CENTRAL STATES WATER

The Official Magazine of the Central States Water Environment Association, Inc.

Global Water Stewardship

Bahia Ballena, Costa Rica

GLOBAL WATER STEWARDSHIP

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Section News

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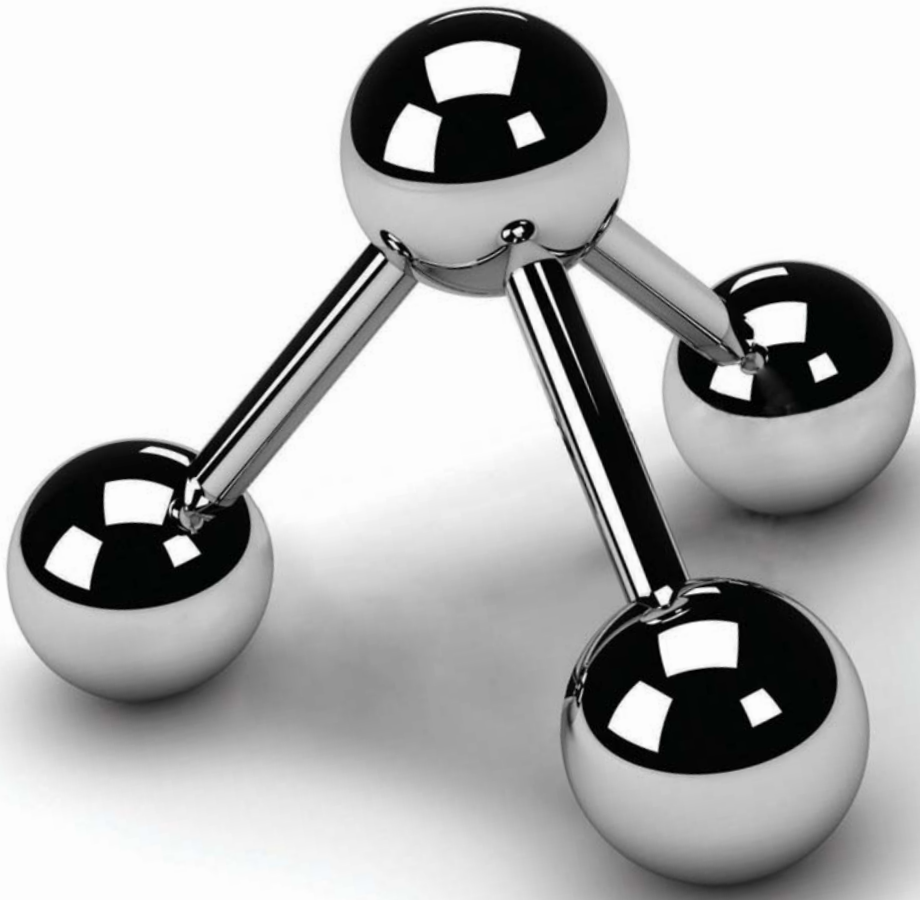

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Fast Track to Success

By Keith Haas

Getting a late start on a career in wastewater is not an impediment to becoming president of the Central States Water Environment Association. In only 15 years in the business, I have somehow succeeded to the top spot. I can tell you it's not because I am the smartest wastewater engineer in the Midwest, but I do happen to know a lot of people in the field of wastewater.

The reason for my quick advancement to the top was because someone bothered to show me the path and happened to introduce me to all the right people along the way. I skipped much of the committee work in the trenches, which I feel would have better prepared me for the task at the top. The strength of this organization is truly in the committees that put on numerous technical seminars throughout the year to better prepare and educate the newer folks to take our management positions in the profession and develop them before they retire or move on in their careers.

I wonder if it is rare to begin and finish a career in wastewater or if many of us simply fall into it somehow. How many high school students graduate and tell their parents they want to work at or run a wastewater treatment plant when they grow up? At the age of 43 the mayor tapped me on the shoulder and asked me to transfer to the wastewater utility. Not sure if it was request or an order; but looking back, it was the best career decision I could have made.

Family photo albums revealed that my first trip to the Racine wastewater plant was at age 11 for the 1968 grand opening of a new plant upgrade. In college I had to write a paper on my hometown treatment plant, so I returned at age 21 and achieved a passing grade in my sanitary engineering class at Platteville. Then after a 22-year hiatus I returned to the plant to oversee an $80 million plant upgrade. It's funny how the events of our lives prepare us for the challenges that lie ahead.

As I look back at my storied career, one of the best programs to prepare me for the future was a lunchtime Toastmasters International Club that I was a part of at the U.S. Army Corps of Engineers in Rock Island, Illinois. From what I have seen in my career some of the smartest people with the most talent have a genuine fear of public speaking. They plead with me not to put them in front of a group of fellow professionals to explain a certain facet of their job or duties.

> "So if you truly want to go somewhere in life or in your career, you need to get over a phobia of public speaking."

So if you truly want to go somewhere in life or in your career, you need to get over a phobia of public speaking. Once that occurs you will be able to propel yourself and your career to levels not even you thought were possible. And the sooner you do it, the sooner you will reap the benefits and put your career on the **fast track to success**. CS

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The Value of WEF

By Eric Lecuyer and Doug Henrichsen

The HOD Standing Committees and Work Groups (WG) formed for 2014-2015 are finishing their work as WEF's administrative year comes to a close at WEFTEC in Chicago. Some major outcomes of the WG's efforts include the Value of Water Tool Kit designed to provide utilities with items that can be used to communicate the importance of investing in our water infrastructure to assure that our utilities are sustainable. Information on the Value of Water Tool Kit is provided elsewhere in this issue.

Just as critical as the Value of Water is the Value of WEF. I'm sure that for many of you of a certain age, your first introduction to WEF (or as it was previously known, Water Pollution Control Federation), was through a co-worker's copy of the *WPCF Journal*. At the time, (way before the Internet was invented), the *Journal* was the only source of news about cutting edge technology, new developments in wastewater treatment, and what the giants of the industry were up to.

Those of us lucky enough to be introduced to CSWEA and WEF very early in our careers have had the good fortune to participate in and experience the tremendous growth and development of the water industry, from the passage of the *Clean Water Act* and the *Safe Drinking Water Act*, to the current era where information is instantaneously accessible, and we now operate resource recovery facilities. Who knows what the future holds and what "wastewater treatment" may look like in another 25 years. The only certainty is change, and the only metric is that the rate of change will continue to be exponential.

Leading the industry from its birth over a century ago are professional organizations like CSWEA and WEF. Even now as we are blessed (or cursed) with Internet access to information unimaginable only a decade ago, it takes leading-edge professional organizations like WEF to assure that the best available science is used in guiding our training and education, development of technology and, one would hope, national and global water policies.

> "New generations of very smart, technically savvy individuals are entering the profession, and professional associations like WEF and CSWEA have adapted to provide training and education, development opportunities, networking and recognition."

WEF provides governance to assure that the best ideas, innovations, and practices are distributed broadly and are widely recognized to be highly credible. At the same time, bad science, divisive policies, limitations to safe water access for all peoples of the world are identified and, hopefully, eliminated. The combined brainpower, vast diversity, and unmatched commitment of WEF members around the world provide the best opportunity for continued advancements in water science which will be so crucial to the sustainability of our planet and humankind. And we get to be part of that simply by being members of WEF!

Thankfully, new generations of very smart, technically savvy individuals are entering the profession, and professional associations like WEF and CSWEA have adapted to provide training and education, development opportunities, networking and recognition in new ways to provide better access and distance learning. WEF is committed to continue the very popular and informative series of technical webinars…for free!

The Value of WEF cannot be overstated and our role as members to sustain that value cannot be overlooked. A financially sound federation is critical to assure that these resources remain available to future generations, and is just as important as recognizing the value of water and communicating the need to invest in the future of both water resources and infrastructure. WEF is part of that infrastructure.

To assure that WEF remains financially sound, the Board of Trustees has stayed on course with the financial plan developed in 2013 and confirmed a scheduled dues increase in 2016, the details of which are reported elsewhere in this issue. As CSWEA WEF Delegates that serve on the HOD Budget Committee, we are impressed with the responsiveness of the WEF Board of Trustees and WEF Staff in meeting our members' needs, and their commitment to sound business principals and professionalism. They are collectively outstanding in their roles as fiduciaries of the dollars we spend in dues and as leaders of the water environment. CS

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Good People Make Good Things Happen

By Mohammed Haque

I'm a bit of an idealist and while that viewpoint seemed like wishful thinking 15 years ago, it seems perfectly real right now. In our careers we go through different stages. Initially we want to prove ourselves and establish our worth. It's safe to say that in the first 10-15 years of our careers and certainly throughout our 20s and 30s this is the case for many people. After that, once we have established ourselves, some of us try to use our networks and our knowledge to do bigger and better things. I'm at the stage where, after 18 years of proving myself, I am ready to live out those idealist thoughts that seemed like wishful thinking 15 years ago. Thankfully, I have found the good people that are willing to provide the support to give me the freedom and flexibility to try to do good things.

CSWEA is really full of good people and this realization is not lost on me. Individuals that devote their life to one of the most unglamorous topics – wastewater treatment, a.k.a. resource recovery – were obviously not seeking the red carpet when they chose (or got chosen) for their careers. So it is really a great pool of humble individuals that we have in our organization. I can't thank all of our volunteers enough for all that you do to further our industry and who continue to achieve greater levels of water treatment to keep our recreational waterways clean for the enjoyment of the public. You are truly remarkable and you deserve respect and admiration.

As many of you know, I am very passionate about the Global Water Stewardship (GWS). Aside from watching my boys grow up and prosper and enjoying time with my lovely bride of 18 years, nothing gives me greater satisfaction in the last couple of years than working on GWS and watching and helping others get involved with it. It's been exceptionally rewarding. Through this experience I have met some amazing people.

Our recent trip from August 16-22 was a great success and you will read about it in the pages that follow in Amanda Heller's article. It was a pleasure to be joined by **Matt Streicher**, **Amanda Heller**, **Manuel de los Santos** as well as our college design competition winners from UW-Platteville, **Devin Peterson** and **Curtis Veit**. Matt, Amanda and Manuel understand the need to give back. Although they are all in various stages of their careers, they all value the effect of wastewater treatment on the health of individuals. They sacrificed vacation time and funds to go on this trip in order to give back to a purpose that they believe in.

Others that could not make the trip, were equally engaged in other parts of GWS and their time and devotion is really appreciated. **Mike Holland**, **Alan Phelps**, **Eider Alvarez Puras**, **Micah Pitner**, **David Arnott** and of course **Eric Lynne** have all put in considerable hours because they believe in the difference that we can make. We made great strides during our one-week Costa Rica trip, and we are making even great advances in all our local volunteer efforts over the last two years.

The most touching part of our trip was definitely the trip to the elementary school in Bahia Ballena. That may have been the greatest day of my career. Seeing Manuel explain to kindergartners through 5th graders about different water (greywater, black water, etc.) and why we need wastewater treatment was really wonderful. Kids get it and they are just so engaged. It was really a great day, and one that I will never forget.

Equally amazing is seeing good people that give more than they receive. Costa Rica appears to be full of these people and we have built a great team in Piedras Blancas and Bahia Ballena for our projects. We would be remiss in not acknowledging these individuals.

Amy Work gave so much of her volunteered time to us during our trip, that it would be safe to say that she is practically a CSWEA/GWS member. She is just an amazing individual that went to Costa Rica for a two-week trip and has ended up staying three years so far, with no intentions of coming back. She has become so engrained in the community and so well liked that all the school children treat her with the affection of a loving and caring big sister. Amy runs Geoporter, a local NGO doing spectacular things geo-referencing whale sightings, trash patterns, water pollution, etc. Their work is having positive effects on Bahia Ballena in a very short amount of time. Geoporter is a non-profit and if you have any old GPS units that you would like to donate to them, please let me know. They will put them to good use.

Travis Bays went to Costa Rica on a US Peace Corp assignment and forgot to come back. I can't say that I blame him. Travis was the man behind the scenes. He got us in touch with all the right people and set up all the important meetings that we needed to move our projects forward. Travis has a

wonderful spirit, great vision and tremendous knowledge of Costa Rica, it's environment and politics. He is on the staff of INOGO as well as the owner of Bodhi Surf and Yoga. He understands and teaches the balance of mind, spirit and water. His Ocean Guardian Journey contest is featured in the magazine and I encourage like-minded individuals to enter the competition with their stories and ideas of how we can be good stewards of our oceans.

When we met **Mauricio Vargas**, we did not expect to meet a former resident of Champaign, Illinois in the ASADA (water agency) for Bahia Ballena – Uvita. But there he was, a man who understood what proper sanitation meant for his community and is willing to take the steps to make it happen. A public servant like many of us, he takes great pride in the public water supply that he manages and continues to do routine maintenance to keep his system well run. The greatest thing we heard from Mauricio was when he told us about his daughter coming home from school and telling him about what she learned that day in kindergarten. It was something about bad water and wastewater treatment by some people from Global Water Stewardship! You just can't beat that. How cool.

This is the second trip that we have had the pleasure to work with **Diego Garcia**. As a staff member of INOGO, local palm farmer and resident of Piedras Blancas, he understands the need to keep the river clean and keep the residents healthy. He remains a valuable resource and great partner for our project in Piedras Blancas and an important liaison with other government agencies when we seek permits for the project.

Sharon Alfaro is a passionate person and we are very lucky to have met her during this trip. She is a resident of the urbanized homes in Piedras Blancas. Her home would be one of the ones that we would be providing sewer service and treatment for. She moved to Piedras Blancas in early 2014 and has devoted herself to being a voice for the people there. She is the secretary of the local tourist guide association, Aguitur as well as an officer of the community organization, ADI. She loves nature in all it's forms and wants to do her part to keep Costa Rica beautiful for everyone to enjoy forever. She voluntarily teaches the children in the community about the insects and animals of the Costa Rican rainforest. We were so impressed with Sharon that we have asked her to continue to help us in the social aspect of our project in Piedras Blancas. She will be teaching the residents and school children about the issues with grey water and black water in the streets, the need to collect and treat it and keep it out of the river. She will do this through door-to-door discussion, presentations to children at the school and parent teacher conferences. We are really blessed to have Sharon on our team and we are looking forward to working with her.

If nothing else, I think that Devin Peterson and Curtis Veit learned a few things from the trip. For both of them, this was the first trip outside the country (not counting Canada). I am fairly certain that as they start their careers this trip will change their perspective and allow them to not take certain things for granted. It's a lesson that I wish every college student entering the work force could get.

As I reflect on the trip, I am convinced that good people make good things happen. Most of the people that I have listed in this article are doing what they do for little to no money. They do what they do, because they know it is the right thing to do. They are all passionate individuals that believe in what they do, do it because they love it and do it for the satisfaction that they get, not the paycheck they receive. We all can learn from this. Sometimes we need to do some things just because it is the right thing to do. Good people make good things happen and I'm glad that the Global Water Stewardship and CSWEA's support has taught me this. CS

"Costa Rica appears to be full of good people that give more than they receive and we have built a great team in Piedras Blancas and Bahia Ballena for our projects."

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GLOBAL WATER STEWARDSHIP

Global Water Stewardship

AUGUST TRIP REPORT | BAHIA BALLENA, COSTA RICA

By Amanda Heller

Mid-August proved to be a productive time for the Global Water Stewardship (GWS – formerly the Global Initiative). CSWEA professionals actively involved in the GWS traveled to Costa Rica to continue their efforts to resolve sanitation issues within small communities of the province of Osa. The group included Manuel de los Santos, Mohammed Haque, Matt Streicher, and Amanda Heller. They were joined by Devin Peterson and Curtis Veit from UW Platteville, who were awarded this GWS trip for winning the Student Design Competition for the Piedras Blancas problem statement. As a group, we traveled to Piedras Blancas and Bahia Ballena to resolve the communities' wastewater issues.

Piedras Blancas

The project began in 2014 when a group of GWS members traveled to Piedras Blancas, Costa Rica to begin to resolve the sanitation issues throughout the village. A complete description of the 2014 trip can be found in the Fall 2014 issue of *Central States Water*. Over the past year, students worked on a design to resolve the sanitation issues in Piedras Blancas. The students of the winning design team from UW Platteville worked closely with GWS members to refine the design and produce drawings for RQL. RQL is the local Costa Rican engineering firm that will produce the drawings to be submitted for approval for construction and to the proper governmental authorities in Costa Rica.

This year the group took a walking daytrip through the village to assess the situation, verify a few additional measurements, and meet with local ASADA authorities. During the 2014 visit to Piedras Blancas the group witnessed strong smells of sewage and waste sitting in the curb and gutter system. This year's trip showed that the situation in Piedras Blancas had not improved, but dramatically intensified. The presence of sewage in the streets and the odors of waste throughout the community increased significantly over the past year.

ASADA – the local water district in Costa Rican communities – met with GWS to provide locations for water mains and help with data gathering to provide RQL with more project details. Eduardo Centano and Sharon Alfaro provided information and community background on the issue of graywater and sewage running along the curbs and gutters of Piedras Blancas. Because of her passion and enthusiasm in resolving the wastewater issue in her home village of Piedras Blancas, Sharon will be a key contact within the community teaching the village members and children the importance of clean water and proper sanitation.

During the drive back to our basecamp from Piedras Blancas, the students were asked what they thought about the village, it's issues, and if there was anything GWS could do to provide future design teams with a more representative project statement. Both students admitted they were in awe of the actual situation. "I knew the situation was bad from the information presented in the project design statement," said Devin Peterson, "but there is no way you can understand what the actual situation is without seeing it."

Bahia Ballena

Bahia Ballena is a tourist town located in the province of Osa on the Southwest coast of Costa Rica. The community is located in the bays where the humpback whales come to give birth. This miracle occurs between the months of August and November. During this time, the population of Bahia Ballena and the traffic through the village increases dramatically in response to the tourists visiting hoping to see a whale, or in our case, three.

The community is separated into two distinct areas, the commercial district and the residential district. The commercial district lines the coast with trinket shops, restaurants, diving schools, whale tours, and many more activity based vendors. The residential district is located to the Northeast of the coast where the majority of the homes and hotels are located.

Through several contacts Mohammed listed in the previous article, Bahia Ballena showed up on the GWS radar. The community needs a dramatic change in how they handle wastewater, and GWS wants to provide the locals and tourists with a beautiful, natural, healthy environment.

The Problem

Bahia Ballena, as noted above, is a tourist town. There are several businesses and residences that discharge grey water to the ditches that line the streets. Walking through the residential areas of the village, grey water was visibly seen flowing from a drainpipe connected to a hotel. The water path flowed through the ditches to a small stream that connected to the estuary, leading out to the ocean.

The group traveled along the street that followed the estuary. When the community discharges water to the gutters, it all flows

to the end of the estuary before outlet to the ocean. There the water was a dingy green/grey color, but some aquatic life was visible. As the group traveled up the road and along the estuary away from the ocean, the water became cloudy and a very dingy color. In some locations there was no sign of aquatic life. The water from the estuary contaminates the beaches that are a large part of the tourist community in Bahia Ballena.

GWS learned in our conversations with locals that trash pick-up was a relatively new concept within the Village. Prior to this system being implemented, citizens would pile garbage in the back of their houses until they were able to burn. If a rainstorm came through the area before the family burned the garbage, the garbage would be swept away to the estuary and ocean around Bahia Ballena. To prevent the trash from reaching the beaches of Bahia, the community built a damn to keep garbage from flowing down the waterway and into the ocean. Although it helped stop the trash, it was not a solution to the problem.

The community realizes it has a water quality issue because of the way they handle their wastewater and garbage. Mauricio Vargas noted that if action wasn't taken soon to improve the quality of water and to maintain the natural beauty of Bahia Ballena, there would be no more tourism for the community.

Data Gathering

With the contacts GWS made during the trip to Piedras Blancas in 2014, and their understanding of our mission to serve their local community, we were able to collect a large amount of data in a very short time. Community discussions about the issues within the city were another large source of data collection. Understanding how the citizens of Bahia Ballena interact on a daily basis is just as important to the design process as is the street layouts, soils make-up, or the aerial views of the potential sites.

Once again we had our surveyor, Ingenieria Satelital, come to the site and collect the locations of the houses, ditches, and several points along the roadway through the community. Chuck Chastain of Aerial Media Costa Rica came to capture aerial views of the community, the estuary, possible treatment sites, and the beautiful whale tail that brings so much attention to Bahia Ballena. This year we were able to meet with our Geotechnical contractor, Ingeotechnia de El General. Two soil samples were taken, one each from prospective treatment sites.

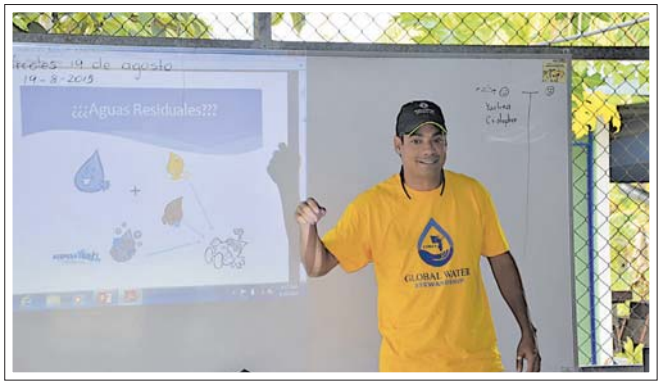
We started gathering data for the commercial district when Mauricio requested our collection extend to the residential district as well. ASADA of Bahia Ballena was willing to pay the additional amount for the data collection of the residential district if GWS was willing to design the collection and treatment system to include both districts of Bahia Ballena. This year's student design competition will include two phases: Phase 1 Commercial District, and Phase 2 Residential District.

Education

Over the past year, GWS members met and discussed how to improve our mission's impact on the communities, and felt that increasing sanitation education and awareness was going to be the key element of getting locals to support our mission and assist with long-term environmental improvements in the province of Osa. Children are very impressionable, and promoting good practices starts at a young age. With the help of Travis Bays and Amy Work, GWS was able to spend a day in the school in Bahia Ballena, Escuela Flor de Bahia, to teach the children about grey water and proper sanitation.

Escuela Flor de Bahia currently utilizes two bio-gardens to treat the grey water generated on-site. The students learn about the bio-garden in certain classes, but many are not exposed to the process until later elementary years. Manuel was able to present to the children in grades pre-kindergarten through 5th grade about how the bio-gardens treat the grey water and the importance of the system at the school. Each grade had a presentation in the classroom followed by an interactive field trip to the location of each bio-garden at the school.

Not only was Manuel able to talk to the children about the importance of the bio-garden, but also the different types of water and how they can affect the surrounding environment. The students didn't know the difference between grey water and black water, and how each can have negative effects on the environment. After showing the students how each type of water is generated, the students began to realize not all water can be sent straight to the rivers and ocean. It was rewarding seeing the children understand that sending



grey water or black water to the ditches in Bahia Ballena was not a solution to their sanitation issues. They began to recognize that the water needed to be treated before it can go out to the environment.

During the conversations with the students we also talked about the importance of throwing trash in the garbage and not on the streets or burn piles. Because garbage pick-up is a more recent system implemented throughout the city, many individuals still don't participate. Teaching the children the importance of throwing garbage away properly is an easy lesson they will be able to bring home and help other family members practice.

GWS provided stickers of our logo to all students as they participated in the presentations and the mini field trips to the bio-gardens. As an activity and a leave behind for the students to remember GWS and what we presented to the students that day, each student made a bracelet with beads symbolizing water and a pure environment. It was a joy to interact with the students as they quickly grabbed the best beads to make their bracelets with the GWS crew.

As a more constant reminder of the importance of clean water and a healthy environment, the president of the school offered a wall to the GWS for a mural of the water cycle. Though time ran out to begin painting the mural, the group outlined the graphic for the students to fill in on a later date. School leaders and those who helped set-up and organize the days' events – Travis Bays and Amy Work – were very excited about the mural and the students' involvement in completing the design.

The students were a bundle of energy and excited to learn about GWS, the importance of clean water, and ways to keep the environment healthy. It was an exhausting, but extremely rewarding day that will be incorporated in each community where GWS travels.

Local and Governmental Support

With help from our contacts listed his Executive Director article, Mohammed was able to organize several meetings with local and governmental personnel to promote our mission throughout the province of Osa. The local authorities were in awe that a group would volunteer its time to resolve the sanitation issues within their communities. We received a tremendous amount of support, from the local municipalities to the mayor of Osa Province.

There were several meetings with key people throughout the week GWS traveled to Piedras Blancas and Bahia Ballena. The group met with multiple ASADA members, the Director of Construction from AyA, Director of ASADAs in Golfito and Osa Provinces, SINAC, CRUSA, INDER, and several other local activists for improving the environment. Our mission and message were well

received by each individual as we gained the support of several organizations for the work we are doing and plan to continue to do in Costa Rica.

Each person GWS met agreed the sanitation issues must be resolved, but had reservations as to how it would happen. The Costa Rican lifestyle is not known for pushing projects through completion quickly. Their extended project approvals and wait times are very different than what we're used to in the United States. A major concern was getting the documents finalized by RQL and the proper permits received in time to begin construction early 2016. The mayor of Osa gave assurances to GWS that we would get assistance to ensure a smooth process and that we'd get permits in a timely fashion. Their passion for our work was so intense, they assured us that our efforts would not be threatened by documents being held up for approval.

The other major concern for both GWS and the local communities was the cost of the projects, and where funding would come from. The GWS is working on raising funds to help the communities with construction costs for these projects. However at this point, we can't cover all costs for every community. The local governments are willing to help fund the projects to reduce the costs the citizens will have to forfeit. In many towns like Piedras Blancas, residents cannot afford a sewer service connection charge. The willingness of the local associations and governments to provide funding for these projects demonstrates its extraordinary outpouring of support for GWS in the communities of the province of Osa.

It's impossible to adequately cover the 2015 trip to Bahia Ballena and Piedras Blancas in the pages we are allotted for this issue. We encourage you to reach out to Global Water Stewardship for more information, and to become a Global Water Steward. CS

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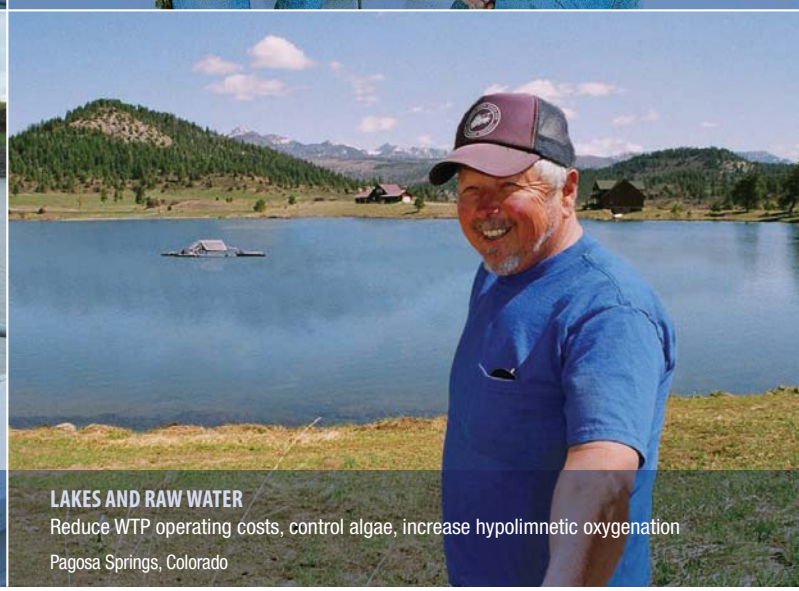

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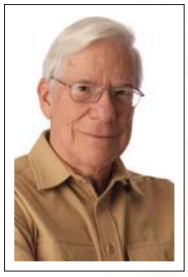
IN REMEMBRANCE

Lawrence H. Breimhurst, P.E.



Former CSWEA president, Larry H. Breimhurst, passed away on August 17, 2015. A registered professional engineer in the state of Minnesota, he spent over 40 years in civil and environmental engineering, mostly in water/wastewater after starting his career as a public health engineer for the state of Minnesota.[1]

He owned one of the first contract operation and maintenance services for municipal and industrial water and wastewater facilities in the United States, first doing business as Water Environment and Technology (WET) and then as Professional Services Group (PSG).

From 1988-1998 Larry worked on the design, constructability, and operability of the new Deer Island wastewater treatment plant in Boston. With partial operations in 1995 and full operations by 2000, Deer Island is one of the largest sewage treatment plants in the United States and a key part of protecting Boston Harbor against pollution.[2] Though he retired soon after, Larry remained active in local engineering projects with Brown and Caldwell.

During his career, Larry presented numerous water and wastewater training courses throughout Minnesota and Wisconsin and conducted in-plant training at many facilities. He was active with the Minnesota and Wisconsin Wastewater Operators Associations and taught water treatment courses for the SWAMP program (Safe Water for all Minnesota People) at the Fall Lake Outdoor Learning Center at Vermillion Community College in Ely. For the last six years he taught the Minnesota Class A and B collection system refresher courses.[3]

Larry was an avid fisherman, camper, and outdoorsman. He represented the City of Vadnais Heights, MN on the Vadnais Lake Area Water Management Organization, and was Vice President of Pine Meadow Homeowners Association for 10 years. Larry and his wife of 50 years, Maggie, had five children and 11 grandchildren.

Larry is past recipient of the following awards:

- Chi Epsilon (Honorary Civil Engineering Fraternity), 1959
- Radebaugh Award, CSWEA, 1967
- Young Engineer of the Year Award, Minnesota Society of Professional Engineers, 1972
- Central States Select Society of Sanitary Sludge Shovelers, CSWEA, 1974
- Arthur Sidney Bedel Award, WPCF, 1982 CS

1 In 1967, he co-founded SERCO and remained a member for 18+ years.
2 He was particularly proud of his participation on a valuation committee for the Boston Harbor project as his recommendation that they use egg digesters to save space also helped save $2 million.
3 In addition, Larry belonged to, contributed to, and enjoyed his association with the Water Pollution Control Federation, American Academy of Environmental Engineers and Scientists, MN Society of Professional Engineers and an honorary membership of the Iowa Water Environment Association.

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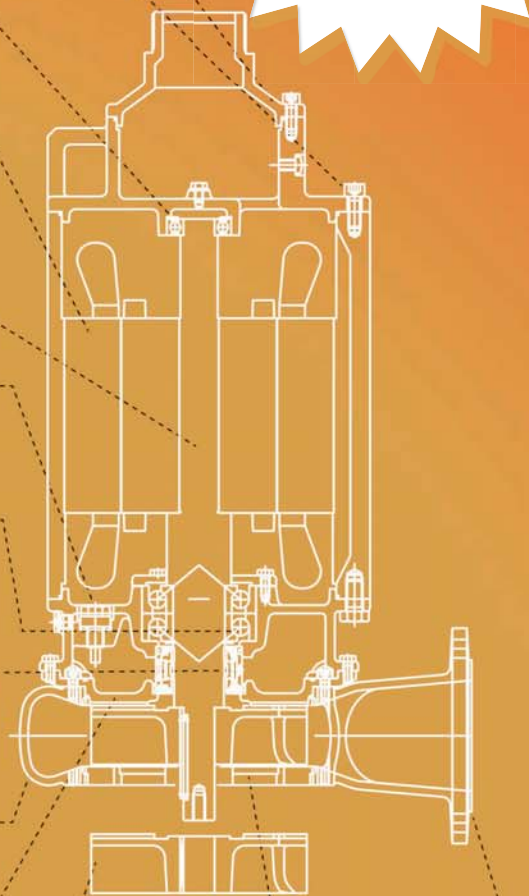

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CSX '15 Review

By Keith Haas

The 2015 Central States Exchange

(CSX) was held on July 23 and 24 at the Kalahari Resort in the Wisconsin Dells, and by all accounts, it was a great success. It was very nice seeing colleagues from the surrounding three-state region in attendance exchanging ideas and suggestions and participating in a wonderful dialogue about our industry and association; and it was a true pleasure to meet with many of our members and their families.

CSX is a forum where members, section chairs, and executive members exchange ideas (on most current best management practices and the direction of CSWEA). The agenda for this meeting is derived from members and the organization's strategic plan. Similar to years past, we started by reviewing last year's CSX and the annual conference, and what we had done over the year as it related to the direction of the executive team. Particular attention was also given to the review of the strategic plan and CSWEA's Global Water Stewardship project. Lessons learned at the recent Annual Convention in Oak Brook, Illinois were discussed in preparation for the 2016 convention in Madison. Executive Director, Mohammed Haque, discussed the CSWEA's Global Water Stewardship project to help the community of Piedras Blancas, Costa Rica.

Piedras Blancas is a community of roughly 150 homes, all of which are on septic systems with improperly designed drain fields. This inadequate design, results in sewage run-off into the streets, storm drains, and the local river. The goal is to help this small community find a better way to treat its wastewater from start to finish, and then follow up to ensure that the system is working properly. A group of students that won the student design competition in 2015 will have made a trip to the region by the time that you will be reading this. The next phase of the project will be the development of Plans and Specifications and having them certified by the local government in Costa Rica.

"Engaging the YPs of the region is important for the future of our profession and organization. We are truly blessed with a great group of young members willing to participate in their future. The senior generation of professionals needs to encourage participation among the younger generation in their organizations or geographic area."

Each section has events or is planning events for the next year. Engaging the YPs of the region is important for the future of our profession and organization. We are truly blessed with a great group of young members willing to participate in their future. The senior generation of professionals needs to encourage participation among the younger generation in their organizations or geographic area. We also discussed how to improve the Leadership Academy, as it now rotates with the Annual Meeting to allow all YPs and others the opportunity to attend. If you have any ideas or would like to become more involved, please look at the website for further information. The section updates portion allows members of the sections to talk about what they are working on.

I have been attending CSX for about six years, and each year it seems like each section continues to thrive and provide valuable seminars for their members. Wisconsin has strong committees and great leadership. Minnesota also has active members and will be sponsoring the Conference on the Environment and the Innovative Conference. Illinois remains strong and their members did a great job at the annual conference under the guidance and direction of the local arrangements chair Jillian Goodlove-Kiss who works with Trotter and Associates.

I continue to be impressed by the great work by all of those involved, and if you have caught the bug or the passion for your profession, check the website, contact the chair, and join a committee. The last topic of the first day was our strategic planning. Very good discussion and dialogue occupied much more of the agenda time than we had set aside. This is a good thing since it helps members zero in on a successful roadmap or strategic plan for the future. Past President from Minnesota, Patti Craddock, led the group in reviewing strategic plan from last year and making improvements to it.

All in all it was a great success and the executive team got to know the movers and shakers from the State sections that make this organization tick. Mission accomplished.

About Keith Haas

After receiving his BSCE from the Univ. of WI Platteville in 1979, Keith worked on flood control projects for the US Army Corps of Engineers in Rock Island, Illinois and navigation rehabilitation projects on the Illinois Waterway and Mississippi Rivers for the next 14 years. He received his MSCE from the Univ. of Illinois-Champaign Urbana in 1985. In 1993, he returned home to Racine, WI to serve as the Asst. Commissioner of Public Works. In 2000 he was promoted to Chief of Operations of the Racine Water and Wastewater Utilities, and in 2007 was promoted to GM where he remains today. Before taking his role in the CSWEA rotation and serving as the current president, Keith also served as the Chair of the Wisconsin Section of CSWEA. In his spare time, Keith enjoys sailing, iceboating and perennial gardening. CS

Value of Water COALITION

Unveils New Education Campaign and Toolkit

"What's the Value of Water?" materials are free for water agencies, community-based organizations, and others to use in outreach efforts

The Value of Water Coalition and the Water Environment Federation (WEF) have released and are promoting the use of a new public awareness campaign and toolkit, "What's the Value of Water?" As one of the original partners, WEF has been collaboratively working with the Value of Water Coalition, WEF members, volunteers, and leaders to help raise awareness about the value and importance of water. The new toolkit is an important part of this effort and is available at no cost to anyone interested in educating the public about the essential need to invest in our water infrastructure and water resources.

"The Value of Water Coalition is proud to create these beautiful and functional educational materials that can help organizations around the country educate and engage people about the true value of water," said Radhika Fox, Director of the Value of Water Coalition. "It was an amazing process of collaboration among the 30 members of our coalition. We have some of the top leaders in water engaged in our Coalition, and this toolkit brings together decades of expertise in how to effectively communicate the value of water."

The "What's the Value of Water?" toolkit provides the following materials:

- Billboards
- Outdoor advertisements
- Print advertisements (horizontal and vertical layouts)
- Bill Stuffers
- Conference Banners
- Water Fact Sheet
- Message Guide
- Shareable Social Media Graphics

"Our water resources are being stressed more than ever, but it can be challenging to communicate this in ways that we can all relate to. Sometimes the most impactful message about water is the simplest one: what would it be like to live a day without it," said Eileen O'Neill, Executive Director of the Water Environment Federation. "We can all benefit from taking a moment to think about water and the importance of maintaining the systems that support our communities. WEF is proud to be a part of this important effort and we hope that the entire water sector uses these materials to help spread this message from coast to coast."

All materials are available for download on the Value of Water Coalition website: *www.thevalueofwater.org*. Please review usage guidelines before publishing any materials.

About the Value of Water Coalition

The Value of Water Coalition educates and inspires people about how water is essential, invaluable, and needs investment. The Coalition has come together to advance positive solutions to our nation's pressing water challenges. Members include: Alexandria Renew Enterprises, American Society of Civil Engineers, American Water, American Water Works Association, Association of Metropolitan Water Agencies, Atlanta Department of Watershed Management, Black and Veatch, Brown and Caldwell, Camden County Municipal Utilities Authority, CH2M, DC Water, Dow Chemical Company, Hampton Roads Sanitation District, Hazen and Sawyer, Kansas City Water Services, LA Sanitation, Metropolitan Sewer District of Greater Cincinnati, Metropolitan Water Reclamation District of Greater Chicago, MWH Global, National Association of Clean Water Agencies, National Association of Water Companies, Northeast Ohio Regional Sewer District, Philadelphia Water Department, San Francisco Public Utilities Commission, United Water, U.S. Water Alliance, Veolia, Water Environment Federation, and Xylem. CS

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weftec the water quality event℠ 2015 Operations Challenge

By Todd Sheridan

WEFTEC 2015 and the Operations Challenge (OC) are only a few weeks away, but preparations for the OC teams started in early May. This year Central States WEA will put forth two teams; one with four veterans, and one with a veteran leading three new team members. The two teams are made up of Central States award winners and wastewater professionals from facilities where the award winners are employed.

The teams will have practice sessions in late August and early September at the Madison Metropolitan Sanitary District Nine Springs Facility. Thank you to Paul Nehm and Montgomery Baker for their continued hospitality and training. During the first practice, team members will start getting to know each other. One of the goals of this practice is to forge new friendships, find common interests, and build a well-oiled, cohesive team. Some of the team members new to the operation challenge have never met, some will have traveled hundreds of miles, but all will bring enthusiasm and a desire to make this a great experience.

The first practice allows coaches to assess the strengths and interests of each team member before assigning tasks for the five events: Process Control, Laboratory, Maintenance, Collections, and Safety. During both sessions team members will:

1. Take practice exams in preparation for the Process Control exam
2. Hone their skills in the Laboratory event
3. Build endurance for speedy hand cutting of 8 inch PVC pipe for the Collections event
4. Discuss and practice all required tasks for the Pump Maintenance event
5. Refine their skills for a confined space rescue in the Safety event. CS

2015 TEAMS MEMBERS:

Pumpers: Captain Mike Murphy – Green Bay Metropolitan Sewerage District; Jason Neighbors – Glenbard Wastewater Authority; Marc Zimmerman – Janesville WWTP; Matt Streicher – Wheaton Sanitary District; and Coach Tom Dickson – City of Oconomowoc, WI. **Shovelers:** Captain Chris Kleist – City of Duluth; Chris Lefebvre – Stevens Point WWTP; Justin Pratt – City of Moline; Joe Rubbelke – Minnesota Pump Works; and Coach Jim Miller – Wenck Associates.

Team members put a lot of time and effort into practice and training at home for the Operations Challenge. With your support and encouragement they will perform as champions. If you are going to be in Chicago for WEFTEC 2015, and you have an opportunity, please help cheer on the CSWEA Operations Challenge teams.

Also, if you would like to become a team sponsor, please contact Todd Sheridan at *todd@nmwrd.org* for more information. CS

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Glenbard Wastewater Authority WWTP

BACKGROUND

The Glenbard Wastewater Authority (GWA) provides wastewater treatment for the communities of Glen Ellyn, Lombard, and adjacent unincorporated areas. The GWA was created in 1977 and the regional wastewater treatment plant (WWTP) became operational in 1982.

A number of projects in the past 20 years have replaced or modified portions of the WWTP facilities. The WWTP is rated for an annual average flow of 16.02 million gallons per day (mgd) and a maximum daily flow of 47 mgd.

Treatment consists of deep mechanical fine screening, pumping, vortex grit removal, primary sedimentation, two-stage high purity oxygen activated sludge treatment (HPOAS), intermediate clarification, final clarification, sand filters, and ultraviolet disinfection. The treated effluent is discharged to the East Branch of the DuPage River. Primary and waste activated sludge (WAS) is cothickened in a gravity thickener and then pumped to the anaerobic digesters before dewatering and land application.

GWA owns and operates the North Regional Interceptor (NRI) and the South Regional Interceptor (SRI). These interceptors convey wastewater by gravity from the Villages of Glen Ellyn and Lombard to GWA's main treatment facility. GWA also owns and maintains five collection system pumping stations – the St. Charles Road, Hill Avenue, Sunny Side, Valley View, and SRI Pump Stations. In addition, GWA operates and maintains a Combined Sewage Treatment Facility (CSTF), located on Hill Avenue, just west of Interstate 355 that receives peak wet weather flows from a portion of the Village of Lombard. The primary treatment plant at the CSTF consists of screening, grit removal, primary clarification, and disinfection. The peak design flow to the primary treatment plant is 58 mgd. Flows in excess of 58 mgd are diverted to two excess flow lagoons via overflow structures at the north end of the lagoons with a total volume of approximately 8.5 million gallons. Excess wastewater stored in the lagoons is drained back to the intercepting sewers after storm events subside and conveyed to the main wastewater treatment facility for full treatment.

Strand Associates, Inc. completed several recent projects for GWA including a facilities plan in 2013. The comprehensive facilities plan evaluated the ability of GWA's collection system, WWTP, and CSTF to serve the GWA sewer service area for a period of 20 years. The facilities plan also discussed regulatory initiatives including new phosphorus limits, reviewed impacts of potential future limits on the GWA WWTP, and evaluated WWTP alternatives to meet future limits.

LIQUID TREATMENT

Bar Screening

The two original mechanical screens were replaced in 2006 with two, 30-foot-deep, 3/16-inch multi-rake style screens each rated for the maximum daily flow of 47 mgd. Because there are peak flow events, the multi-rake style screen was selected because of its ability to enter into a high water-level mode using the variable frequency drive (VFD) motor to accelerate the cleaning of the static bar rack.

Raw Sewage Handling

The treatment plant uses three large (350 hp) dry pit centrifugal pumps to begin moving the wastewater through the treatment processes via a force main to the grit removal system. These pumps were installed in 1977 and were rehabilitated in 2001. The pumps are operated with VFDs that allow the pumps to run at different speeds depending on the flow of wastewater entering the plant. Typically, the lowest flows occur in very early morning hours with peak flows observed in the afternoon or during a rain storm. The pumps are capable of pumping up to 47 mgd of wastewater through the treatment facility. A project currently in design will expand the existing wet well to add two smaller pre-rotation type influent pumps to operate more efficiently at dry weather flows and for improved wet well cleaning and install two new large pumps to replace the existing influent pumps.

Grit System

In 2004, two vortextype grit systems were cost-effectively retrofit into the existing aerated grit tanks, minimizing any excavation costs while reusing existing tankage. Two grit washing units were added as well. These improvements have increased grit removal efficiencies over the wide flow ranges experienced at the facility and produce a dewatered byproduct that is low in organic and fecal material to ease handling and disposal.

Primary Clarifiers

GWA has two 110-foot-diameter circular primary clarifiers. Primary sludge is directed to the gravity thickener to cothicken with WAS. The 2006 primary systems project replaced the primary sludge pumps and installed a primary scum concentrator.

Two-Stage HPOAS

The existing two-stage HPOAS system has been in operation since the early 1980s. The two-stage HPOAS includes firststage high purity oxygen (HPO) carbonaceous aeration basins (Carbo), intermediate clarification, carbonaceous return activated sludge (CRAS) pumping station and the intermediate pumping station

HPO basin deck

which is utilized to pump intermediate clarifier effluent into the second stage. The second stage of the two-stage process includes nitrogenous aeration tanks (Nitro), the intermediate pumping station which is also utilized to handle nitrogenous return activated sludge (NRAS) and final clarification. Historically, the WWTP has operated in a two-stage mode with all flows less than 16.02 mgd conveyed to the Carbo stage and remaining flows in excess of 16.02 mgd conveyed to the Nitro stage. The two Carbo stage aeration basins with a total volume of about 600,000 gallons provide biochemical oxygen demand (BOD) removal and flow to two 85-foot-diameter intermediate circular clarifiers. Settled sludge from the intermediate clarifiers is returned to the head of the Carbo aeration trains. At the intermediate pump station, the intermediate clarifier effluent and Nitro return activated sludge (NRAS) are blended and then three seven-foot-diameter screw pumps lift the wastewater to the head of the eight Nitro aeration trains. The eight Nitro aeration trains have a total volume of approximately 2,500,000 gallons to provide nitrification. Following the Nitro trains are four 135-foot-diameter final clarifiers. Oxygen is provided by a cryogenic oxygen plant that produces pure oxygen by separating it from other gases present in air. The HPOAS includes a 32-ton/day cryogenic oxygen generation system, a single 700hp compressor, and ten aeration trains with four stages in each train. Each stage has a mixer with surface and subsurface mixing blades that are utilized to transfer 96 percent pure oxygen to the microbes for respiration. The aeration deck has a total of 40 mixers equating to 600hp.

The 2013 facilities plan evaluated several activated sludge alternatives including maintaining the existing two-stage HPOAS and the alternative of converting to single-stage air activated sludge. The HPOAS was recommended to be maintained because of the higher oxygen transfer rates of HPOAS providing a smaller footprint, site constraints, and significantly lower capital costs compared to converting to conventional air activated sludge.

Tertiary Filters and Ultraviolet Light Disinfection

The wastewater currently flows through ten sand filters to remove any remaining solids that pass through the final clarifiers. A project is under design to replace the ten sand filters with six disc filter units to be retrofitted into the existing sand filter cells. The disc filters are recommended because of reduced space requirements, reduction and ease of maintenance, and improved performance. In addition, the disc filter units will significantly reduce backwash recycle flows compared to the current sand filter backwash return of more than 10 mgd to the head of the plant during increased hydraulic flow conditions.

The final stage of treatment uses ultraviolet light to disinfect the wastewater before it is discharged into the East Branch of the DuPage River.

BIOSOLIDS TREATMENT

Biosolids management at the WWTP includes gravity thickening, anaerobic digestion, and belt filter press (BFP) dewatering.

Sludge Thickener

Primary sludge and WAS generated from the Carbo and Nitro stages is piped to the gravity thickener to co-thicken. The GWA staff installed a solids density meter to improve the quality of the thickened sludge that is being pumped to the digesters. The intent is to pump 3.5 percent solids consistently to the digesters to reduce the heating demand resulting from excessive amounts of water being pumped to the digesters. Under current conditions 3.5 percent is the highest percent solids content GWA can pump because of constraints on the suction side of the progressive cavity pumps.

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Anaerobic Digesters

Primary sludge and WAS stabilization are provided by anaerobic digestion with two primary digesters (80-foot-diameter and 60-foot-diameter) and one secondary digester (60-foot-diameter). All the digesters have floating covers, but only the secondary digester was designed for gas storage. The methane gas is captured and used as fuel for the two combination heat exchanger-boiler units to heat the digesters. Any excess methane gas is sent to a waste gas flare. GWA is in the process of a design-build cogeneration project that will include biogas conditioning equipment and generators for electrical generation and heat recovery. The heat recovery will be used for process and building heating.

The anaerobic digester and biosolids handling improvements project completed in 2010 included substantial modifications to the existing solids handling building and anaerobic digester complex. The design project included the addition of one new 80-foot-diameter primary anaerobic digester tank and floating cover; addition of a new digester building; renovation of the existing digester facility pump room; completion of the combination boiler/heat exchanger system and piping; replacement of the existing 60-foot-diameter primary digester floating cover; addition of pumped mixing systems and structural tank modifications to the existing 60-foot-diameter digester tanks; sludge dewatering building renovation, including completion of the gravity belt thickener (GBT) system and installation of new polymer feed system; modifications to the existing BFPs; completion of plant non-potable water pumps and distribution system associated with the GBT and BFPs; and miscellaneous controls and supervisory control and data acquisition (SCADA) modifications.

Biosolids Dewatering and Storage

The biosolids are dewatered using two 2.2-meter BFPs. Dewatered cake is stored onsite on sludge storage pads until weather and crop conditions allow for Class B agricultural land application.

CWA schematic


Clarifier

The 2013 facilities plan evaluated several activated sludge alternatives including maintaining the existing two-stage HPOAS and the alternative of converting to single-stage air activated sludge.

WATERSHED WORKGROUP

The GWA is a member of the DuPage River Salt Creek Workgroup (DRSCW). The 2004 total maximum daily load (TMDLs) for the East Branch of the DuPage River resulted in the formation of the watershed-based group DRSCW that is working toward dissolved oxygen (DO), total dissolved solids (TDS)/chloride, and other water quality improvements in the Salt Creek and East and West Branch DuPage River watersheds. The Illinois Environmental Protection Agency (IEPA) has agreed to postpone more stringent BOD and ammonia limits at WWTPs as long as the group continues to make good progress toward water quality goals. Recently, the IEPA has also agreed to delay new phosphorus limits for members of the DRSCW that participate in the special assessments. The 2008 feasibility study by DRSCW recommended the removal of the Churchill Woods Dam, located upstream of GWA WWTP, and this project was completed in 2011.

GWA PERSONNEL

The GWA is staffed with seventeen full-time employees between the hours of 6:00 a.m. and 5:00 p.m. Monday through Friday. GWA also employs five part-time operators to cover weekends and holidays. Below is a list of the GWA employees.

- Erik Lanphier, Executive Director
- Gayle Lendabarker, Administrative Assistant
- Laurie Frieders, Environmental Resources Coordinator
- Dave Goodalis, Senior Operator
- Dave Peters, Lab Technician
- Chris Dillmann, Class I Operator
- Jason Neighbors, Class I Operator

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- Joe Kovac, Class IV Operator
- Andy Pakosta, Class IV Operator
- Raymond Booth, Part Time Laborer
- Rick Freeman, Senior Electronics Technician-Electrician
- Phil Dziewior, Instrumentation Technician
- Joe Solita, Electrician
- Jay Dahlberg, Senior Maintenance Mechanic
- John Braga, Maintenance Mechanic I
- Henry Altott, Maintenance Mechanic II
- Austin Cecelia, Maintenance Mechanic II

PERFORMANCE

The GWA has received the following awards:

- 2010–George W. Burke Safety Award
- 2011–NACWA Gold Peak Performance Award
- 2012–NACWA Gold Peak Performance Award
- 2013–Conservation Foundation Clean Water Award
- 2013–NACWA Silver Peak Performance Award
- 2014–NACWA Gold Peak Performance Award
- 2015–Illinois Section CSWEA Treatment Facility Operations Award

The GWA is proud to say it has been excursion-free for 908 days as of the end of July 2015. The longest excursion-free operating period for the GWA stands at 1,058 days, during the period of September 8, 2007, to April 10, 2010.

The GWA would also like the readers to recognize that the current days without any lost worktime injuries are at 831 days as of the end of July 2015. The longest consecutive period of days without a lost worktime injury currently stands at 1,680 days, during the period of March 5, 2002, to October 10, 2006. CS

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

By Tom Burgess, CSP
T&M Associates

OSHA Confined Spaces in Construction

The OSHA 29 CFR 1926, Subpart AA, Confined Spaces in Construction standard became effective August 3, 2015. The rule is similar in content and organization to the general industry confined spaces standard, but also incorporates several provisions to address construction-specific hazards, accounts for advancements in technology, and improves enforceability of the requirements.

Based on the unique characteristics of confined spaces in construction the construction standard places a greater emphasis on training, continuous worksite evaluation, and communication requirements. To maintain consistency with the organization, language, and most of the substantive requirements in the general industry confined spaces standard, OSHA used the general industry standard as the basis for the confined spaces in construction rule.

Scope

Construction activities at a worksite with one or more confined spaces.

All employers engaged in construction have a duty to ensure that their employees do not enter a confined space except in accordance with the requirements of the standard. The presence of a confined space on the worksite triggers this duty rather than the type of work the employer is performing.

There are components of the standard, such as information sharing and coordination of work, that apply to certain employers that, regardless of whether their employees are authorized to enter a confined space. These are employers that have information necessary for the protection of employees working inside confined spaces, or are engaged in activities that could, either alone or in conjunction with activities inside the confined space, endanger the employees working inside a confined space.

Only the presence of a hazard inside a confined space will trigger the majority of procedures required by this final rule (a permit-required confined space).

Excavations

Paragraph (b) Exceptions explicitly excludes construction work regulated by 29 CFR part 1926subpart P – Excavation. OSHA believes that overlapping standards could be unnecessarily burdensome to employers, or cause some confusion about the appropriate procedures to use.

When performing excavation that involves confined spaces, like an existing sewer line, the hazards from the sewer line should do *not* subject the entire excavation project to the confined spaces standard. Employers have a duty under subpart P to address the atmospheric and physical hazards in the excavation, and employers must anticipate and address the hazards that might come from the existing sewer line. Entry into the sewer line or any other confined space located in the excavation would be governed by the confined spaces standard.

Underground Construction

Subpart S applies to the construction of underground tunnels, shafts, chambers, and passageways and cut-and-cover excavations which are both physically connected to ongoing underground construction operations within the scope of the subpart, and covered in such a manner as to create conditions characteristic of underground construction (§1926.800(a)(1)). For subpart S to apply, "the tunnel or other underground structure must be under 'construction.'" To avoid requirements that could potentially cause confusion and extra burdens by forcing employers to switch back and forth between different standards during the same general tunnel-construction project, OSHA will treat non-structural work performed in conjunction with initial construction of an underground space as covered by subpart S.

Definitions

Authorized Entrant

The definition of "authorized entrant" is who the entry supervisor authorizes to

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enter the space, regardless of employer, to avoid confusion about who the authorizing employer is on a multi-employer worksite. This clarifies that an entry supervisor has the duty to identify the authorized entrants on the entry permit, regardless of whether or not they are employees of another employer.

Entry Employer

Under the standard, an entry employer has a number of important duties that must be performed prior to anyone physically entering a permit space, such as the requirements for pre-entry information exchanges in §1926.1203(h) and the duty to develop and implement a permit program to restrict access under §1926.1204. Therefore, under the definition, an employer becomes an entry employer when it "decides that" an employee it directs will enter, rather than at the later point when the employee actually enters. **An employer can be an entry employer regardless of whether that employer has completed any of the steps of instituting a permit program or an employee has actually entered the space.**

OSHA has added a note to the definition of "entry employer" to emphasize that an employer cannot avoid the duties of the standard merely by refusing to decide whether its employees will enter a permit space, and OSHA will consider the failure to so decide to be an implicit decision to allow employees to enter those spaces if they are working in the proximity of the space.

Host Employer

The host employer is the employer that owns or manages the property where the construction work is taking place.

Non-Permit Confined Space

OSHA revised the general industry definition to make it clear that a non-permit confined space is simply the inverse of a permit-required space: it meets all of the requirements to be a confined space, but does not meet the criteria to be a permit-required confined space. A confined space in which all physical hazards are isolated or eliminated and in which there are no actual or potential hazardous atmospheres is a non-permit confined space.

General Requirements

§1926.1203(a) requires an employer to have a competent person evaluate the spaces in which employees it directs may work. OSHA added the competent-person requirement as the analysis required for these evaluations necessitated some level of expertise.

Each employer that directs employees who may work in a confined space must perform the requisite evaluation.

Employers may cooperate in identifying the confined spaces and permit-required confined spaces on a worksite, but each employer remains responsible for identifying spaces that could affect employees it directs, including temporary workers.

Notification

§1926.1203(b)(2) requires each employer to notify its employees' representatives and the controlling contractor, in a manner other than posting, of the hazards of permit spaces and the location of those spaces. The primary purpose of this provision is to ensure that the employer who identifies a permit space conveys the location and general characteristics of the space to the designated recipients as soon as possible.

It is important for employers to provide the controlling contractor with this information because the controlling contractor is in the best position to convey the employer's information to other employers at the site, and later share this information with entry employers.

This requirements applies to all employers who identify a permit space, even if they choose not to allow their employees to enter it, thereby ensuring that the location of all permit spaces will be conveyed to the controlling contractor.

Alternate Entry Procedures

§1926.1203(e) sets the conditions that an employer must meet before employees can enter a permit space under the alternative procedures. This is substantively identical to the general industry provision in §1910.146(c)(5)(i).

Temporary Reclassification

§1926.1203(g) allows an employer to reclassify a permit space as a non-permit confined space, and is similar to the general industry §1910.146(c)(7). When there is no actual or potential hazardous atmosphere present in the space, and the employer eliminates all physical hazards in a space, this section allows an employer to reclassify the space as a non-permit confined space. This eliminates many of the requirements applicable to permit-required confined space entry.

"Elimination" means no on-going measures are necessary to keep the space free of a hazard.

The employer must still ensure that a competent person performs a full reevaluation of the permit space before reclassifying the space.

Employers may reclassify the space as a non-permit space even if a physical hazard remains, so long as the hazard is completely isolated such that employees cannot be exposed to it.

Information Sharing and Coordination

Sections 1926.1203(h) and (i) address information sharing and coordination duties at multi-employer worksites.

Controlling Contractor

The rule places controlling contractors at the center of the information sharing and coordination process. Before any employer enters a permit space, the controlling contractors is required to obtain relevant information about confined spaces on the worksite from the host employer, and then to relay that information, along with any other relevant information, to each contractor that will enter the confined space or that will be performing work that could foreseeably result in a hazard within that confined space.

The controlling contractor is also responsible for coordinating work in and around confined spaces so that no contractor working at the site will create a hazard inside the confined space.

After the entry employer performs entry operations, the controlling contractor must debrief the entry employer to gather information that the controlling contractor then must share with the host employer and other contractors who enter the space later.

Host Employer

The host employer serves an important role in providing information because the host employer is likely to be the employer most familiar with the property and the most likely to retain, between separate construction projects, information about permit spaces on the property, particularly in construction involving existing facilities.

The host employer is required to share information they have on "known" permit spaces. The host employer is not required to enter the space to collect information.

Permit-Required Confined Space Entry Program

The requirements for a permit-required confined space program and confined space entry procedures are almost identical to the general industry requirements.

As part of the program each entry employer must implement the measures necessary to prevent unauthorized entry; identify and evaluate the hazards of permit spaces before employees enter them; and, develop and implement the means, procedures, and practices necessary for safe permit space entry operations.

Permit entry requires a permit, entry supervisor, attendant, and authorized entrants.

Rescue and Emergency Services

§1926.1211 expands on the rescue requirements of the general industry standard providing clarification on assessing the response and adequacy of rescue services. The employer who designates rescue services must verify that they have the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified.

Non-entry rescue is required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. The employer must designate an entry rescue service whenever non-entry rescue is not selected. Whenever non-entry rescue is selected, the entry employer must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available in the event that non-entry rescue fails. CS

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

By Mary Evans and Gary Sober

How Alkalinity Affects Nitrification

Use alkalinity profiling in wastewater operations to control biological activity and optimize process control

The Water Environment Federation's new Operations Challenge laboratory event will determine alkalinity needs to facilitate nitrification. Operators will evaluate alkalinity and ammonia by analyzing a series of samples similar to those observed in water resource recovery facilities.

This event will give operators an understanding of how alkalinity works in the wastewater treatment process to facilitate nitrification, as well as the analytical expertise to perform the tests onsite. This provides the real-time data needed to perform calculations, since these analyses typically are performed in a laboratory that can present a delay in the data.

What is alkalinity?

The alkalinity of water is a measure of its capacity to neutralize acids. It also refers to the buffering capacity, or the capacity to resist a change in pH. For wastewater operations, alkalinity is measured and reported in terms of equivalent calcium carbonate ($CaCO_3$). Alkalinity is commonly measured to a certain pH. For wastewater, the measurement is total alkalinity, which is measured to a pH of 4.5 SU. Even though pH and alkalinity are related, there are distinct differences between these two parameters and how they can affect your facility operations.

Alkalinity and pH

Alkalinity is often used as an indicator of biological activity. In wastewater operations, there are three forms of oxygen available to bacteria: dissolved oxygen (O_2), nitrate ions (NO_3^-), and sulfate ions (SO_4^{2-}). Aerobic metabolisms use dissolved oxygen to convert food to energy. Certain classes of aerobic bacteria, called nitrifiers, use ammonia (NH_3) for food instead of carbon-based organic compounds. This type of aerobic metabolism, which uses dissolved oxygen to convert ammonia to nitrate, is referred to as "nitrification." Nitrifiers are the dominant bacteria when organic food supplies have been consumed.

Further processes include denitrification, or anoxic metabolism, which occurs when bacteria utilize nitrate as the source of oxygen and the bacteria use nitrate as the oxygen source. In an anoxic environment, the nitrate ion is converted to nitrogen gas while the bacteria converts the food to energy. Finally, anaerobic conditions will occur when dissolved oxygen and nitrate are no longer present and the bacteria will obtain oxygen from sulfate. The sulfate is converted to hydrogen sulfide and other sulfur-related compounds.

Alkalinity is lost in an activated sludge process during nitrification. During nitrification, 7.14 mg of alkalinity as $CaCO_3$ is destroyed for every milligram of ammonium ions oxidized. Lack of carbonate alkalinity will stop nitrification. In addition, nitrification is pH-sensitive and rates of nitrification will decline significantly at pH values below 6.8. Therefore, it is important to maintain an adequate alkalinity in the aeration tank to provide pH stability and also to provide inorganic carbon for nitrifiers. At pH values near 5.8 to 6.0, the rates may be 10% to 20% of the rate at pH 7.0. A pH of 7.0 to 7.2 is normally used to maintain reasonable nitrification rates, and for locations with low-alkalinity waters, alkalinity is added at the water resource recovery facility to maintain acceptable pH values. The amount of alkalinity added depends on the initial alkalinity concentration and amount of NH_4-N to be oxidized. After complete nitrification, a residual alkalinity of 70 to 80 mg/L as $CaCO_3$ in the aeration tank is desirable. If this alkalinity is not present, then alkalinity should be added to the aeration tank.

Why is alkalinity or buffering important?

Aerobic wastewater operations are net-acid producing. Processes influencing acid formation include, but are not limited to

- Biological nitrification in aeration tanks, trickling filters and rotating biological contactors.
- The acid formation stage in anaerobic digestion.
- Biological nitrification in aerobic digesters.
- Gas chlorination for effluent disinfection.
- Chemical addition of aluminum or iron salts.

In wastewater treatment, it is critical to maintain pH in a range that is favorable for biological activity. These optimum conditions include a near-neutral pH value between 7.0 and 7.4. Effective and efficient operation of a biological process depends on steady-state conditions. The best operations require conditions without sudden changes in any of the operating variables. If kept in a steady

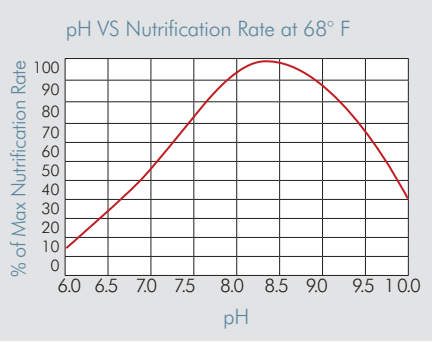

Figure 1. pH versus nitrification rates at 68°F (maximum nitrification rate occurs at 8.0–8.5 pH)
Source: EPA-625/4-73-004a, *Revised Nitrification and Denitrification Facilities Wastewater Treatment*, U.S. Environmental Protection Agency Technology Transfer Seminar.

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state, good flocculating types of microorganisms will be more numerous. Alkalinity is the key to steady-state operations. The more stable the environment for the microorganisms, the more effectively they will be able to work. In other words, a sufficient amount of alkalinity can provide for *improved performance and expanded treatment capacity*.

How much alkalinity is needed?

To nitrify, alkalinity levels should be at least eight times the concentration of ammonia in wastewater. This value may be higher for untreated wastewater with higher-than-usual influent ammonia concentrations. The theoretical reaction shows that approximately 7.14 mg of alkalinity (as $CaCO_3$) is consumed for every milligram of ammonia oxidized. A rule of thumb is an 8-to-1 ratio of alkalinity to ammonia. Inadequate alkalinity could result in incomplete nitrification and depressed pH values in the facility. Plants with the ability to denitrify can add back valuable alkalinity to the process, and those values should be taken into consideration when doing mass balancing. (For Operations Challenge event, the decision has been made to not incorporate the denitrification step in process profiling.) To determine alkalinity requirements for plant operations, it is critical to know the following parameters:

- Influent ammonia, in mg/L.
- Influent total alkalinity, in mg/L.
- Effluent total alkalinity, in mg/L.

For every mg/L of converted ammonia, alkalinity decreases by 7.14 mg/L. Therefore, to calculate theoretical ammonia removal, multiply the influent (raw) ammonia by 7.14 to determine the minimum amount of alkalinity needed for ammonia removal through nitrification.

For example:

- Influent ammonia = 36 mg/L
- 36 mg/L ammonia × 7.14 mg/L alkalinity to nitrify = 257 mg/L alkalinity requirements
- 257 mg/L is the minimum amount of alkalinity needed to nitrify 36 mg/L of influent ammonia.

Once you have calculated the minimum amount of alkalinity needed to nitrify ammonia in wastewater, compare this value against your measured available influent alkalinity to determine if enough is present for complete ammonia removal, and how much

Nitrification Activities at pH 7.2 and below	
pH	Activity
7.2	1.00
7.0	0.83
6.8	0.67
6.6	0.50
6.4	0.34
6.2	0.17

Figure 2. Measurement of nitrification activity at a pH of 7.2 and lower
Source: EPA-625/4-73-004a *Revised Nitrification and Denitrification Facilities Wastewater Treatment*, U.S. Environmental Protection Agency Technology Transfer Seminar.

(if any) additional alkalinity is needed to complete nitrification.

For example:

Influent ammonia alkalinity needs for nitrification = 257 mg/L

Actual measured influent alkalinity = 124 mg/L

257 - 124 = 133 mg/L deficiency

In this example, alkalinity is insufficient to completely nitrify influent ammonia, and supplementation through denitrification or chemical addition is required. Remember that this is a minimum – you still need some for acid buffering in downstream processes, such as disinfection.

Bioavailable alkalinity

Most experts recommend an alkalinity residual (effluent residual) of 75 to 150 mg/L. As previously identified, total alkalinity is measured to a pH endpoint of 4.5. For typical wastewater treatment applications, operational pH never dips that low. When measuring total alkalinity, the endpoint reflects how much alkalinity would be available at a pH of 4.5. At higher pH values of 7.0 to 7.4 SU, where wastewater operations are typically conducted, not all alkalinity measured to a pH of 4.5 is available for use. This is a critical distinction for the bioavailability of alkalinity. Therefore, in addition to the alkalinity required for nitrification, additional alkalinity must be available to maintain the 7.0 to 7.4 pH. Typically, the amount of residual alkalinity required to maintain pH near neutral is between 70 and 80 mg/L as $CaCO_3$.

Proper alkalinity levels for treatment

Alkalinity is a major chemical requirement for nitrification and can be a useful and beneficial tool for use in process control. Several things to keep in mind:

Alkalinity provides an optimal environment for microscopic organisms whose primary function is to reduce waste.

In activated sludge, the desirable microorganisms are those that have the capability, under the right conditions, to clump and form a gelatinous floc that is heavy enough to settle. The formed floc or sludge can be then be characterized as having a sludge volume index.

The optimum pH range is between 7.0 and 7.4. Although growth can occur at pH values of 6 to 9, it does so at much reduced rates (see Figures 1 and 2). It is also quite likely that undesirable forms of organisms will form at these ranges and cause bulking problems. The optimal pH for nitrification is 8.0, with nitrification limited below pH 6.0.

Oxygen uptake is optimal at a 7.0 to 7.4 pH. Biochemical oxygen demand removal efficiency also decreases as pH moves outside this optimum range.

Mary Evans *is a regional account manager for Premier Magnesia (Flint, Texas). She is a past president of the Water Environment Association of Texas and is the laboratory event coordinator of the WEF Operations Challenge Committee.* ***Gary Sober*** *is the vice president of technology for Byo-Gon Inc. (Chandler, Texas).* CS

Submit for an Award – 2016 WEF and CSWEA

By Patricia Oates and Sue Baert

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

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

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

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

Please note that award submittals need to be made by November 14, 2015 for Awards presented by CSWEA to allow distribution to the respective CSWEA or WEF Awards Committees for consideration. CSWEA will present the winners with their awards at the 89th Annual Meeting Awards Banquet in May 2016, Monona Terrace in Madison, WI. WEF awards will be presented at WEFTEC 2016 in New Orleans.

2016 CSWEA & WEF Award nominations now being accepted

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

WEF AWARDS
presented at CSWEA Awards Banquet

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

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

George W. Burke Safety Award: The Burke Award is made annually by WEF to a municipal or industrial wastewater facility for promoting an active and effective safety program. Each State Section Committee can nominate a facility and the nominations are then sent to the general awards committee. The winner will be presented with the Burke Safety Award at the CSWEA Annual Meeting.

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

CSWEA AWARDS
presented at CSWEA Awards Banquet

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

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

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

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

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

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

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

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

NEW! Water Stewardship Award: This award recognizes and honors the contributions of an individual for outstanding humanitarian service to improving and sustaining our global water environment.

WEF AWARDS presented at WEFTEC

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

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

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

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

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

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

George Bradley Gascoigne Medal: This award is presented by WEF to the author(s) of an article, which presents the solution of an important and complicated operational problem within a full-scale, operating wastewater treatment plant, which is appropriately staffed. Article must have been published in a federation or member association magazine/newsletter during the previous year.

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

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

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

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

Nominate for awards at www.cswea.org/awards

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Water Research Center Introduces New Membership for Small Utilities

The Water Equipment and Policy Research Center (WEP) is embarking on a major new initiative to partner with public utilities of all sizes in research that creates advanced technologies and policies to increase operating efficiencies, and protect the environment. Since its founding in 2010, WEP research has laid the foundation for breakthroughs that will help improve how public utilities treat water and wastewater.

WEP's growing presence resulted in several clean water agencies joining as members including the Milwaukee Metropolitan Sewerage District (MMSD), Metropolitan Water Reclamation District of Greater Chicago (MWRD), the Wisconsin Department of Natural Resources (WDNR) and Veolia Water. These members are now collaborating with research scientists at Marquette University and the University of Wisconsin-Milwaukee to create novel real-time sensors and equipment, new materials, systems, and policy information necessary to address the industry's emerging challenges.

Now WEP is announcing changes that will further broaden membership by making it affordable for smaller public utilities to join the center and become engaged in the research.

"WEP's public utility membership is specifically designed to meet the needs of water and wastewater utilities by providing more membership options," said Professor Daniel Zitomer, WEP Marquette University Site Director. "Having large and small public utilities actively collaborating with research scientists, manufacturers and policy makers such as the WDNR will help us focus our research on outcomes that address their greatest challenges."

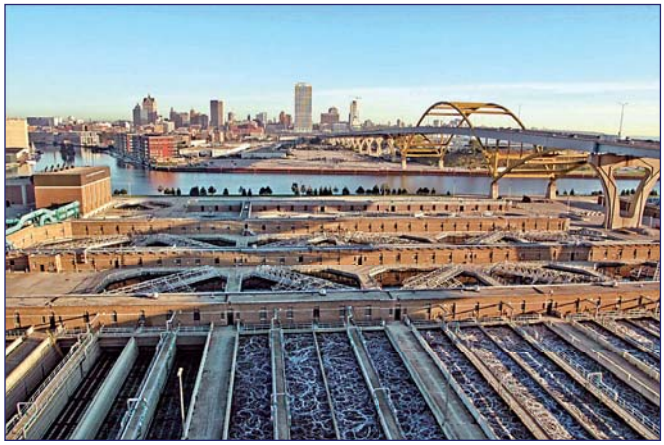
All public utilities can choose to become full members for $50,000 annually as have MMSD and MWRD. Full members enjoy all of the benefits including access to royalty free non-exclusive royalty licenses for university-owned patents, and one vote on all center research and operational issues.

The new annual membership dues for public utilities are aligned to annual revenues and calculated on a sliding scale of $1000/year per $1 million in annual total operating revenue, with a minimum of $10,000, and a maximum of $50,000. Utility membership benefits include participating in all center activities, 1/5 vote per $10,000/year in membership fee (rounded down) pertaining to project selection, and the selection of one person to represent the company on the I/UCRC Industrial Advisory Board. Public utilities have the opportunity to review research program results prior to publication.

"We are advancing technologies in a number of areas," said Dr. Zitomer, "that has attracted the interest of some of the industry's biggest players." Dr. Zitomer's team has demonstrated that using pyrolysis to create biochar from wastewater biosolids locks up nutrients and destroys emerging contaminants such as Triclosan an endocrine disrupting compound found in many household products. Gardeners are currently paying over $1.50 a lb. for biochar and WEP members will have access to this technology that solves a serious treatment challenge while creating a new revenue generating product in the process.

From its founding in 2010 to 2015, WEP's research has fueled significant growth:

- 5 to 12 full members
- $250,000 to $5,730,000, in research
- 0 to 4 patent applications
- 0 to 9 licensing agreements signed with members
- 7 to 20 participating research scientists
- 11 to more than 45 participating student researchers
- 0 to 4 student graduates hired by members



Milwaukee Metropolitan Sewerage District is a full member of WEP and one of the center's founding members. Research projects are focused on advancing its extensive wastewater treatment operations.

Smaller public utilities such as the Fond du Lac Wastewater Treatment Facility will benefit from WEP's new program that provides access to the research and makes membership more affordable.

"Having large and small public utilities actively collaborating with research scientists, manufacturers and policy makers such as the WDNR will help us focus our research on outcomes that address their greatest challenges."

Dr. Dan Zitomer leads a team of Marquette University research scientists in creating innovative water and wastewater treatment technologies.

For example, WEP is funding 11 projects in 2015:

1. *Integrated Hybrid Nanoadsorbent for Removal of Multi-Pollutants in Water* – Dr. Yin Wang, UW-Milwaukee

   Dr. Wang's research pursues the development of a hybrid nanoadsorbent containing a magnetic core covered with an ordered mesoporous silica shell for removal of multi-pollutants in water. The magnetic core will enhance the efficiency and reduce the cost to separate and recover the adsorbent from treated water.
2. *Coupled titanium dioxide photocatalysis and filtration for simultaneous reduction of organic matter, viruses, and estrogenic compounds* – Dr. Brooke Mayer, Marquette University, and Dr. Morteza Abbaszadegan, Arizona State University

   Dr. Mayer is teaming up with Dr. Morteza Abbaszadegan to determine how low energy photocatalysis can provide synergistic benefits to filtration processes by simultaneously breaking down organic matter, inactivating viruses, and reducing estrogenicity. Operated ahead of filtration, this would address multiple water and wastewater treatment concerns by improving filter operation increasing virus mitigation beyond membrane-only or UV-only performance, particularly for UV-resistant microbes such as adenovirus; and destroying persistent emerging contaminants such as estrogenic compounds.
3. *Micro thermal devices for flow, pressure, and temperature measurements* – Dr. Chung Hoon Lee, Marquette University

   Dr. Lee is creating a micromachined thermal measurement device to measure liquid/gas flow and temperature simultaneously using a time of flight (TOF) measurement method. The micromachining processes can enable the mass production of an identical device and will significantly lower the device's manufacturing cost. While the typical thermal measurement of flow rate requires the thermal and material information of liquid/gas prior to the measurement, the TOF method doesn't require such information for measuring flow rate, allowing simpler calibration of the device.
4. *Novel biocide polymer composite materials for biofilm treatment in drinking water* – Drs. Krassimira Hristova and James Maki, Marquette University

   Despite the low nutrient environment in drinking water, microbial biofilms are found on almost all submerged surfaces in treatment plants and distribution systems where the nutrients accumulate. Dr. Hristova's team aims to synthesize novel polymeric composite materials and test their activity to control water antimicrobial biofilms and to reduce microbiological contaminants.
5. *Hydrodynamic approach to quantify phosphorus distribution in the near-shore of Lake Michigan* – Drs. Hector Bravo, Harvey Bootsma, and Val Klump, UW-Milwaukee

   Nutrient point loading into Lake Michigan can produce algal blooms, hypoxia, beach closures, clogging of water intakes, and reduced water quality. Scientifically based management of the problems resulting from excessive nutrients requires the development of a whole-lake hydrodynamic and nutrient transport model, and local models that can calculate wastewater discharge effluent limits for municipalities and industries. This research will develop a novel, localized model that will be a first step to a comprehensive whole-lake effort through assessment of necessary modeling criteria.
6. *Using Pyrolysis Product Biochar to Capture Micropollutants* – Dr. Patrick McNamara, Marquette University

   Dr. McNamara's previous research demonstrated pyrolysis successfully removes micropollutants from wastewater biosolids and produces biochar, which can be used as a valuable soil amendment. He is now using biochar as a novel adsorbent to remove micropollutants such as Triclosan from treated secondary effluent in wastewater treatment plants.
7. *Self-healing corrosion and wear resistant coatings for components used in water industry* – Dr. Pradeep Rohatgi, UW-Milwaukee

   Corrosion, wear, and cracking limit the service life of components in contact with water and are a major concern for the water industry. Although freshwater is rapidly becoming one of the world's scarcest resources the water industry estimates that as much as 30% of utilities' treated water is lost through leaking pipes and components. Dr. Rohatgi's team is creating new materials

and technologies that will automatically repair pipes and plumbing components as leaks develop.

8. *Advanced High-Rate Wet-Weather Treatment Process – Dr. Daniel Zitomer,* Marquette University

Sewer overflows occur during high-intensity rainfall when sanitary sewers, combined sewers, and water reclamation facilities are taxed above their handling capacity. Storm water and diluted sewage are then diverted from sewers to lakes, rivers or streams with minimal or no treatment and can become contaminated with pathogenic organisms and pollutants.

To solve the overflow challenge, Dr. Zitomer's team will develop an advanced, rapid wet-weather treatment process that safely treats overflow water. Because relatively few high rainfall overflow events may occur annually the new system would remain idle and unused for long periods and then must start up easily when needed. It also must be capable of treating flows in 10 to 20 minutes since these flows are extremely high. And finally wet-weather water reclamation must produce water with the same or higher quality as conventionally treated wastewater.

9. *System for Biomethane Production from Bioplastics – Dr. Daniel Zitomer,* Marquette University

Most plastic waste is non-biodegradable and causes environmental problems. One potential solution relies on new, biodegradable plastics. Dr. Zitomer's team is exploring a cradle-to-cradle scenario by creating anaerobic digesters that convert bioplastic into biomethane (CH_4) for renewable energy.

10. *Ultrasensitive Detection of Phosphate with Graphene-based Platform – Shun Mao (PI) and Jingbo Chang (Co-PI),* University of Wisconsin-Milwaukee

The UWM team is creating an ultrasensitive and real-time sensing platform for phosphate detection in water – a reliable and cost-effective way for water quality monitoring and assessment of rivers, streams, and reservoirs. The sensor would be fabricated into a stand-alone sensor or integrated into member companies' existing water equipment, provide a range of options for reliable and affordable water quality monitoring.

11. *Low-cost disposable cation exchange membrane electrode for pH and heavy metal detection – Woo Jin Chang,* University of Wisconsin-Milwaukee

Dr. Chang's team is creating a novel cation exchange membrane that has sensing elements for the simultaneous or individual detection of pH and heavy metals. The membrane can deliver sample liquid and pre-concentrate positively charged heavy metal ions. It will be highly sensitive, low-cost and disposable.

For more information on WEP membership, please contact Dave Marsh at 262-227-2277 or *marshd@uwm.edu*. CS

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CALL FOR ABSTRACTS
89th ANNUAL MEETING

This is a request for abstracts of papers to be considered for presentation at the 89th Annual Meeting of the Central States Water Environment Association, Inc., which will be held May 17-20, 2016 at the Monona Terrace, Madison, Wisconsin. To receive consideration, abstracts must be submitted online **before Wednesday November 25, 2015.**

NEW: A half-day track focused on stormwater and watershed topics!

The popular operations and utility management track will continue. Papers on troubleshooting, optimization studies, case studies, completed projects are of high interest. In addition to the operations and utility management track there will be a separate **Operations Focus Session** covering topics related to day-to-day wastewater operations.

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

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

Papers on other subjects which you feel may be of interest to members are, of course, also welcome. All written papers submitted are eligible for the Radebaugh Award.

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 and STORMWATER MANAGEMENT:
- Anti-Degradation and Other Regulatory Issues
- Habitat or Groundwater Protection or Restoration
- Non-Point Pollution Source Modeling
- Water Quality Trading and Watershed Management Issues and Initiatives, including Adaptive Management
- Green Infrastructure Solutions and Best Management Practices
- Total Maximum Daily Loads Involving Point and Non-Point Sources
- Education and Outreach

GENERAL:
- Laboratory Issues/Bench-Scale Studies
- Pretreatment, Industrial Treatment, and Pollution Prevention
- Regulatory Issues
- Security Issues
- Engineering Ethics Training

SOFT SKILLS/LEADERSHIP
- Leadership Skills
- 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

ONLINE IS EASIER

To receive consideration, please submit your abstract via a new online submittal process that can be accessed from the CSWEA website. To submit your abstract, please go to *www.cswea.org* and then to the 89th Annual Meeting Abstract Submittal area. As an author, you will receive a secure password-protected account that you will use for submission. The online submittal process will consist of a four-step process. You will enter the title and abstract, import your credentials, choose your topic area, and select your presentation format. Please contact me with any questions or problems that you encounter. Thank you.

Jeremy Cramer
Chair, Technical Program Committee
City of Fond du Lac
Wastewater Operations Manager
700 Doty Street
Fond du Lac, WI 54936
Phone: 920-539-7353
Email: *jcramer@fdl.wi.gov*

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INSTRUCTIONS FOR THE SUBMISSION OF ABSTRACTS & CRITERIA FOR PAPER SELECTION

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

The abstract should be submitted online at *www.cswea.org*. Through the online submittal process, you will enter the title and abstract, import your credentials, choose your topic area, and select your presentation format. Abstracts should *summarize* the talk in about 250 words and must be less than one page single-spaced, or two pages double-spaced using standard fonts and margins (about 500 words). The total number of abstract pages, including all tables and figures, must not exceed six (6) pages.

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

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

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

2. **Technical content:** A summary of the conditions under which data were obtained should be presented along with the methodology used. The conclusions should be presented in the abstract and should follow directly from the investigation or evaluation that was conducted. The abstract should substantiate that the project has been fully developed, that the theory or experimental procedure has been firmly established, and that data have been collected and subjected to analysis. It should be evident that the abstract clearly describes the entire content of the conclusions of the paper to be presented.

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

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

Abstracts are due before November 25, 2015.

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Platteville Student Engineers Take Their Winning Design to Costa Rica

By Devin Peterson

Members of the Platteville Society of Environmental Engineers undertook CSWEA's environmental design challenge. The competition was to design a wastewater collection and treatment system for Piedras Blancas, Costa Rica. UW Platteville team members Devin Peterson, Curtis Veit, and Dylan Friss created a design and presented it on April 6, 2015 at the CSWEA Design Competition in Madison, WI. As a result, two of the winning members got to travel with CSWEA to Piedras Blancas for a week in August to inspect the future location of the treatment system.

Located in southern Costa Rica with a population of about 550, Piedras Blancas is comprised mostly of residents that work on nearby palm plantations. Because the current treatment is an undersized array of unmaintained septic systems, a new system is needed. The goals for the project included: limiting mechanical processes and minimizing operational costs and operation difficulty. So to achieve these goals, we proposed gravity collection and a lagoon treatment system.

The project presented several challenges to our design team including space availability for the proposed lagoon, spacing between houses for laterals, international codes, unit conversions, availability of local information, and language barriers.

For the collection system, we proposed that the pipes be placed in the roadway so construction and maintenance would not require permission from homeowners if anything needed to be done to it. Criteria used included per capita water usage of 80 gallons per day, and US standards for minimum pipe sizes, slopes, and cover.

The estimated design water usage allows for the current water use, a 20% increase, and an additional 20 gallons a day for inflow and infiltration due to large amounts of precipitation. To make the flows more realistic, a peaking factor of two and a diurnal variation pattern were added to the model. Based on that, it was determined that the best pipe sizes were 0.2 meters (8 inches) for the main and

An aerial view of the collection system and lagoon at Piedras Blancas

L to R. Dylan Friss, Devin Peterson, and Curtis Veit.

0.10 meters (4 inches) for lateral pipe, both of which are U.S. minimum sizes.

The final cost to complete the collection systems is expected to be around $57,000 including excavation, main pipes, manholes, and laterals to the property line. While this estimate seems very low for the scope of this project, the cost of labor in Costa Rica is less than the United States. The unit prices to estimate the cost of the project were obtained from a local engineering firm, RQL Engineering from San Isidro, Costa Rica.

Lagoon:

The lagoon design was based on "Aerated Lagoons for Secondary Treatment" by Linvil G. Rich. Headwork will remove grit from the system prior to entering the lagoon. The lagoon consists of four cells that are aerated. The first cell requires complete mixing with a detention time of two days. Cells two through four require a one-day detention time and are not completely mixed. Table 1 shows the dimensions of the lagoon. The lagoon will be lined with a polyethylene liner rather than a thick layer of low permeability clay. A baffle will separate the cells and the outer structure will be earthen.

Table 1 Lagoon cell sizes

	V (m ^ 3)	L (m)	W (m)	d (m)
cell 1	329	14.8	7.4	3
cell 2	164	7.4	7.4	3
cell 3	164	7.4	7.4	3
cell 4	164	7.4	7.4	3

Cell one of the lagoon will be completely mixed with a 5 HP aerator. The following three cells will contain 1 HP aerators that will allow for partial aerobic conditions. The daily electrical demand is expected to be about $20 based on electrical rates of Costa Rican homes. This design is ideal for preventing algal growth in the cells. With steady temperatures throughout the year, treatment should always meet the 30/30 goal.

Because the lagoon will be located between the town and the river, squatters may need to be sent off the site in order to construct the lagoon. The expected total cost of the lagoon and collection system is approximately $200,000. CS

WEF & CSWEA MEMBER DUES INCREASE NOTICE

Effective January 1, 2016, the WEF dues will increase based on the schedule below. The increases will help WEF continue to invest in your professional organization to ensure you have what you need to be successful in the water sector. It's an investment for the long term to keep WEF fiscally sound and able to deliver to you everything you need to stay ahead in this business.

While the increase is part of an overall plan developed in 2013, the Board deliberated carefully before determining the amount of a dues increase to be included in the 2016 budget. The decision was influenced by the positive feedback we have received on our recent investments in innovation, in new practice areas, and in increased member and MA services. The Board's goal is to continue to grow our services while maintaining a sustainable and nimble business model.

The Board remains strongly focused on growing member value while staying focused on operating an efficient organization with a low overhead in order to maximize member service and enhance the member experience. WEF's newly approved Strategic Plan supported by a business plan and success metrics will allow further alignment of resources.

WEF DUES INCREASES EFFECTIVE JANUARY 1, 2016

	2015	2016
Professional WEF/CSWEA Dues	$116	$133
Academic	$116	$133
PWO	$ 62	$ 71

Similarly, the CSWEA Executive Committee deliberated on September 24, 2014 to increase our member association dues so that we can provide you with greater regional resources, conferences, online services and student chapter integration. The dues increase will be formally approved at our May 19, 2016 Annual Business Meeting at Monona Terrace, Madison, WI. All members are encouraged to attend this meeting.

CSWEA DUES INCREASES TO BE VOTED ON MAY 19, 2016

	2016	2017
Corporate/Young Professionals	$20	$25
Academic/PWO/Executive/Professional	$25	$30
Retirees/Students	$20	$20

CSWEA 2015 BUYERS' GUIDE

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

OUR CSWEA BUYERS' GUIDE CONSISTS OF TWO SECTIONS:

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

LISTINGS BY CATEGORY

Activated Carbon
CEI Carbon Enterprises Inc.

Aeration
EDI
RWL Water

Anaerobic Digestion
Olympus

Biogas to Energy
Unison Solutions

Chemical Processing & Feed Systems
Crane Engineering
Energenecs
Force Flow
LAI Ltd.
Pollardwater

CIPP Rehab
LMK

Clarifiers/Thickeners
Kusters Water

Coagulants & Flocculants
Kemira

Coatings, Lining & Corrosion Control
Dixon Engineering
Industrial & Environmental Concepts
Kemira
SpectraShield Liner Systems

Construction Castings
HD Supply Waterworks

Continuing Education
University of Wisconsin-Madison

Contractors
Black & Veatch
Brown and Caldwell
Process Equipment Repair Services

CSO/SSO Controls, Water Resources, Distribution & Collection
Burns & McDonnell
Clark Dietz
Donohue & Associates, Inc.
Engineered Pump
Hydro International
Infilco Degremont
Lakeside Equipment
LW Allen
Strand Associates, Inc.
Trotter
Xylem

Covers
Industrial & Environmental Concepts

Design-Build
EDI

Diffused Aeration Systems
Sanitaire

Electrical, Instrumentation/ Controls/Generators
Baxter & Woodman, Inc.
Clark Dietz
Donohue & Associates, Inc.
Energenecs
Engineered Pump
LW Allen
Smith & Loveless
Strand Associates Inc.
Xylem

Employee Monitoring Systems
Force Flow

Engineers/Consultants
Advanced Engineering and Environmental Services, Inc.
AECOM
Baxter & Woodman, Inc.
Black & Veatch
Bolton & Menk, Inc.
Brown and Caldwell
Burns & McDonnell
CDM
Clark Dietz, Inc.
Crawford Murphy & Tilly, Inc.
Dixon Engineering
Donohue & Associates, Inc.
EDI
Energenecs
Foth
HR Green
McMahon
Ruekert & Mielke, Inc.
SEH
Strand Associates, Inc.
TKDA
Trotter and Associates, Inc.
Xylem

Equipment Repair & Rehabilitation
Process Equipment Repair Services

Filter Media
CEI Carbon Enterprises Inc.
Unison Solutions

Filtration
CEI Carbon Enterprises Inc.
Infilco Degremont
Lakeside
Mulcahy Shaw Water
RWL Water
Smith & Loveless Inc.
Van Bergen & Markson

Financial Services
Ruekert & Mielke, Inc.

FRP Doors & Grating
Van Bergen & Markson Inc.

General Industrial
JDV Equipment
Powerlube

Geographic Information Systems
Advanced Engineering and Environmental Services, Inc.
Baxter & Woodman, Inc.
Bolton & Menk, Inc.
Crawford Murphy & Tilly, Inc.
McMahon
Ruekert & Mielke, Inc.

Grit Removal Systems
Hydro International
Smith & Loveless Inc.

Infrastructure Management
Ruekert & Mielke, Inc.

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Inspector/Locators
LMK

Laboratories/Supplies
EDI

Land Surveying
Bolton & Menk

Leak Detection
ME Simpson

Lubrication
Powerlube

Manhole Covers & Frames
ESS Brothers & Sons
HD Supply Waterworks
Varec Biogas

Manhole Rehab
Burns & McDonnell
LMK Technologies
SpectraShield Liner Systems

Meter Reading Systems
HD Supply Waterworks

Meters/Meter Testing
HD Supply Waterworks
M.E. Simpson Co., Inc.

Mixing
Medora

Odor Control Solutions
Evoqua
Industrial & Environmental Concepts
Kemira
Kusters
LAI, Ltd.
Medora
Mulcahy Shaw Water
Pollardwater
PAXXO (USA) Inc.
RWL Water
Strand Associates, Inc.
TKDA

Operation Services
American Cast Iron Pipe
Baxter & Woodman, Inc.
Bolton & Menk, Inc.
Burns & McDonnell
Engineered Pump
Powerlube
TKDA

Pipe & Appurtenances
Foth

Pipelines
AECOM

Process Mechanical
Brown and Caldwell
Donohue & Associates, Inc.
EDI
Energenecs
Engineered Pump
Foth
HD Supply Waterworks
JDV Equipment
Kusters
Olympus
Process Equipment Repair Services
Sanitaire
Van Bergen & Markson, Inc.

Pumps/Pump Systems
AECOM
Energenecs
Engineered Pump
Foth
Hawkins
HD Supply Waterworks
Lakeside
LAI, Ltd.
LW Allen
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ESS Brothers & Sons

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TKDA

Tank Maintenance
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Tanks
Bolton & Menk, Inc.
Pittsburg Tank & Tower Maintenance Co.
SEH

Trash Rakes
Lakeside

Turnkey Pump Repairs
Engineered Pump

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

Valves
AIRVAC
American Cast Iron Pipe
HD Supply Waterworks
LAI Ltd.

Water Quality Monitors
CEI Carbon Enterprises Inc.
Medora
Mulcahy Shaw Water

Water Treatment Chemicals
Hawkins, Inc.
Kemira

Water/Wastewater Infrastructure
LMK Technologies

Water/Wastewater Treatment Systems
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Wastewater Collection & Conveyance
AIRVAC

CSWEA 2015 BUYERS' GUIDE

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www.baxterwoodman.com

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262-657-1550
john.boldt@clark-dietz.com
www.clark-dietz.com

CNP Technology Water and Biosolids Corp.
9535 58th Place
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cnp

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csmith@cmtengr.com
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YPs Are Our Future

By Dan Zitomer

As I write this message, the Brewers just gained a 4-1 win over the Padres at Miller Park. I fear, however, no Brewers player will become the new "Mr. October" this season – they're not playing well; it's a rebuilding year. But it was fun to attend this game as part of the section Young Professionals (YP) annual Brewers Outing. There was a record attendance for the event, so we all made new friends, gained valuable information and contributed to our community of water professionals.

I want to thank Tom Mulcahy, Bryan Viitala and Mark Duerr of Mulcahy/Shaw Water along with YP committee chair, Amanda Heller of Baxter & Woodman, for all their hard work to make the event a great success. The brats were great! I encourage you to consider attending the annual Brewers Outing in the future and bring along a potential new Central States Water Environment Association member!

By attending YP and other section events, we improve our communication and technical skills. Can you attend one new CSWEA event in 2016? We have many to choose from, including the WI section collections systems, industrial waste pretreatment, management, spring biosolids, and government affairs seminars. Also consider attending the CSWEA emerging contaminants short course, education seminar, annual meeting, and other events. Consider the IL and MN section events, too! There are plenty of opportunities to learn something new.

In closing, I wish everyone a healthy and happy autumn. Let's take time to enjoy the changing October colors and our beautiful lake and river resources that we all work so hard to protect – even if the Brewers aren't in postseason play! CS

The Power of Three Ignites the Power of One, CSWEA

by Erik Lanphier

I cannot describe in words how impressed I am with the CSWEA organization and the dedicated professionals that make up the membership. CSWEA CSX took place Thursday July 23 and Friday July 24. Two days of brainstorming and networking with wastewater professionals from all three states that make up CSWEA. Wisconsin section had ten professionals attend, Minnesota had seven and Illinois had four. Overall it was a great turnout and the information and idea exchange was phenomenal. I would like to share a famous quote by a man that I *think* most of you are familiar with.

"The achievements of an organization are the results of the combined effort of each individual." ~ Vince Lombardi

I want to take the opportunity to highlight a few of the ideas that warrant utilizing the power of three states under one organizational umbrella. One of the ideas is to create synergy by opening a dialogue between CSWEA and Region 5 regulators. With the initiative in place, CSWEA may have additional states and potentially additional organizations at the local and national level that are showing interest. Currently, there is still a lot of work to be done to make this happen. The tentative idea is for a meeting to take place during WEF in Chicago. If you are interested in being a part of this future meeting please contact your state section chair for more information.

"The five separate fingers are five independent units. Close them and the fist multiplies strength. This is organization." ~ James Cash Penney

Membership is an interesting topic that routinely comes up year after year. This year we are taking membership to a totally different level. This year should be labeled as the year of continuity, as the three sections are all vigorously trying to work together to build a bigger, better, stronger CSWEA.

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

The Membership Committees have started to put into action plans to address membership growth within CSWEA. The Illinois section membership has only increased by 24 members since 2011 with our highest membership year being recorded in 2014 at 395 members. The membership in 2015 shows a 24-member reduction to 370 from the membership high in 2014. So what are we going to do about this?

Well, we have a new Membership Committee Chair that is igniting fires and blazing trails intent on getting the trend back on track. Minnesota and Wisconsin are both on board and welcome the ideas that Illinois is tossing around. The Membership Committees are working off of three goals.

The first goal that has been considered is *New Member Outreach*. This goal consists of some type of the following information/items: a welcome email and a welcome packet that may include a few membership gifts such as (CSWEA Portfolio, Pen, Lanyard and T-shirt). The second goal incorporates an outreach approach to get Central Illinois municipalities and Sanitary Districts more involved.

The third goal is to inform other schools about the benefits of developing student chapters. The Membership Committee foresees assisting the Student Committee in contacting potential student organizations and providing support in the future. The thought is that the two will go hand in hand. Some of the schools that have been mentioned were; Northwestern, Bradley, SIUC and SIUE.

The current Membership Committee values the previous principals that have been identified and will try to incorporate them as they move forward. The principals include, focusing less on retention, recruiting and welcoming new members, and ensuring that CSWEA promotional elements are visible, available and accessible at each event.

I hope you have enjoyed this message about membership growth and the intention of the Illinois section moving through the 2015-2016 fiscal year. Please get involved and persuade other industry professionals to become CSWEA members, and be sure to convince them to join a committee! CS

And the Winner Is

By Lana Tullis

Chances are you can name at least one person or organization whose knowledge, service, or actions create a lead to water quality advancements. Central States Water Environment Association (CSWEA) and the Water Environment Federation (WEF) award programs not only recognize these achievements, but provide the opportunity to learn from these outstanding individuals and organizations. In essence, we are all winners when the recipients are selected from a pool of qualified nominees.

Awards are presented each spring at the CSWEA Awards Banquet; and the nomination process is open. The process takes only a few minutes and can be completed on-line, by phone, or on paper. Details are helpful. However, the following is all that is needed to honor a colleague or organization with your nomination. Self-nominations are also encouraged.

Award Name
Nominee's Name and Contact Information
Your Name and Contact Information

As the number of nominations increases, the ability to recognize truly outstanding, unique and innovative achievements also increases. Everyone wins when more nominations are received!

Although we may all feel like winners who hit the information jackpot, the truth is only one team can bring home the trophy. Minnesota is one of three states represented in CSWEA. Unlike other single-state member associations (MA), CSWEA promotes the best from a three state region. I challenge you as Minnesota members to provide the highest number, highest quality, and most deserving, nominations to represent Central States in the national WEF Awards process.

All members are eligible for CSWEA and WEF awards including operators, consultants, agency personnel, educators, manufacturers and representatives. Full award descriptions and nomination forms are available at *www.cswea.org/awards*.

Operators are eligible for the CSWEA Operations Award for outstanding performance of a wastewater treatment plant and demonstration of professionalism. The Collection System Award (for advancing collection system knowledge and direct or indirect improvement in water quality) and the Lab Analyst Excellence Award (for outstanding achievement in the area of water quality analysis) are available, but not limited to operators.

Facilities are eligible for the WEF George W. Burke Safety Award for promoting an active and effective safety program.

Industrial Facilities are eligible for the Industrial Environmental Achievement Award for contributions in waste minimization, pollution prevention, environmental compliance and environmental stewardship.

Educators are eligible for the Bill Boyle Educator of the Year Award for education assistance to students of any level in the study of the water environment. This is an opportunity to honor educators in our colleges and universities as well as those working with young children who provide a child's first exposure to water quality issues. This develops the passionate youth that become our next generation of operators, regulators, educators and engineers.

Student awards do not require nominations. However, junior high through graduate school students are eligible for recognition through the Academic Excellence Award, the Student Environmental Challenge and the Stockholm Junior Water Prize. The Student Environmental Challenge is unique to Minnesota and is presented in conjunction with the Conference on the Environment. The challenge provides college and university level students the opportunity to compete as a team while addressing real world environmental issues. The Stockholm Junior Water Prize (SJWP) recognizes high school students in an international competition for water science research projects. CSWEA and WEF also support state and regional science fair projects that are eligible to compete at the national level.

Young Professionals including operators, technicians, consultants, educators and regulatory staff, are recognized for their talents, skills and active contributions to the association.

The Radebaugh Award is open to **all Central States members**, both young and old. This award provides recognition for the most notable written publication by a Central States member. Past recipients for this and all awards are included in the Recognition area on the CSWEA website. I encourage you to review the lists of past award recipients. I know you'll be surprised how many familiar and distinguished names you recognize. Wouldn't it be nice to see your name listed?

Other awards include the WEF Quarter Century Operator's Club or the WEF Outstanding Achievement in Water Quality Improvement Award for significant, lasting and measurable excellence in water quality improvement or in prevention of water quality degradation in a region, basin or water body.

Minnesota is a great place to call home, due in part to your commitment to water quality concerns. Member nominations present to the Central States region and the nation the numerous, notable achievements made by Minnesotans each year. CS

CSWEA Welcomes Our New Members

June 2015

Catherine Adamczyk, City of Racine
Nichole Brown, Baxter & Woodman
Matt Larson, Carollo Engineers
Bryan Miko, ADS
Michael Schwar, Stony Point Hydrology
Andrew Wait, Aqua-Aerobic
Kristi Ward, EMA Inc.

July 2015

Andrew Barton
Brian Bollig, Bollig Engineering
Lisa Cerney, City of Minneapolis
Greg Culshaw, Bollig Engineering
Siddarth Eswarachari
Nathan Feist
David Garman, UW-Milwaukee
John Gilles
Carolyn Grieves, Baxter & Woodman
Emma Hakanson
Tayiah Hanson
Benjamin Heidamann, Town & Country Engineering
Brett Hess, HNTB
Doug Joachim, AECOM
Carlan Johnson, Marquette University
Carolyn Jons
Jamieson Koestler, City of Milwaukee
Scott Kuhlman, Bollig Engineering
Veronica Loete, Brown and Caldwell
Nick Maloney, Veolia
Terry McCarthy, City of Racine
Devin Peterson, UW-Platteville
Alan Phelps, Baxter & Woodman
Richard Reeves, Hawkins
John Ross, Symbiont
Frances Slater
Rebecca Specht
Nisha Thuruthy, EMA Inc.
Christopher Tippery, Greeley and Hansen
Curtis Veit, UW-Platteville

August 2015

Ronald Gillenardo,
Sean Reese, DuPage County Public Works

Updated on August 13, 2015

SEPTEMBER

IL Section Business Meeting
September 22, 2015
Pinstripes, Oakbrook Terrace, IL

WEFTEC Reception
September 27, 2015, 6:00-8:00 p.m.
Hilton Chicago, Chicago, IL

OCTOBER

Emerging Contaminants Short Course (sponsored by CSWEA)
October 20-21, 2015
Marquette University, Milwaukee, WI

NOVEMBER

MN Section 30th Conference on the Environment
November 4, 2015
Minneapolis Convention Center, Minneapolis, MN

IL Section Biosolids Seminar
November 19, 2015
US Cellular Plaza, Chicago, IL

FEBRUARY 2016

MN Section Innovative Operations Conference
February 9, 2016
St. Cloud, MN

MARCH 2016

WEF – Odors and Air Pollutants 2016
March 21-24, 2016
Milwaukee Convention Center, Milwaukee, WI

APRIL 2016

WEF - Residuals and Biosolids 2016
April 3-6, 2016
Milwaukee Convention Center, Milwaukee, WI

Student Design Competition
April 18, 2016
Monona Terrace, Madison, WI

Education Seminar
April 19, 2016
Monona Terrace, Madison, WI

MAY 2016

89th Annual Meeting
May 17-20, 2016
Monona Terrace, Madison, WI

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

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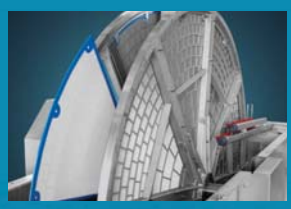

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