone, they disappear forever," wrote the Wisconsin State Supreme Court justices in their opinion resolving Hixon v. PSC.(2)"
>
> Source: *www.dnr.wi.gov/topic/waterways/about_us/doctrine.htm*

Paul Kent, a member of the Wisconsin Section Government Affairs Committee and attorney for the Municipal Environmental Group, a consortium of Wisconsin Water Reclamation Facilities that advocates with respect to proposed legislation and rulemaking, has authored a current summary of water regulations, *Wisconsin Water Law in the 21st Century*. Information on that publication can be found at *http://www.wisconsinwaterlaw.com/*.

To summarize, the proposal to better define Waters of the United States should provide clarity and consistency across the nation regarding waters subject to federal regulations under the *Clean Water Act*. More than 100,000 comments have been received to date. Improvements with respect to the exclusion of stormwater and wastewater management facilities from WOTUS and other recommended modifications will further improve and narrow the definition. The comment period closed November 14, 2014. Response to comments will be forthcoming in 2015. Updates on the rule finalization can be found on the WEF website. CS

2015 | 2016

WEF, OTHERS URGE FUNDING FOR WIFIA, SRF, AND NO CHANGES TO TAX-EXEMPT MUNICIPAL BONDS

Early in November, the Water Environment Federation (WEF) and other leading water organizations sent letters to Congress, the Office of Management and Budget Director Shaun Donovan and the Environmental Protection Agency (EPA) Administrator Gina McCarthy, requesting that Congress and the Administration provide full funding to the newly authorized *Water Infrastructure Finance and Innovation Act* (WIFIA) as well as include it in EPA's FY15 and FY16 budgets.

Along with American Water Works Association (AWWA), Association of Metropolitan Water Agencies (AMWA), and the National Association of Clean Water Agencies (NACWA), WEF also requested that the funding level for the Drinking Water and Clean Water State Revolving funds (SRFS) be maintained and no changes be made to the tax benefits of tax-exempt municipal bonds.

The WIFIA program is authorized to receive $25 million in FY16, which would equal approximately $250 million in loans for water infrastructure projects. As has been documented by advocates on and off Capitol Hill, the WIFIA pilot is intended to supplement the SRFs by delivering a new stream of low-cost financing for large-scale water and wastewater projects that are unlikely to meaningfully benefit from traditional SRF financing.

The organizations stress that, "EPA must seek funding for WIFIA in its FY16 budget request, alongside its request for maintaining level funding for the SRF programs. The 2016 fiscal year is pivotal, as it will represent the first federal budget request issued after WIFIA's enactment, and therefore represents the first opportunity for Congress and the Administration to think about the pilot program in the context of EPA's overall budget."

As long-time WIFIA advocates, WEF, AWWA, AMWA, and NACWA have participated in EPA's listening sessions on the pilot and will continue to offer assistance and support as the program gets under way.

The letter to Congress requests that the FY15 Interior & Environment Appropriations bill fund the program's $20 million FY15 authorization is necessary to allow the EPA to move forward with its ongoing work to stand up the program. The letter also notes that WEF, AWWA, AMWA, and NACWA continue to receive resounding support from the drinking water and wastewater agencies that they represent who strongly desire a WIFIA program to help address the nation's increasing infrastructure needs. CS

American Water Works Association
IllinoisSection

WATERCON 2015

Total Water Conference

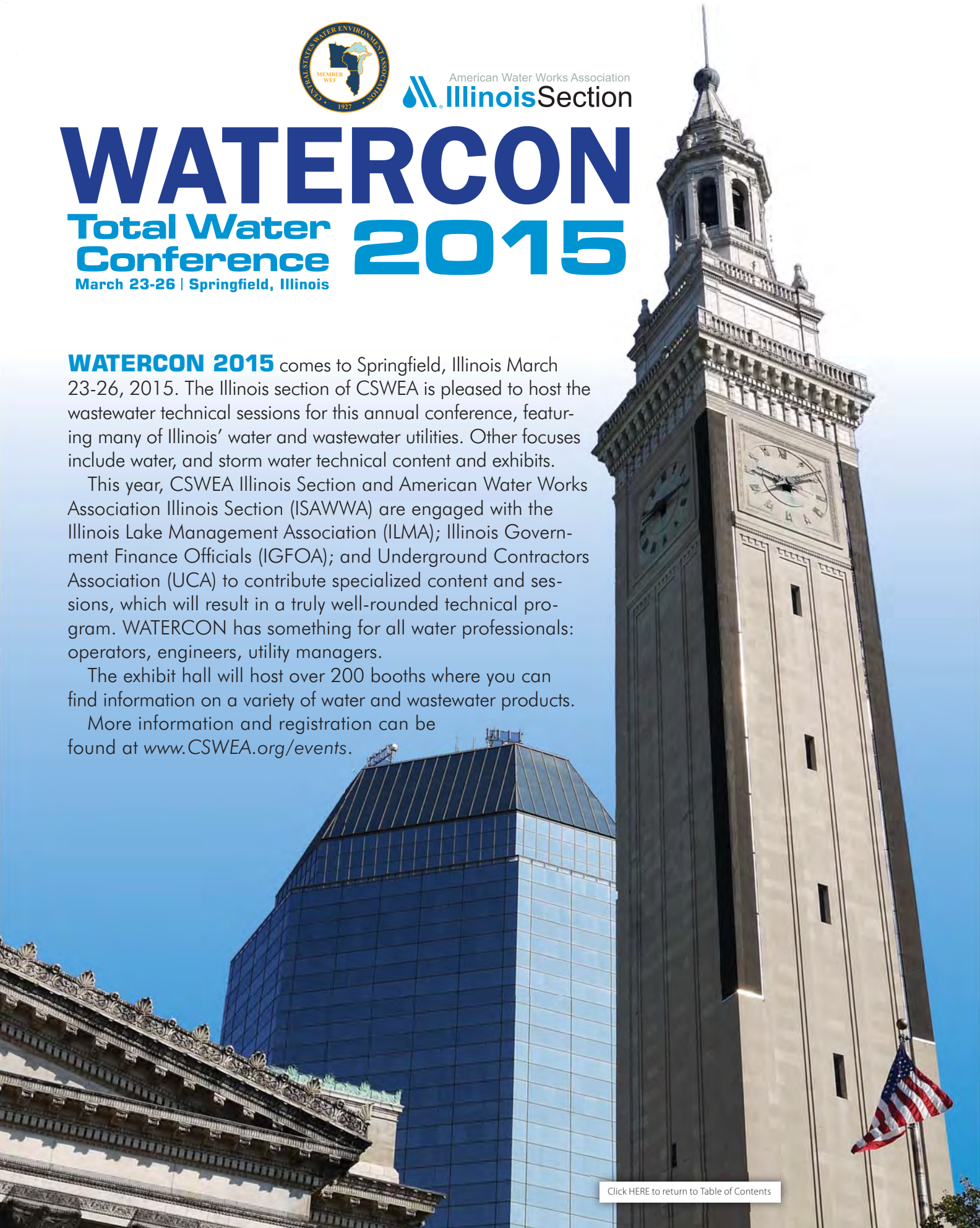
March 23-26 | Springfield, Illinois

WATERCON 2015 comes to Springfield, Illinois March 23-26, 2015. The Illinois section of CSWEA is pleased to host the wastewater technical sessions for this annual conference, featuring many of Illinois' water and wastewater utilities. Other focuses include water, and storm water technical content and exhibits.

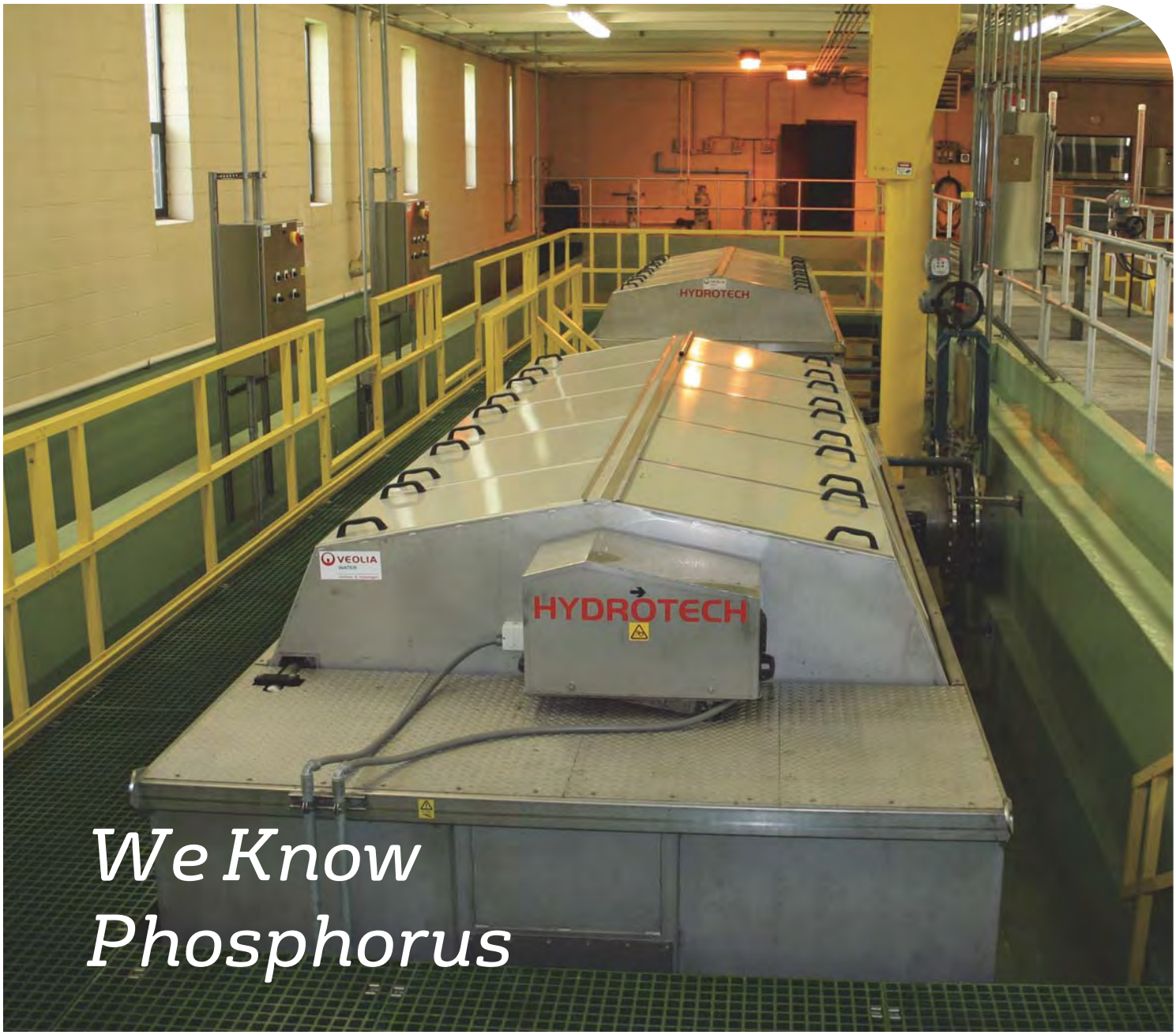
This year, CSWEA Illinois Section and American Water Works Association Illinois Section (ISAWWA) are engaged with the Illinois Lake Management Association (ILMA); Illinois Government Finance Officials (IGFOA); and Underground Contractors Association (UCA) to contribute specialized content and sessions, which will result in a truly well-rounded technical program. WATERCON has something for all water professionals: operators, engineers, utility managers.

The exhibit hall will host over 200 booths where you can find information on a variety of water and wastewater products.

More information and registration can be found at *www.CSWEA.org/events*.



Click HERE to return to Table of Contents



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SAVE THE DATE

PLEASE JOIN US NEXT YEAR AT

CSWEA's 88th Annual Meeting

May 18-20, 2015

Drury Lane, Oakbrook Terrace, Illinois

New Utility registration pricing: send more, save more!
See page 47 for details.

88th Annual Meeting Highlights

The 88th Annual Meeting of the Central States Water Environment Association, Inc., will be held May 18-20, 2015 at the Drury Lane, Oakbrook Terrace, IL. This year, we will be introducing new sessions on Soft Skills/Leadership as well as continuing our Utility Pricing, Ethics Sessions and Utility Management Track.

NEW SOFT SKILLS/LEADERSHIP SESSIONS

This year's conference will feature sessions on soft skills/leadership to provide options for attendees looking to hone their interpersonal, management and communication skills.

Examples of topics that will be featured:

- Leadership Training
- Managing the Ill or Injured Employee
- Anti-Harassment and Discrimination Training for Managers
- Getting the Most Out of Employee Performance Evaluations
- We Negotiated the Agreement – Now What?
- Handling the Grievance and Arbitration Process
- Managing in a Union Environment
- The Basics of Labor Law
- 10 Things Every Manager Should Know About Labor Law
- Top 10 Employment Law Issues
- Stumbling into Violations: Do Handbooks and Policies Violate Labor Law?
- Management Rights for Managers
- Social Media and the Workplace

UTILITY MANAGEMENT TRACK

This fourth track consists of operations and utility management topics. Troubleshooting, optimization studies, case studies, completed projects are an example of the topics that will be included for Operators in the Utility Track. Leadership, financial planning, retention and sustainability practices are examples of topics that will be included for managers in the Utility Track.

ETHICS TRAINING

Two hours of ethics training, as required by WI Professional Engineer Certification Requirements, will be added to the program as well for those engineers that require this to maintain their license.

Topics that will be featured at the Annual Meeting:

- Operations and Maintenance
- Resource Recovery – Nutrients and Energy
- Technology/SCADA/Web-based Maintenance Programs/ GIS Applications
- Troubleshooting
- Case Studies
- Summary of completed projects
- Optimization
- Nutrient Removal
- Process Control
- Start-up Issues

UTILITY MANAGEMENT

- Succession Planning
- Project Funding
- Utility Rate Development and Reviews
- Employee Retention
- Communication

ENERGY PRODUCTION, RECOVERY and EFFICIENCY

- Digester Gas Technologies
- Co-digestion
- Heat Recovery Technologies
- Efficiency (pumps, motors, lights, UV disinfection, HVAC, etc.)

COLLECTION SYSTEMS

- Collection System Rehabilitation Technologies/Methods
- CMOM Program Development and Implementation
- Collection System Design and Operation
- Green Infrastructure – Examples in Practice
- Infiltration/Inflow Management
- Stormwater and Combined Sewer Overflow Management

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
- National Biosolids Partnership
- 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/Bench-Scale Studies
- Pretreatment, Industrial Treatment and Pollution Prevention
- Regulatory Issues
- Security Issues
- Engineering Ethics Training

UTILITY REGISTRATION PRICING

Based on market studies and extensive interviews with our membership, CSWEA will continue to offer flat rate pricing for the Annual Meeting to utilities. The pricing allows utilities to pay a flat fee for registration depending on their treatment plant design size. For that price, they can send as many people as they want to the annual meeting. They would still have to purchase event and meal tickets separately for each individual. The only included meals would be the continental breakfasts, coffee/snacks and the Exhibitor box lunch.

Five tiers have been setup for the Utility registrations depending on the size of the utility.

PRICING TIERS

MICRO UTILITY (<1 MGD or Collection Only) @ $150 for Annual Meeting
SMALL UTILITY (1-5 MGD) @ $250 for Annual Meeting
MEDIUM UTILITY (5-10 MGD) @ $500 for Annual Meeting
LARGE UTILITY (10-25 MGD) @ $800 for Annual Meeting
MEGA UTILITY (> 25 MGD) @ $1200 for Annual Meeting

COST COMPARISON (OLD vs. NEW)

An example of the cost savings is below.

OLD Pricing

Sample Pricing for a 7 MGD Treatment Plant
Old Pricing w/ 6 attendees

Attendee	Reg Type	Reg Cost	Events	Meals	Sub-Total
District Manager	Full	$325	$110	$120	$555
Asst Manager	Full	$325	$95	$105	$525
Chief Operator	Full	$325	$-	$45	$370
Maint Manager	Wed Only	$190		$45	$235
Operator 1	Wed Only	$175			$175
Operator 2	Tue Only	$190			$190
TOTAL		$1,530	$205	$315	**$2,050**

New Utility Pricing w/2 more Operators and 1 Trustee Attending

Attendee	Reg Type	Reg Cost	Events	Meals	Sub-Total
Utility Regn	5-10 MGD	$500	$-	$-	$500
District Manager	Full	$-	$110	$120	$230
Asst Manager	Full	$-	$95	$105	$200
Chief Operator	Full	$-	$-	$45	$45
Maint Manager	Wed Only	$-	$-	$45	$45
Operator 1	Wed Only	$-	$-	$-	$-
Operator 2	Tue Only	$-	$-	$-	$-
Operator 3	Wed Only	$-	$-	$-	$-
Operator 4	Tue Only	$-	$-	$-	$-
Trustee	Wed	$-	$-	$120	$120
TOTAL		$500	$205	$315	**$1,140**

SAVE $900 AND SEND MORE PEOPLE!

Send More, Save More!

10th Annual Midwest Water & Wastewater Operator Expo

February 3-4, 2015 | Kalahari Resort, Wisconsin Dells

Jointly sponsored by Central States Water Environment Association & Wisconsin Water Association

Why Two Days?

The expo is the same both days, but the extra-curricular events and sessions are different each day. Our goal is to allow utilities to split their staff and allow more personnel to attend!

Why Should You Attend?

- Vendor talks and classroom educational opportunities.
- Vendors showcasing all the latest technology in equipment and service.
- You can earn four (4) water/wastewater credits/hours per day.
- To have a getaway at a family-friendly water park resort in February.
- $104/night room rates (including water park passes).
- Raffle prize drawing daily (NEW THIS YEAR: earn your tickets by attending in-booth talks and classroom sessions – the more you learn the more you earn!)
- Networking, fun and excitement!

The Expo, sponsored by Central States Water Environment Association (CSWEA) & Wisconsin Water Association (WWA) is host to major manufacturers in the water and wastewater industry. Learning, networking and sharing product information will be centerstage at the Expo. Some highlights include:

- 10-minute scheduled in-booth talks
- 25-minute classroom sessions
- Safety refresher course (including certificate)
- Workshop on Tuesday: Effective Study Habits to Pass DNR Operator Certification Exam
- Raffle prize drawings daily (NEW THIS YEAR: earn your tickets by attending in-booth talks and classroom sessions – the more you learn the more you earn!)
- Networking opportunities

Other Events Happening at the Expo:

(Watch for further information and register separately for these events)

Tuesday

WWA Distribution Conference
Meter Madness Competition

Wednesday

Process Instrumentation and Control for Today's Operator - 2015 CSWEA Operations Workshop

Central States Water Environment Association will be continuing its Operation Workshop series with a "technology meets nutrients" themed event on February 4. The workshop will focus on recent technological and instrumentation advancements with a focus on full-scale operating facilities. A mix of presentations, conversation starters and "bull sessions" are planned promoting an opportunity to share and receive relevant useful information for all attendees. Featured speakers include:

Rusty Schroedel – Past President CSWEA
KC "Kumar" Upendrakumar – Veolia North America
Todd Schwingle – Veolia Milwaukee
Alan Grooms – Madison MSD
Sharon C. Long Ph.D. – University of Wisconsin
Sam Warp, Jr. – Marshfield, WI

Collection System Flow Metering and Sampling Demonstration

Registration Fee Per Person: $50/Both Days or $35/One Day
(Includes continental breakfast and lunch)

Register at *www.cswea.org/events*

Continuing Education Credits: You can earn four water/wastewater credits/hours per day (Wisconsin operators must sign in and out at the registration desk to be eligible for credits).

Online Registration Available at: www.wiawwa.org

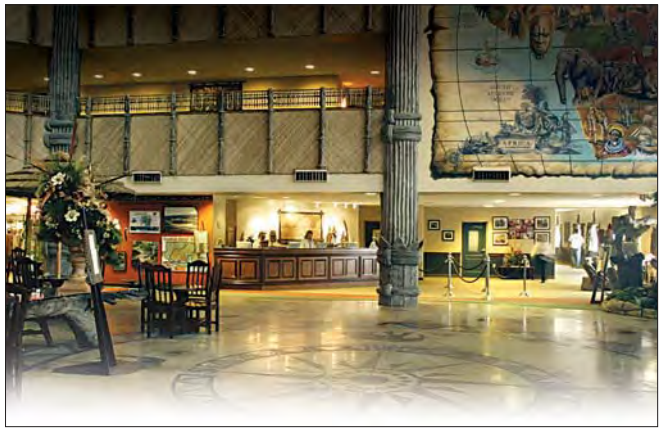
Hotel Information

Kalahari RESORTS

1305 Kalahari Drive, Wisconsin Dells

Reservations

877-253-5466
$104.00/night
Includes four water park passes per room
The reservation cut-off date: 1/3/2015.



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MSW strives to meet and exceed customer expectations by partnering with leading manufacturers, offering the latest in products and services to the water and wastewater industry.

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CSWEA 2015 EVENTS CALENDAR

JANUARY

IL Section Government Affairs Seminar (w/ IAWA)
February 25, 2015
Pres. Abraham Lincoln Hotel, Springfield, IL

FEBRUARY

Midwest Water Industry Expo (w/ WWA)
February 3-4, 2015
Kalahari Resort, Wisconsin Dells, WI

MN Section Innovative Conference
February 10, 2015
Holiday Inn, St. Cloud, MN

WI Section Winter Board Meeting
February 25, 2015, 2PM
Madison Marriott West, Madison, WI

WI Section Government Affairs Seminar
February 27, 2014
Madison Marriott West, Madison, WI

MARCH

IL Section WaterCon 2015 (w/ ISAWWA)
March 23-26, 2015
Crowne Plaza Hotel, Springfield, IL

WI Section Spring Biosolids Symposium
March 2015 (tbd)
Stevens Point, WI

APRIL

Student Paper & Design Competition
April 6, 2015
Monona Terrace, Madison, WI

20th Annual Education Seminar on Nutrients
April 7, 2015
Monona Terrace, Madison, WI

MAY

88th Annual Meeting
May 18-20, 2015
Drury Lane, Oakbrook Terrace, IL

JUNE

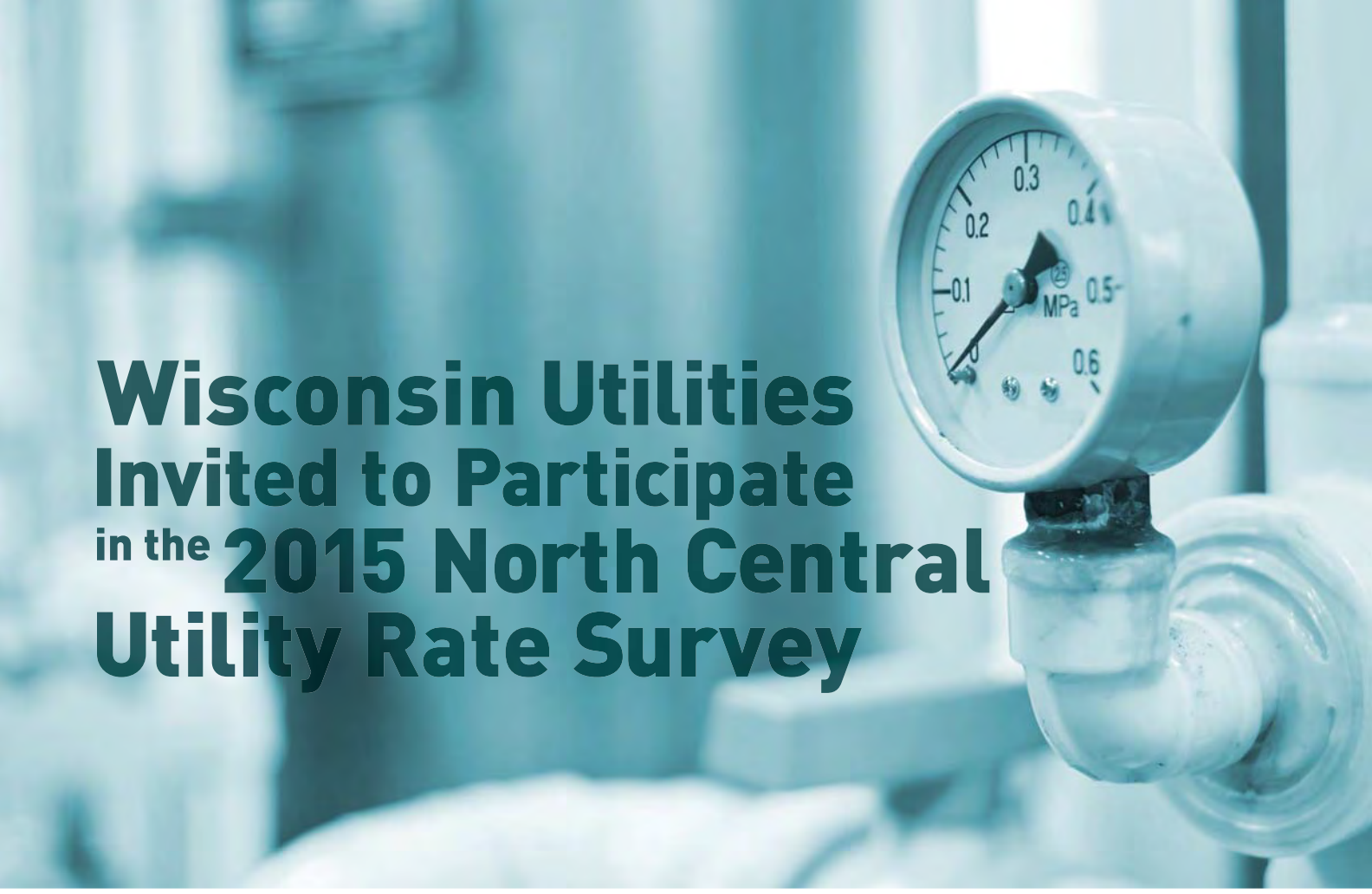
IL Section Technology Conference (w/ ISAWWA)
June 4, 2015
College of Lake County, Grayslake, IL

WI Section Classic Collection System Seminar
June 2015 (tbd)
Watertown, WI

JULY

WI Section Northwoods Collection System Seminar
July 2015 (tbd)
Marshfield, WI

For up-to-date CSWEA events, visit our website *www.cswea.org.*



Wisconsin Utilities Invited to Participate in the 2015 North Central Utility Rate Survey

In the first quarter of 2015, AE2S Nexus will conduct its 14th annual survey of water, wastewater, stormwater, and solid waste utility rates. In 2002, AE2S began the annual survey of water, wastewater, and solid waste utility charges for residential users. The intent of the survey is to provide a local benchmark for utilities in what AE2S calls the "North Central Region" which includes Wisconsin, Minnesota, Montana, North Dakota, South Dakota, and Wyoming. This is the second year that Wisconsin utilities are invited to participate. "We received responses from a handful of Wisconsin participants in 2014 and we're hoping many more will complete the rate survey in 2015," says Miranda Kleven, PE, AE2S Nexus Financial Analyst. "As participation increases, the accuracy of the data also increases and the results become even more useful to the utilities in each state as well as the entire region."

Since 2002, water and wastewater utilities in our region have increased the charge for 6,000 gallons of water/wastewater service per month by an average of 4.4 percent per year. This compares to an average Consumer Price Index (CPI) of 2.3 percent per year. The story across the country is similar, though data is generally available for only larger systems across the nation.

Results of the 2014 survey showed the average reported monthly charges for water and wastewater in our region were $29.98 and $28.95, respectively. The average reported monthly charge for stormwater was $4.09. In all, 224 communities participated in the 2014 survey. That number includes 108 systems that serve populations of 5,000 people or more, 81 systems serving populations less than 5,000 people, and 35 regional systems. "Many utilities find the data found in the annual survey to be a useful planning resource in support of ongoing revenue adequacy, cost of service, and utility rate planning efforts," says Kleven.

Previous participants will receive an email inviting them to complete the 2015 survey online, and new participants can access the survey by going to *ae2s.com* or *ae2sNexus.com*. Paper copies of the survey questionnaire are also available by request. After AE2S Nexus staff receives the completed surveys, the data is analyzed and compiled into two unique reports based on community population. One of the reports includes data from the rate survey responses from communities with populations of 1,000 to 4,999 people and Regional/Rural Water Systems. The second report is based on survey responses from communities with populations of 5,000 people or more.

The results of the survey are also reported based on an average monthly residential water use value of 6,000 gallons. The survey also includes questions about commercial water and wastewater charges in order to track the cost of 6,000 gallons of water or wastewater for commercial users.

"I encourage all Wisconsin utilities to participate. We send a complimentary copy of the North Central Region Utility Rate Survey to each participating utility, so they can use the data to help guide their rate decisions," says Kleven. The North Central Region Utility Rate Survey booklets are usually delivered mid-year.

The AE2S North Central Region Utility Rate Survey is completed annually by AE2S Nexus. For more information about the Rate Survey or AE2S Nexus, please contact Miranda Kleven, PE, AE2S Nexus Financial Analyst, at 701.746.8087 or *Miranda.Kleven@ae2s.com*. CS

Click HERE to return to Table of Contents

CSWEA Welcomes Our New Members

August 2014

James Gassen, Honeywell
Kimberly Scherber
Tim North, Cretex Pressure Pipe
Sara Breitzman
Brian Wise, Nanostone
Cameron Palmer
Maie Zagloul, Divine Savior Holy Angels High School
Emerald Thompson-Jereczek
Austim Cao
Libby Cavanaugh, HNTB
Christine Neumann
Crystal Moynan
Alex Booton
Jeffrey Edstrom
Bipin Ranade, Honeywell
Eric Doescher, UW - Whitewater

September 2014

Francisco Moya, UW - Madison
Andrea Dunn
Christopher Fox, Univar
Marta Grabowski
Rich Rinchich, City of Oak Forest
Hasibul Hasan
WL Dougan, UW-Whitewater
Jacqueline Strait, HR Green
Richard Nelson
Julia Macejkovic, Barr Engineering

October 2014

Gary Anderson, Evoqua
Alan Arens, Visu-Sewer

November 2014

Michelle Gillette - Murphy, MWRD Charles Bodden
Amine Dahab
Daniel Dummett - Allied-Locke Industries
Josh Ellis - Metropolitan Planning Council
Bridget Osborn
Chris Plautz - City of St. Cloud
Bridget Osborn
Joseph Weidemann - Brierly Associates Corp

Responding to Change

By Julie McMullin

As I look out my window today, I see that change is coming. The leaves on the trees have changed colors and some trees have lost all of their leaves already, all indicating that winter is coming. I listen to the news and hear the world is changing, as it always does. We continue to deal with the "new normal" financially, which translates to tighter budgets and less discretionary income for things like conferences. Our environment continues to change, with more regulations and standards being implemented, aging infrastructure, and fewer funds to pay for them. And new concerns pop up, such as how to handle the waste of Ebola patients and how our current treatment methods weigh against viruses that we may or may not know much about. Change is inevitable and constant, and something we must deal with to survive.

So how do we deal with change? As you may or may not know, I have two small children. The only thing consistent about kids is that they are inconsistent, and as a parent, you have to learn how to quickly deal with changes. The same could be said about managing projects and leading an organization or committee. I have found that flexibility, adaptability, teamwork, and communication are essential skills in dealing with this change.

FLEXIBILITY

When mentioning flexibility, I'm not referring to how good you are at the Limbo or Twister, but rather how quickly you can move from one thing to another. Recognizing the need to change course and then doing it is a critical skill for dealing with change.

ADAPTABILITY

Once you alter course, you need to be able to adjust and adapt to the change ahead. An example of this is our section's membership committee. In past years, we have struggled to get this committee moving forward. On November 12, the Wisconsin section holds our Annual Business Meeting and at that time we will vote on whether or not to combine this committee with the Public Education Committee. Both committees have common members and goals, so combining the committees will allow them to maximize their resources and benefits.

TEAMWORK

Just as it is best when my husband and I work together to deal with a child meltdown, it is best to work with each other rather than against one another. As I've said before, the volunteers in the Wisconsin section of CSWEA are great and work together to hold terrific conferences and webinars. The section board also works well as a team to keep the section healthy and moving forward.

During our meeting on November 12, we will elect a new Vice Chair and Section Trustee. Both nominees will be excellent additions to the CSWEA-WI team. In addition, our CSWEA team leader, Executive Director Mohammed Haque, is tops when it comes to responsiveness and communication.

COMMUNICATION

Communicating what changes are coming and how to deal with them is essential. In project management, the level of communication can make or break a project: too little communication can result in scope creep, mistakes, and misunderstandings. Speaking of good communication, the Management Seminar Planning Committee recently reached out for help in their search for new members. A number of their members have recently retired or are planning to retire in the near future. Please contact me if you are interested in joining this committee. Also thank you to Tom Krueger for posting the *help wanted* for this group.

Even if we stay the same, the world around us will always change. We need to use skills like flexibility, adaptability, teamwork, and communication to leverage our ability to deal with change. CSWEA provides great opportunities for learning, practicing, and perfecting these skills. CS

"Even if we stay the same, the world around us will always change. We need to use skills like flexibility, adaptability, teamwork, and communication to leverage our ability to deal with change."

Click HERE to return to Table of Contents

Your Contribution Is Never Too Small

By Tracy Hodel

Below is another quote that was included in my first Message from the Chair that talked about HOW TO MAKE A DIFFERENCE. Any contribution that you can provide; be it an idea, implementation of that idea, participating on coordinating workshops, etc., does MAKE A DIFFERENCE.

"Nobody can do everything, but everyone can do something." ~ Author unknown

The 29th Annual Conference on the Environment was held November 19 at the University of Minnesota St. Paul's Continuing Education Campus. A big thank-you to Tracy Ekola, Minnesota Section Past Chair and co-chair of the conference along with several other Minnesota Section members who put in a lot of work, with the help of Air & Waste Management Association members, to put together the conference. It was a huge success, with attendance at its record high of 282 attendees. The popularity of this conference continues to grow and in order to accommodate the growth, we will be moving to a new location at the Minneapolis Convention Center in 2015.

The Minnesota Section Annual Business Meeting was held in conjunction with the Conference on the Environment.

HIGHLIGHTS FROM THE ANNUAL BUSINESS MEETING

- Chris Harrington was voted in as the incoming Vice Chair.
- Tracy Ekola, Government Affairs Committee Chair, presented a summary of the Fly-in Application Process. The Fly-in to Washington, D.C. is scheduled for April 12-18, 2015. For more information on the application process, please contact Tracy Ekola or me. Applications are due December 31, 2014.
- Patti Craddock, Public Education Committee Chair and Executive Committee Past Chair, provided a summary of CSWEA Strategy Map and initiatives.
- Anna Munson, Vice Chair of the YP & Students Committee, provided a summary of a draft guidance document to be used by YP & Students Committee members, which includes a succession plan for the Chair of the Committee.
- Peter Daniels, the Industrials Committee Chair, provided a brief summary of the committee meeting that was held in September. Goals for this committee were established at that meeting.

The next Minnesota Section event will be the Innovative Conference that will be held on February 10, 2015 at the Holiday Inn in St. Cloud, Minnesota. This popular conference will have an Operations, Regulatory, and Collection track. The one-day conference will end with what is called "Innovative Quickies" where operators provide a 5-10 minute talk on some innovative solutions to everyday issues.

The next CSWEA Annual Meeting will be held on May 18-20 at Drury Lane, in Oakbrook Terrace, Illinois. The new utility pricing was a big success at the 2014 Annual Meeting. Please do what you can to get the word out about the cost savings that can be realized by using this new registration structure. The utility pricing for the 2015 Annual Meeting has not been finalized yet, but below is the utility pricing that was in place for the 2014 Annual Meeting. The tiers are based off the design size of the treatment system or transported flow. For that price, each utility can send as many people as they want to the annual meeting.

PRICING TIERS

Micro Utility (<1MGD) @ $150 for Annual Meeting
Small Utility (1-5MGD) @ $250 for Annual Meeting
Medium Utility (5-10MGD) @ $500 for Annual Meeting
Large Utility (10-25MGD) @ $800 for Annual Meeting
Mega Utility (>25MGD) @ $1,200 for Annual Meeting

Thank you to all of you who have contributed in 2014. Remember that any action or effort you can contribute DOES MAKE A DIFFERENCE, no matter how small. Contact me or anyone listed on the website under the Minnesota Section on how you can contribute. CS

"The next Minnesota Section event will be the Innovative Conference that will be held on February 10, 2015 at the Holiday Inn in St. Cloud, Minnesota. This popular conference will have an Operations, Regulatory, and Collection track."

WEFTEC: How Our Industry Grows

By Rich Hussey

While reflecting back on WEFTEC 2014 in New Orleans, I discovered there was plenty of great food, a lot of night establishments where I accidently ran into many of our CSWEA members visiting (it is humid down in New Orleans, so dehydration can set in; it was good to see many holding refreshments in their hands), but more importantly, there were plenty of educational and networking opportunities. WEFTEC has allowed more training opportunities, free exhibition passes, established 24 technical sessions (collection systems, disinfection, energy, operations and maintenance, nutrients, odors, residuals and biosolids, and many more), and 11 mobile sessions on the exhibition floor.

For those who attend, they understand it can be overwhelming: the amount of technical presentations that one usually wishes to attend, the exhibition floor being so large that it takes days to completely walk through it, the various operations challenges, poster presentations, educational tours, etc. What does this all mean? What are 20,000 attendees and 1,000 exhibitors doing at this conference? It demonstrates that our industry is important, the work we do is critical to our environment, and our industry continues to evolve.

It is important that an organization identify the challenges and the needs of the members and continually attempt to address them so they stay important to its members. WEF has attempted to accomplish this through additional webinars, increased operation and maintenance training opportunities, and wide array of technical seminars throughout the country. It is refreshing to see that WEF is attempting to meet the needs of all professionals within our industry and demonstrating the relevance of our industry.

CSWEA faces similar challenges along with each individual state section. CSWEA has been known to be an organization that offers great educational and networking opportunities to its members. There are numerous technical seminars both at the CSWEA level and state levels. We offer a well-known one-day Education Seminar that is recognized nationally, but has in recent years slowly dropped in attendance. Each state section holds its own one-day seminars (i.e., Government Affairs, Operations, Biosolids, Collection Systems, and Laboratory) and while some of these are growing, some are just stable. Why? The technical content is relevant, the speakers are well-established professionals in our respected field, and we continue to face new permitted challenges which require additional education and case studies.

There are so many positives that result from attending the various seminars and networking with peers. It does require us to put down our cell phones, not respond to emails, and delay handling the normal day-to-day tasks. However, I have seen many examples where a random discussion led to a utility exploring a new operational modification or a consulting engineer evaluating a different or new technology that ultimately benefitted the utility. There can be no value placed on education or networking within a field that constantly evolves, faces new regulations, and requires its professionals to understand the importance of its work product.

CSWEA is a very relevant organization to its members and each state section is strong. However, we need to grow, and in order for us to grow we need our members to become more actively involved. We are a volunteer organization and we have plenty of opportunities for our members to become active on a variety of levels. Sometimes it is overwhelming when you may not have an understanding of how to get started, and we hear the stories that many were dragged into it. Please contact any member who is actively involved and you will be amazed how your willingness of participation will be welcomed. I believe down at WEFTEC, Mohammed mentioned the first 25 volunteers to offer their services will result in free rounds at the upcoming CSWEA Annual Conference. Then again, I was dehydrated in New Orleans, so my memory may not be the greatest. CS

"CSWEA is a very relevant organization to its members and each state section is strong. However, we need to grow, and in order for us to grow we need our members to become more actively involved."

Click HERE to return to Table of Contents

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AECOM	53		www.aecom.com
American Flow Control	61		www.acipco.com
Arcadis	36	312-917-1000	www.arcadis.us.com
Badger Meter	61	800-876-3837	www.badgermeter.com
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CSWEA Associate Membership Application 2015

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Last Name	MI	First Name	(Jr., Sr., etc.)
Business Name (if applicable)			
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City	State	Zip	Country
Home Phone Number	Business Phone Number	FAX Number	
E-mail Address			

Employment Information

Employer	Job Title
Environmental Focus	Other focus or interest (please specify)
Signature (required for all new memberships)	Date

Associate Membership in Central States Water Environment Association

CSWEA Associate Membership Benefits include: Central States Water Magazine and Member price for CSWEA and Section Events	Dues cover a one year period, and must be renewed annually.	DUES
☐ I am a Young Professional (35 yrs or younger, less than 10 work experience) ☐ Please send me info on YP Events	Renewal notices will be sent one month prior to anniversary date.	$ 25.00

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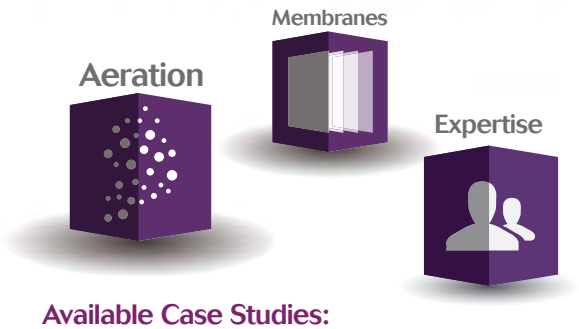
For example, at the 2.7 MGD Ruidoso WWT plant, total nitrogen is less than 2.3 mg/l in the final effluent… without adding supplemental carbon.



Available Case Studies:

Washington (TN < 12 mg/l)

Supplied equipment, design support, commissioning and technical support for the upgrade of an existing SBR. Currently rated to handle 0.86 MGD, the plant can be doubled in the future to handle anticipated growth.

"The electrical is higher, the solids production is lower and we are now able to use non-potable water in the plant (couldn't with SBR). With these three factors, it's about the same cost for the MBR and SBR…"

- Plant Supervisor

New Mexico (TN < 10 mg/l)

Supplied equipment, design support, commissioning and technical support for the upgrade of an existing SBR. The new Ovivo®MBR doubled capacity from 0.8MGD to 1.6MGD in the same footprint.

"The Ovivo®MBR design, and installation approach, allowed the old SBR to continue operating with no down time throughout the construction phase of the retrofit."

- Owner

Massachusetts (TN < 7 mg/l)

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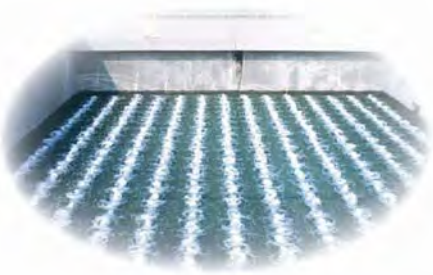

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- No submerged mechanical aerator devices
- Lower maintenance costs than comparable technologies
- Low cost operations with high-efficiency SANITAIRE® fine bubble diffusers

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- Minimal maintenance requirements

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