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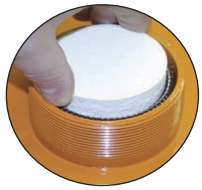

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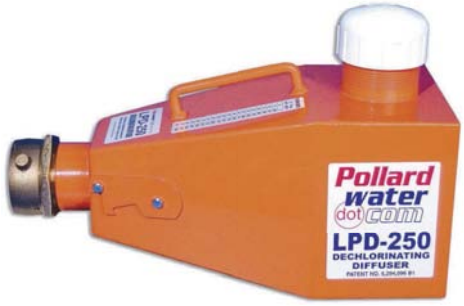

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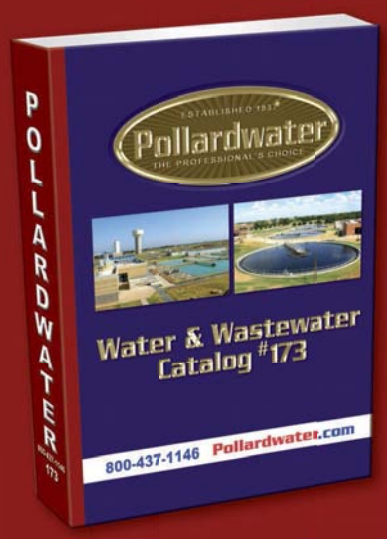

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CSWEA News

Section News

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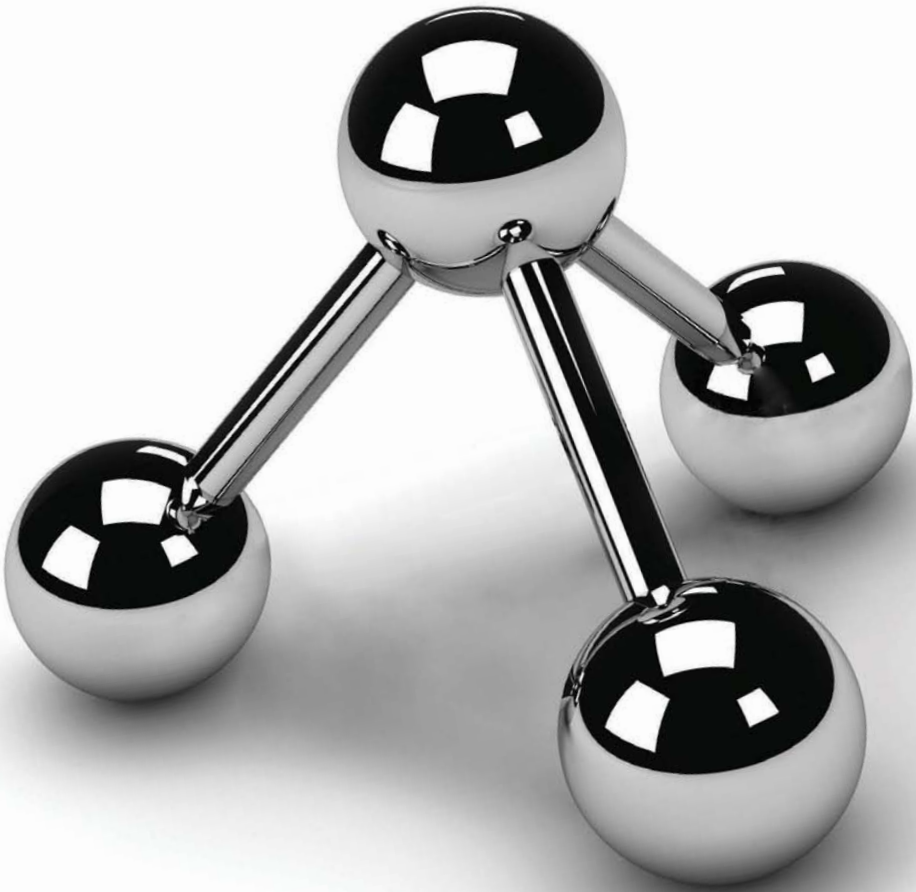

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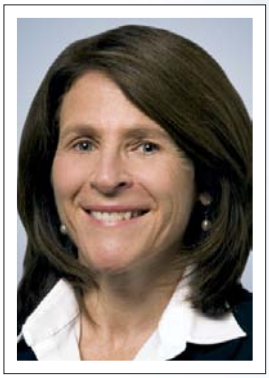

Ideas to Sustain Our Association

By Patti Craddock

We had an impressive group of CSWEA members at this year's Central States Exchange meeting (CSX), July 25-26. Attendees brought forth a lot of good ideas and dialog on how to sustain our association. To sustain our association means more than maintaining our service and financial goals – in today's competitive market it will require increasing participation in our events and adjusting what we offer to attract members and attendance. This is nothing new for CSWEA. We have continued to provide new events, current topics, and other activities to meet the needs of our members.

However, various factors are aligning and steering CSWEA to take a more active stance on increased participation. (1) The demographics of our aging water quality industry workforce means we will be losing a higher proportion of members in the next 10 years that have had a strong commitment to CSWEA. Hopefully successors in the organizations of our retirees will become engaged, but we cannot assume that CSWEA offers the same opportunities and interests for rising professionals. To fill the gap we must attract members from organizations who have not been members, in addition to adding members from long-time CSWEA organizations. (2) CSWEA has many competing organizations vying for our members time and budgets – this means coordinating our targeted revenue-generating events to avoid dates with other activities and providing events with topics and networking activities of continued value to our members.

> "To sustain our association means more than maintaining our service and financial goals – in today's competitive market it will require increasing participation in our events and adjusting what we offer to attract members and attendance."

This and past year CSX meetings focused on four topics to sustain our association:

Annual Meeting modifications

This has been a topic of the Executive Committee and CSX meeting for the past three years. The Annual Meeting is our largest revenue generator and meeting the budget goal is critical to supporting our services. CSWEA leadership recognized the need to manage the annual meeting budget during the onset of the recession given concerns that attendance and exhibitor participation may be reduced. In addition, we have always battled with adequate attendance in the exhibit hall at the annual meeting. Exhibitors – you are important to CSWEA – and we know we need to get more people into the exhibit hall!

We are fortunate to have an Executive Director who took on the task to identify a growth strategy for our CSWEA Annual Meeting. Mohammed interviewed a number of attendees from different sectors of our industry to learn why people come to the CSWEA Annual Meeting, what we do well at the meeting, and what we need to do better. The strategy presented by Mohammed and ideas developed by the CSX meeting members that will be considered for implementation by the Executive Committee in October include:

- Different pricing structure for utilities (as done for WEF membership).
- Transportation sharing (ride-share board; bus) for longer distance travelers.
- A technical track focusing on operations and utility management.

Membership initiatives

Some great ideas have been tossed around over the years to attract new members, increase attendance at events and participation in committees, and to make members aware of our services. The following ideas were developed through CSX

Continued on page 8

Continued from page 7

discussions this year and last year (some I recall hearing years ago):

- Provide a ribbon at conferences or events as "New Member" below the nametag. This is a good icebreaker for more involved CSWEA members to talk with and network with new members.
- Develop a new member orientation program that provides a CSWEA welcome email with information about CSWEA – when a new member registers.
- Establish a mentor program – provide the opportunity for a new member to be assigned a CSWEA member as a mentor (to evolve specific offerings, but mainly to serve as a go-to person to ask questions about CSWEA, meet at events, or career development information).

The membership committee will be recruiting volunteers with opportunities for short/focused involvement of many members.

Student involvement

Increased student involvement increases the chances for life-long engaged members. Some ideas that created lively discussion:

- Revival of student chapters – need to reconnect members with school chapters and help with succession planning of students to carry on activities year-year; sell the benefits of participating in our design competitions.
- Provide a link to membership and young professional committees to track students as they move into their careers.
- Develop a CSWEA student-based community-in-need project program (like Water For People) that could possibly serve as the student design competition project – a wow event that will compete with other opportunities for students, plus provide a rewarding experience for CSWEA members that would serve as mentors.

Strategic planning

Our strategic planning process initiated in 2012 will continue into 2014. CSX attendees liked the idea of a one-page strategic plan and an accompanying action item list (or I just railroaded this idea to the result I wanted – we'll see what our regrouped ad-hoc committee comes up with). The goal is to track all these great ideas and provide a record and accountability for our initiatives. Many activities require multi-year work and we need to continue progress as new leaders move into the Executive Committee and committees. I am eager to capture all the great ideas generated from the Annual Meeting growth strategy, the ongoing dialog on membership initiatives, and new ideas to infuse more student involvement in our strategic plan action item list.

I look forward to seeing many of you at WEFTEC in Chicago. Please join us on Sunday evening at the CSWEA/IWEA Welcome Reception. Enjoy these last days of summer and keep the ideas flowing and the great work going. CS

Click HERE to return to Table of Contents

House of Delegates

By Dave Raby and Rusty Schroedel

One of our major responsibilities as a Delegate is to represent Central States at the House of Delegates meeting held on Saturday before WEFTEC. The current Delegates (Dave Raby and Rusty Schroedel) participate in the morning session and senior Delegates (Dave Raby) complete their terms. The ongoing (Rusty Schroedel) and new (Eric Lecuyer) delegates participate in the afternoon sessions which include breakout meetings of the various workgroups. WEFTEC is a busy time for most attendees and especially for your Delegates. I hope many of you are able to attend with the conference being held in Chicago, within our Central States area.

WEFTEC

There are several changes to WEFTEC this year to encourage and facilitate attendance. The new WEFTEC registration pricing includes one fee regardless of when you register and access to the Technical Exhibition at NO CHARGE! WEFTEC 2013 features new, reduced full conference registration pricing, including streamlined registration categories. Attendees can access the technical exhibition at no charge when choosing to register for Technical Exhibition Only online. The technical exhibition includes: technical sessions on the exhibit floor, mobile sessions, and over 1,000 exhibiting companies.

Also, the inaugural WEF Stormwater Congress will be taking place in Chicago on October 5-9, 2013. This new feature is intended to engage with leaders in the stormwater sector and is a unique opportunity to be part of something innovative and different at WEFTEC. Because this audience and topic is growing rapidly, and has a long and successful history at WEFTEC, WEF has expanded the offerings and created an integrated event, the Stormwater Congress. Combining the strong history of WEFTEC with new programs, events, and networking opportunities, the Stormwater Congress is sure to spotlight this important topic and bring new audiences together to provide input on policy discussions and focus on innovative approaches and ideas required to meet the challenges of today and beyond.

AD Council opportunity

WEF has the potential to work with the Ad Council on a national public awareness campaign. This is truly a unique opportunity to get a thought-provoking message to people regarding the importance of clean water. WEF and the Value of Water (VOW) Coalition have been working diligently with the Glover Park Group communications firm to analyze public awareness research and hone in on the theme that will be presented in the final proposal to the Ad Council on September 12. Member associations have been asked to contribute towards the development of the campaign. Our association has agreed to make a contribution.

WEFCOM

WEFCOM is an online community hosted by the Water Environment Federation. WEFCOM will serve as a virtual workspace, empowering WEF members to network and collaborate in an online environment. We encourage you to sign up on the site, join a community, and see the value of your membership. Hopefully, you will also find the opportunity to use your talents on a WEF committee. There are many opportunities for personal and professional growth through committee activity. WEF and member associations are looking to improve the alignment between member association committees and WEF committees.

WEF website

Have you looked at the website lately? We encourage you to do so. You can access water knowledge, obtain lots of free materials, find information geared to the general public, learn what is happening in your organization, and find contacts and information on many WEF activities. For example, you can access a basic wastewater treatment series in the Knowledge Center. The four course series can be purchased for only $25 for each course. CEUs or contact hours can be earned.

WEF Executive Director

Many of you may have heard that Jeff Eger has resigned as WEF Executive Director. Jeff brought great energy and ideas to WEF and will be missed. Taking over as Interim Executive Director is the most recent Deputy Executive Director,

Click HERE to return to Table of Contents

Dr. Eileen O'Neill. Many of us who have been active in WEF know Eileen well and she brings over 20 years of WEF experience to the position. She also has a link to our Central States area, having undertaken a postdoctoral traineeship in Environmental Toxicology at the University of Wisconsin at Madison.

WEF dues

The WEF Board of Trustees approved a dues increase at their July meeting. This is the first significant membership dues increase in 10 years, as opposed to the nominal rate increases that had occurred. WEF dues will continue to be the lowest among comparable national organizations. More details will be forthcoming.

Dave Raby signing off

As most of you know, Dave Raby will complete his term as CSWEA Delegate to WEF at WEFTEC, at which time Eric Lecuyer will begin his term as delegate. I (Dave) want each of the CSWEA members to know how much I appreciate having the opportunity to represent CSWEA these last three years. I can honestly say that representing CSWEA was a pleasure. Throughout my tenure, I met and interfaced with delegates from around the country and learned that, although there are numerous MAs that are strong and active, CSWEA is truly one of the best. Thanks for all of your support during my tenure; you're in good hands with Rusty and Eric! CS

"WEFTEC is a busy time for most attendees and especially for your Delegates. I hope many of you are able to attend with the conference being held in Chicago, within our Central States area."

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The system can be operated remotely via a 4-20mA or simple on/off signal.

Hats Off

Mohammed Haque

This past August, the Haque family had the pleasure of visiting the home state of John Hart, the WEF visitor at our latest Annual Meeting. Let me tell you what a beautiful state Maine is and how lucky John is to live there. It was our first time in this wonderful state, and we were impressed with its charm, culinary delights, and breathtaking beauty. While we did not hit Maine at the peak of the fall foliage, I can only imagine the vivid colors that are available to see in the fall months. The picture below is that of Camden Hills State Park, a view about 800 feet above sea level overlooking one of the many bays of the Atlantic Ocean. Maine has an amazing coastline, and all the bays create some of the most breathtaking views. We spent a good amount of time at this spot, and it was one of those moments that you have in life that you feel just really content. Loving life, enjoying the moment.

The family, the view, impeccable weather, and perhaps that excellent lobster roll I had a little earlier, created the perfect mix that just could not be beat. In that moment I also realized that many of the greatest moments and breathtaking views involve WATER. Our organization is full of people who do amazing things for the water environment. They are also the same people who have a great love for activities that involve the water, whether it is fishing, sailing, kayaking, surfing, swimming, or simply enjoying the gentle breeze that rolls off the ocean. There are many other ways that we use water for recreation and I think we would be hard pressed to find any individual that did not at least enjoy one of these things.

In my case, on this wonderful day in August, all the water professionals in Maine were working hard to make sure that one of the key ingredients for this breathtaking view was perfect. So, hats off to all water professionals for making the water just perfect, and making my day one that I will always remember. CS

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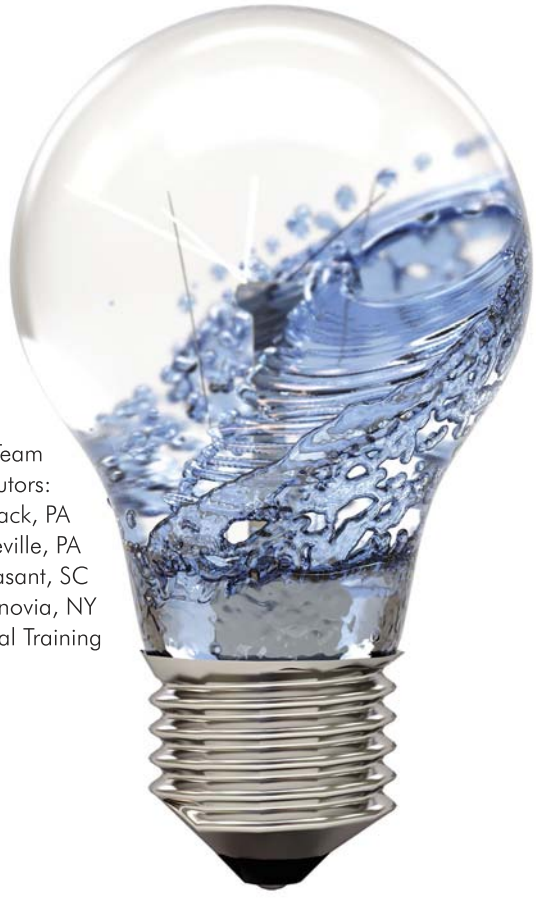

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Energy accounts for about one third of the operating budget for drinking water and wastewater systems. It's a facility's largest controllable budget item, so it's a logical place to look for savings. The most important step in reducing energy costs is to have a good understanding of where the energy is being used in the facility. The first step is to conduct an energy audit to: evaluate possible operational adjustments and concepts; conserve energy and save money; and maintain or improve facility performance.

Generally, an energy audit is a component of an overall energy management program. Similar to a periodic maintenance program, an energy management program (focusing on energy conservation) is a continuous process. A detailed audit is only helpful if there is an ongoing strategy for implementing the recommended upgrades. Having an "energy champion" responsible for monitoring and meeting energy management program goals and also the authority to implement operational changes is critical.

What is an energy audit?

An energy audit is an inspection and analysis of the energy usage of your facility. The end product is the identification of energy conservation measures (or energy saving projects) that reduce the total energy consumed without impacting the final product. Energy audits are conducted by professionals who have experience in energy management and drinking water and wastewater treatment plant operations. Audits can range from a simple walk-through to a more comprehensive, customized effort involving review of plans and specifications, evaluation of the efficiency of equipment (e.g., pumps, blowers, and motors), and review of capital improvement and long term plans. Through an audit, wasteful situations like excessive leakage from a pump (e.g., worn impeller) or operating conditions that are stressing motors unnecessarily (e.g., valve throttling) will be identified. Also, other energy wasting practices, as simple as lighting, heating, and air conditioning usage, are noted.

The majority of potential energy saving measures are process optimization and equipment upgrades. A fundamental process example is over aeration. If activated sludge is over aerated, there is a potential for the sludge not to settle well. By controlling the dissolved oxygen at an ideal set point, the sludge settling may improve and the facility will save energy. Immediate paybacks may be achieved from process adjustments, similar to dissolved oxygen control, and changes in daily procedures that impact energy usage, such as adjusting building temperatures or shifting operations to off peak hours. Capital improvements, such as energy efficient motors, may accomplish significant energy reductions with paybacks of three to five years (20-30% return on investment).

Audit options

There is a range of energy audit options from preliminary (walk-through) to very detailed audits. Detailed audits take much more time and effort, depending on the size and type of treatment plant and the number and complexity of potential energy saving measures to be evaluated. If uncertain on

whether to have a full scale audit conducted, it is suggested that a preliminary audit be scheduled, taking from a day to two weeks. The time is generally spent interviewing operators, taking photos, and walking the plant identifying pieces of equipment and/or process upgrades that warrant further investigation. The deliverable for this type of audit is a report detailing the opportunities for conserving energy with very rough cost estimates. At this point the auditor should be able to advise whether a full-scale audit is likely to identify significant energy saving opportunities. A preliminary audit generally costs around $1,000 to $5,000.

A detailed audit, on the other hand, may take several weeks to several months to complete. During this time, auditing staff may be on site intermittently. Auditors may set up metering equipment to track pump run times and electric usage to calculate pump efficiencies and replacement equipment paybacks. Detailed audits typically range from as low as $10,000 to as high as $100,000 with deliverables varying from technical memos to multi-volume reports.

To receive meaningful and appropriate recommendations that are within the budget, it is critical to clearly define the scope of work and to communicate expectations and desired outcomes. An option is to focus on one process, such as aeration, to keep the cost down.

A factor that influences cost is the level of detail requested regarding implementation costs, i.e., rule-of-thumb estimates, desktop (RS Means) calculation, or actual vendor quotes. An audit could consider electrical rate structures and renewable energy alternatives as well as energy efficiency measures.

Tip: State and local environmental and health agencies and energy companies often offer free energy audits. Although likely a basic audit, it is a step in the direction of becoming more energy efficient and boost morale. It is recommended to also inquire whether these same agencies/companies fully or partially fund energy projects. The U.S. Environmental Protection Agency's (EPA) premiere funding source for drinking water and wastewater improvement projects is the State Revolving Fund (SRF) Program. The SRF program promotes the funding of green projects. Check with your state agency for the availability of low-interest loans.

Homework in advance of an audit

Prior to conducting an energy audit, there is some homework involved. Knowing how your facility is performing in terms of energy efficiency, relative to other similar facilities, is valuable information. The EPA Energy Star Portfolio Manager website has an energy benchmarking tool that is easy to use. Inputs to this online tool include the facility's annual energy use, treatment processes, and average influent and effluent water quality. The tool generates an output score between 0 and 100, where 0 represents the least energy-efficient facility and 100 represents the most energy-efficient facility. The majority of plants score between 40 and 60. Typically plants with scores below 65 have easily identifiable energy saving opportunities. This confidential tool is also used to track energy usage, flow, and green house gas production. (Energy Star Portfolio Manager: *http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager*)

Depending on the level of energy audit conducted, the energy auditor may request information on the plant's existing equipment, processes, operation and energy use. This information could include: as-built/record drawings; original basis of design reports; operator logs; operation and maintenance manuals; at least two years of energy bills; and equipment maintenance history. Ideally, the energy auditor will meet with and interview plant operators and other staff.

When to conduct an audit?

An ideal time to conduct an energy audit is prior to a facility upgrade, since some energy saving measures may be economically unfeasible on the basis of energy savings alone. As an example, it may not be feasible to replace a very inefficient pump motor if it only runs a few hours a day. However, as part of an upgrade, replacement of the motor with a more efficient, maintenance-friendly motor might be cost effective. Consequently, an upgrade presents a unique opportunity to invest in energy efficient equipment. Otherwise, it is a good practice to replace a piece of equipment or treatment process when it has failed or is reaching the end of its useful life with an energy efficient replacement.

Due to system changes, new technology innovations, and varying energy costs, it is recommended that energy audits be repeated every three to five years or before a major project.

Auditor qualifications

When selecting an auditor, seek a firm with a history of successful audits in the industry. Consider asking other neighboring utilities about their experience or references to contact. It is important that the energy auditor be an expert in energy management and drinking water and/or wastewater facility operations and design.

The auditor should be able to look at lighting, air conditioning (HVAC), pumps and motors, and they should also have experience working in both the liquid and solids phases of the treatment process. A skilled drinking water or wastewater treatment plant energy auditor will be able to identify not only typical commercial-building energy upgrades (lighting, motors, HVAC), but also process equipment changes and/or process upgrades with reasonable paybacks.

Along with a good background in drinking water and wastewater operations, there are two certifications an auditor may have. The Association of Energy Engineers (AEE) administers certification programs for Certified Energy Managers (CEM) and Certified Energy Auditors (CEA). These are helpful and comprehensive certifications, but are not specific to drinking water and wastewater treatment and pumping facilities.

Request for proposals and request for qualifications

The procurement method to obtain the services of an energy auditor may vary depending on state and local regulations. One possible option is to draft and advertise a Request for Proposal (RFP). An RFP is generally a solicitation made by a utility interested in the procurement of a service.

When preparing an RFP, consider asking that the audit report include estimated payback times, a prioritized list of suggested capital expenditures, and specify that any recommendations relating to process changes should be consistent with performance requirements of the facility. A good RFP must clearly define the scope of work, the level of detail required for the evaluations, and the breadth and depth of the deliverable. A thorough RFP also includes a section on financing options, e.g., potential grant and funding programs that could help offset energy saving measure implementation costs.

Rather than soliciting a detailed pricing and project scope, an option is to select an auditor based on qualifications by soliciting for a Request for Qualifications (RFQ). A RFQ allows for communication and planning with a selected contractor. Together, plant needs are identified, plant processes understood, and a comprehensive list of upgrades that meet the current and future needs of the plant, while staying within budget, is developed. It is suggested that a RFQ request information on:

- Past experience with drinking water/wastewater treatment plants.
- Specific upgrades identified, installed and guaranteed in previous projects.
- The process used to develop energy projects in general, and at wastewater treatment plants in particular.
- Typical methods for demonstrating ongoing energy savings (measurement and verification methods).
- Individuals who will perform the audit and their experience.
- Individuals who will manage the long-term energy savings, and their location, i.e., are they local?
- Financial capability of the company.
- A sample completed energy audit.
- A sample contract for a project.

Before issuing a request for a RFQ or RFP, the facility must be ready, willing, and able to move forward in implementing a project if the audit shows that the desired economic and operational outcomes can be achieved.

Minimizing risk through performance contracting

A possible option for cash strapped facilities to implement energy saving measures is through the issuance of a RFP for Energy Service Companies (ESCOs) to provide Performance Contracting services. Similar to a detailed energy audit, the

ESCO identifies potential energy saving measures including energy, chemical, operational and maintenance savings as well as increases in revenues and avoided capital costs and quantifies the costs and benefits of each. The ESCO also finances and provides the actual upgrade/energy saving measure, with input from plant staff on products and vendors selected, for projects determined to be economically feasible.

Energy Performance Contracting is a practical way for a facility to undertake expensive or complex energy savings projects. With the information gathered, an ESCO provides the utility with a proposed energy savings project with guaranteed monthly savings.

Through an agreement between the ESCO and the utility, the utility pays the ESCO a portion of the energy savings over a period of time, which allows the ESCO to recover its costs and to make a profit. In most cases the utility takes on the debt to pay for the upgrade, since they are usually able to take advantage of tax breaks. This debt service may be secured by the Energy Saving Contract with the ESCO. The ESCO is held accountable for the measures outlined in the Guaranteed Energy Saving Contract. This allows a facility to complete capital, "paid-from-savings" projects that can be implemented on a cash-flow neutral basis, with savings that are guaranteed for the life of the project. Paybacks achieved depend on the specific processes and operating costs of the facility.

Another consideration using a Performance Contract is the possibility of bundling, no capital outlay, shorter payback improvement measures with longer-payback upgrades that do not explicitly save energy, e.g., bar screen replacement, SCADA expansion. The performance contracting language in some states allows municipalities to enter contracts up to 20 years in length so that they can implement projects with longer paybacks that are critical to the effective treatment of the drinking water or wastewater and help the plant run more efficiently. After implementation of a performance contracting project is completed, the ESCO typically returns each year of the project term to measure and verify the energy savings realized.

The National Association of Energy Service Companies (NAESCO) provides accreditation to Energy Services Companies (NAESCO website: *http://www.naesco.org/*. Similar to auditor certifications, the focus is on energy upgrades to traditional commercial and institutional buildings, rather than drinking water or wastewater process facilities.

Lessons learned

Some examples of lessons learned from an energy audit include:

- Premium motors are not economical in some applications; run time is a significant variable in determining whether or not an energy saving measure has an acceptable payback period.
- Where low run times make a measure unfeasible, it is recommended that the equipment be replaced with the most efficient available when the equipment/lighting is being replaced.
- If the treatment facility pays a demand charge, pumps should be timed so that they do not run simultaneously. For drinking water treatment plants, schedule backwashing during low-peak periods.
- Lighting replacements and energy efficient motors are generally the least costly to implement, which when evaluated individually, have favorable payback periods.
- Upgrade one of two pieces of equipment and then run the upgraded equipment the majority of the time.
- A plant that is well maintained is more energy efficient than a plant that does not keep up with regular maintenance. Qualified O&M staff is critical to the performance of drinking water and wastewater systems.
- To make the greatest impact, implement energy efficiency measures for the largest energy users (i.e. aeration, pumping, solids handling).
- The installation of variable frequency drives (VFDs) does not always guarantee energy savings – especially if you are replacing another, older variable pumping drive or if the majority of total pumping head is static, not dynamic.
- VFDs rarely save energy when used on centrifugal blower applications (because the blower curves are relatively flat).
- Process design can limit energy savings opportunities. For example, it is important to understand that a minimum level of mixing is required in process tanks in order for the solids to stay suspended.
- Although most renewable energy projects have longer than expected payback periods, they pay for themselves within their useful life. A benefit of these is that the cost of electricity remains constant (i.e. cost of debt service for the upgrade/kWhs generated) such that a facility's budget is unaffected if the cost of conventional purchased power increases.

The cost of delay

A thorough energy audit gives plant operators the data needed to make informed decisions as to whether a measure should or should not be implemented. Follow-through to project implementation can reduce energy costs and make funds available for other needed facility improvements. The benefits of doing energy efficient projects sooner rather than later are numerous. A decision to install more efficiency energy equipment and implement related energy-saving measures is a decision to save money and environmental resources.

Click HERE to return to Table of Contents

Additional references

US Environmental Protection Agency (EPA): Ensuring a Sustainable Future: An Energy Management Guidebook for Wastewater and Water Utilities *http://www.epa.gov/owm/waterinfrastructure/pdfs/guidebook_si_energymanagement.pdf*

EPA Region 3 website Road to Net Zero Energy: *http://www.epa.gov/reg3wapd/infrastructure/EnergyEfficiency/index.html*

Rural Community Assistance Partnership (RCAP) – Energy audit webcast for small drinking water utilities: *http://www.rcap.org/energyauditswebinar*

National Rural Water Association: Paper titled *Small System Electric Power Use – Opportunities for Saving: www.nrwa.org/benefits/whitepapers/risks/2008papers/regnier%20SMALL%20SYSTEM%20ELECTRIC%20POWER%20USE%206.doc*

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US Department of Energy Motor Master: *http://www1.eere.energy.gov/manufacturing/tech_deployment/software_motormaster.html*

US Department of Energy - Pump System Assessment Tool: *http://www1.eere.energy.gov/manufacturing/tech_deployment/software_psat.html*

US Department of Energy Savings Performance Contracting webpage: *http://www1.eere.energy.gov/wip/solutioncenter/financialproducts/espc.html*

New York State Energy Research and Development Authority (NYSERDA) basic self-assessment checklist: *http://www.nyserda.ny.gov/en/Commercial-and-Industrial/Sectors/Municipal-Water-and-Wastewater-Facilities/MWWT-Tools-and-Materials.aspx* CS

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City of St. Cloud, MN

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The City of St. Cloud is located in central Minnesota a little more than one hour north of the Minneapolis and St. Paul metropolitan area. The City of St. Cloud's wastewater treatment system consists of 290 miles of sewer main, 36 liftstations, and a newly rehabilitated, expanded and upgraded biological nutrient removal (BNR) facility that can treat 17.9 million gallons a day. The city provides wastewater treatment services to five neighboring communities.

The dedicated staff of wastewater treatment professionals employed by the City of St. Cloud has developed a culture of continuous improvement. This dedication is recognized immediately when you arrive at the facility. Meticulous maintained buildings and equipment, well-manicured grounds, and impressive granite buildings that remind visitors of St. Cloud's proud heritage. It is easy to be caught off guard by the facility; it is not what people normally imagine when they think about a wastewater treatment facility.

The city just recently completed a $48M wastewater treatment facility improvement project. The project included the rehabilitation of 40 year old structures and equipment, upgrading the treatment process from activated sludge to a biological nutrient removal process, upgrading disinfection by using ultraviolet technology and expansion from 13 million gallons a day capacity to 17.9 million gallons a day.

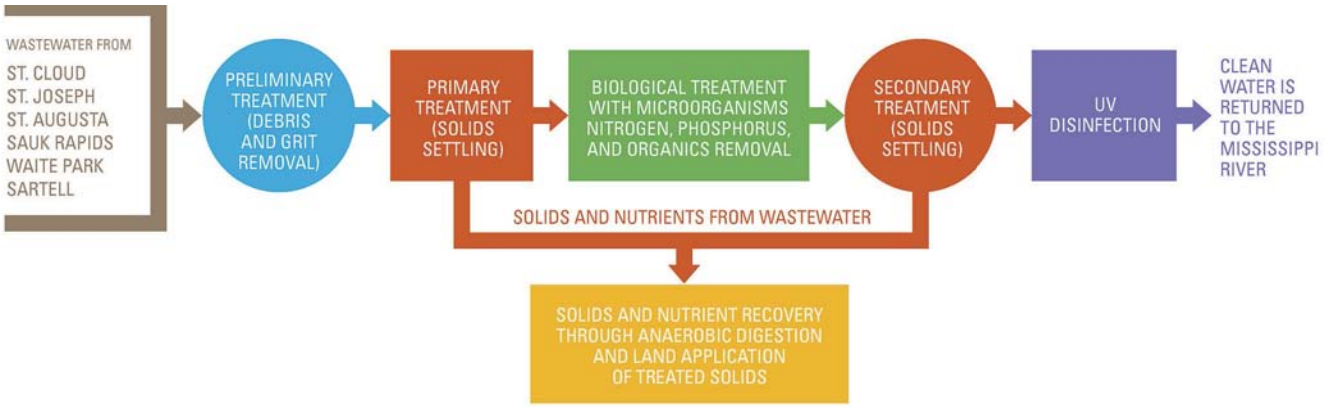
A HOLISTIC PLANNING PROCESS

The planning for the improvement project began over 13 years ago with discussions with area stakeholders regarding the need for rehabilitation to provide capacity for future growth. A key aspect of the discussions and planning was to incorporate St. Cloud's culture to not simply meet current regulatory requirements, but to exceed them in the short and long term.

To collaborate and plan for the upcoming project, a subcommittee of a joint area cities planning group was formed. The subcommittee was named the St. Cloud Area Wastewater Advisory Commission or SCAWAC. SCAWAC membership consisted of at least two members from each community. The goal of SCAWAC is to promote the equitable and efficient distribution of wastewater treatment facility cost and services. SCAWAC's presence was crucial to the success of the project. The City of St. Cloud staff met with SCAWAC often throughout the planning, design and construction phases of the improvement project to ensure success.

The city was able to overcome several challenges by working with key stakeholders including the five other communities served by the WWTF and their respective councils, regulatory agencies, environmental advocacy groups and the public.

WASTEWATER TREATMENT PROCESS - PROTECTING OUR WATERWAYS



PRELIMINARY AND PRIMARY TREATMENT

Ninety-eight percent of the wastewater flows to the Main Lift Station located three miles north of the treatment facility. The Main Lift Station has a barscreen and wash press. The remaining flow enters through two lift stations that are directly connected to the 30" forcemain and from one contract city, which enters the headworks just prior to another bar screen and wash press. Wastewater flows through a vortex grit removal system and a splitter box prior to entering the four primary clarifiers.

SECONDARY TREATMENT

The secondary treatment system was upgraded to a biological nutrient removal system using a Modified Johannesburg Recycle system. Although the facility's current NPDES permit does not have a nitrogen limit, the City incorporated nitrogen removal into the facility design to provide additional environmental protection and also to prepare for future regulatory requirements.

The facility has the flexibility to operate exclusively in Bio-P mode (Biological Phosphorus Removal) or in Full BNR mode (Nitrogen & Phosphorus Removal). With four treatment trains in service, the capacity of the trains to operate in Bio-P mode is 17.9 MGD. When operating in full BNR mode, the capacity of the four trains is 15 MGD.

Wastewater then flows through a BNR basin flow splitter box. The flow splitter box is a hexagonal cast-in-place structure. The splitter box was designed as a hexagon to distribute flow evenly for the future fifth BNR treatment train.

The three existing aeration trains and final clarifiers were rehabilitated into new BNR treatment trains and a fourth BNR treatment train was constructed. An innovative feature of the project was the conversion of the existing final clarifiers into oxic volume. The existing wastewater treatment facility had three 90-foot diameter rim-feed final clarifiers, with operating depths of 12 feet. The drive mechanisms and related equipment had well exceeded the industry standard for useful life. Instead of demolishing the final clarifiers, they were converted to oxic volume for BNR treatment trains 1-3. By converting the clarifiers, the city gained the required hydraulic capacity to incorporate nitrogen removal. This reuse of existing structures saved users of the WWTF several million dollars in capital cost.

Each BNR treatment train consists of a pre-anoxic zone, an anaerobic zone, an anoxic zone and an oxic zone prior to final clarification. The process engineers from Black & Veatch incorporated three separate anoxic zones. The second and third anoxic zones are called "swing zones." If the facility is running in Bio-P mode, the second and third anoxic zones are operated as oxic volume. In BNR mode, the air is shut off in these zones so there is additional capacity for nitrogen removal.

The facility has four new 110-foot diameter final clarifiers. Wastewater from the BNR treatment trains flows to the final clarifiers prior to disinfection.

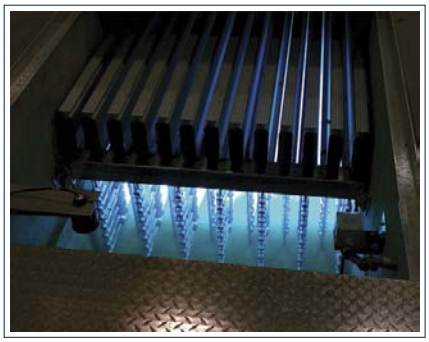
DISINFECTION AND SOLIDS PROCESSING

The chlorine and sulfur dioxide gas disinfection system was replaced with ultraviolet light disinfection using a Trojan 3000+ UV light system. There are two channels that can disinfect 17.9 MGD each.

Solids processing starts with the primary solids and waste activated solids being dewatered by a gravity belt thickener. The city has two primary anaerobic digesters, one secondary and one storage digester. The city produces over 13 million gallons of biosolids a year. This highly valuable agricultural product is recycled on approximately 2,000 acres of state approved application sites. It is a highly sought-after product.

BNR TREATMENT TRAIN

UV LIGHT SYSTEM



Click HERE to return to Table of Contents

IMPACT OF SOLIDS PROCESSING CHANGE

The Facilities Plan originally included the conversion of a secondary anaerobic digester to a primary digester because solids retention times required to meet Class B biosolids was getting close to the minimum 15 days. At that time, the city sent the primary solids to the anaerobic digester and the waste activated sludge was going to dissolved air floatation devices. During the optimization of a new gravity belt thickener that was installed in late 2003, both primary solids and waste activated solids were sent to the gravity belt thickener. This change in solids processing resulted in increasing SRT's from 16 days in 2004 to 30+ days. This helped the city avoid approximately $12 million in capital expenditures.

The solid processing change also eliminated the need for side stream treatment and the potential for slug loading from the decanted portion of the biosolids. In the past, slug loading from decant increased loading to the system several times above normal and limited pollutant removal efficiencies due to filamentous bacteria growth and foaming in the activated sludge tanks.

PERFORMANCE

After substantial completion of the construction project, the facility pollutant removal rates exceeded the design and staff expectations. A comparison of annual pollutant loading in 2008 (before construction) versus 2012 (post construction): the facility has reduced the discharge of nitrogen by over 46,000 pounds and phosphorus by over 19,000 pounds.

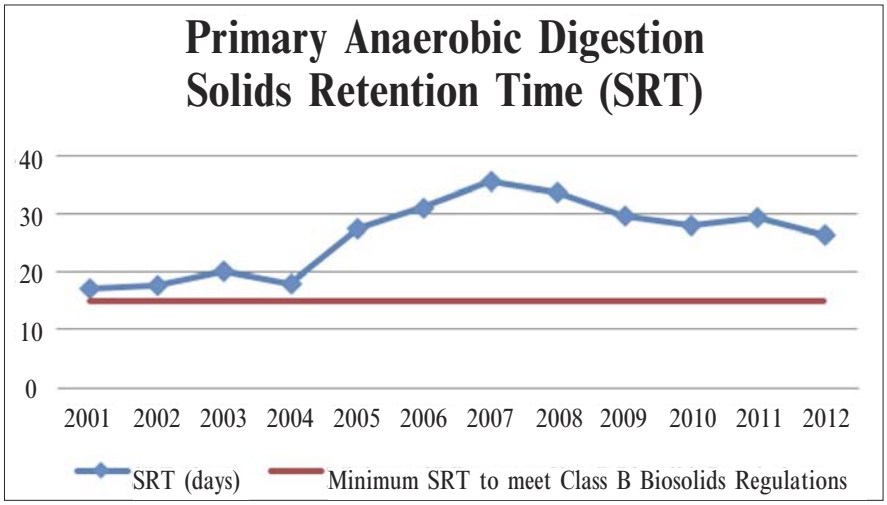
An additional benefit to the improvement project was the increased removal efficiency for total suspended solids and biochemical oxygen demand. Prior to project completion, the effluent averaged 6 mg/L for BOD and TSS; now the effluent concentration averages less than 2 mg/L. The majority of the results are below the laboratory method detection limit. In 2012, the facility discharged 118,769 fewer pounds of TSS and 135,605 fewer pounds of BOD than it did in 2008.

CONCLUSIONS

The performance results and success of the recent project is a direct reflection of the culture of continuous improvement mindset of the staff. Significant effort and ingenuity is always on the to-do list with protecting the receiving water as a primary daily objective.

FINAL CLARIFIER MECHANISM

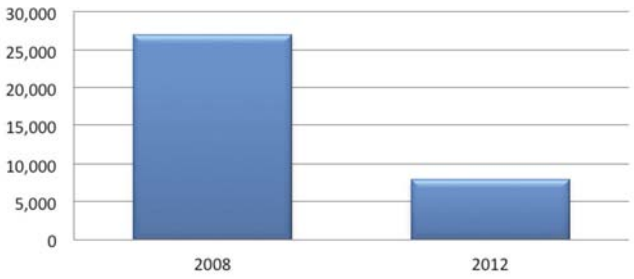
OXIC



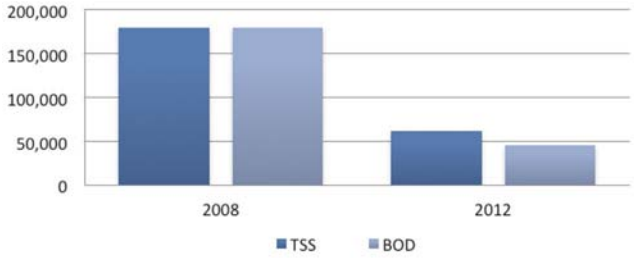
As the project reaches final completion, city staff continues to strive for improvement. The city was recently notified by the National Biosolids Partnership that the Biosolids Environmental Management System (EMS) Program has achieved Gold Level certification. Gold Level certification is a result of substantial effort by the facility's EMS Team and the ongoing commitment to continuous improvement.

Facility staff are now focusing on providing cost-effective services by researching potential energy resource and recovery options that can be employed at the facility. The goal is to always go above and beyond. CS

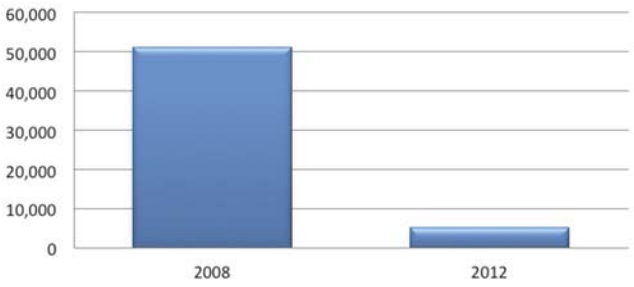
TOTAL ANNUAL POUNDS OF PHOSPHORUS IN EFFLUENT



TOTAL ANNUAL POUNDS OF TSS & BOD IN EFFLUENT



TOTAL ANNUAL POUNDS OF AMMONIA IN EFFLUENT



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Itasca Water Resource Recovery Facility

By Carl Fischer, Baxter & Woodman, Inc. (BWI)

Itasca, IL needed to expand its WWTP from 2.6 to 4.0 mgd to serve new commercial development. The existing WWTP was in a residential area and discharged to an impaired waterway. After a lengthy evaluation, the village decided to relocate the WWTP, i.e., to build a new Water Resource Recovery Facility (WRRF) on a new site.

Itasca's WWTP Relocation Project really started in 2002. The village already had a plan in place to expand its existing WWTP. However, the village started having second thoughts. The existing WWTP was in a residential area and there were issues with odor, noise, and aesthetics. So, the village asked BWI to evaluate its options, which were:

1. Buffer Zone: buy and demolish houses to create a buffer zone between residences and the existing WWTP.
2. Odor and Noise Abatement: make capital improvements to contain/treat odors and noise at the existing WWTP.
3. Regionalization: transport all wastewater to an adjacent community for treatment at its WWTP.
4. Reduce Load: acquire and expand a small DuPage County WWTP to reduce load on the existing WWTP.
5. Land Application: construct a land application system to treat all or part of Itasca's wastewater.
6. Relocate WWTP: build a new mechanical WRRF on a new site in an industrial area to treat all or part of Itasca's wastewater.

In April 2003, the village chose Option 6. To properly plan for construction of the new WRRF, Itasca did its due diligence, which included:

1. Stakeholder involvement.
2. Property acquisition.
3. Environmental site assessment.
4. Funding and rate study.
5. Site characterization (archaeological, geotechnical, floodplain, wetlands, T&E species, siting, and re-zoning).
6. Stormwater permitting.
7. Facility Plan and Anti-Degradation Report

Stakeholder involvement

On February 22, 2002, Illinois enacted one of the toughest anti-degradation rules in the U.S. After which, the Itasca WRRF was the first project that dealt with expansion of a discharge into an impaired waterway. The environmental advocacy groups (EAGs) were expected to resist.

To build a new WRRF, Itasca needed to acquire property. However, before the village started the property acquisition process, it first met with the key EAGs, to deal head on with the expansion of its discharge into an already impaired waterway, Salt Creek.

On April 30, 2004, BWI and Itasca met with representatives of Sierra Club, Prairie Rivers Network, and the Environmental Law & Policy Center. The

purpose of the meeting was to obtain the reaction and advice of the key EAGs to the concept of a new, larger WRRF discharging into Salt Creek, an impaired waterway.

The village explained its needs and presented its concept for a new WRRF. The EAGs were grateful that the village conferred with them before it ever put pencil to paper. They were surprisingly reasonable and cooperative, offering good, constructive suggestions. The village incorporated their input into its concept.

In August 2006, after property was acquired, BWI began preparation of the *Facility Plan and Anti-Degradation Report*. A Technical Advisory Group (TAG) was formed to enlist the help of the EAGs and other stakeholders to work through the anti-degradation process. The TAG developed 16 major recommendations.

The village accepted 14 of the 16 stakeholder recommendations. Thirteen were implemented immediately. The fourteenth was postponed to a later date. The recommendations added approximately $1.5 million to the construction cost (a 4% increase) and added about $70,000 to the annual operating cost.

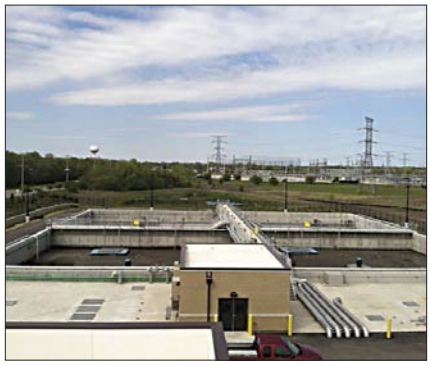
The village received full support of the stakeholders. The stakeholders sent to IEPA written letters of support. The letters were signed by The Conservation Foundation, Sierra Club, Prairie Rivers Network, Environmental Law & Policy Center, and Salt Creek Watershed Network.

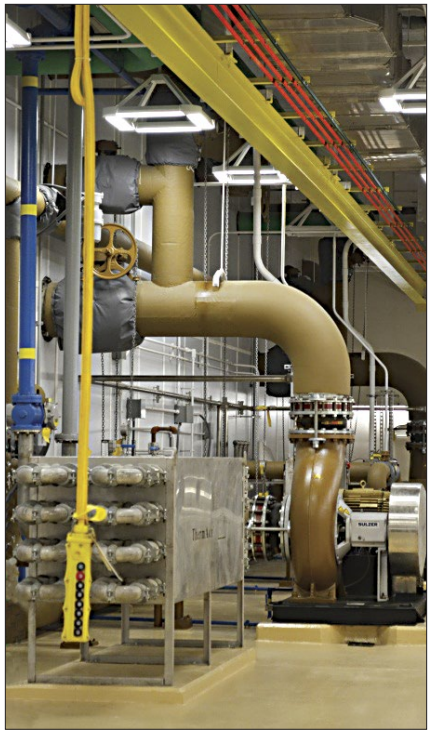
The *Facility Plan and Anti-Degradation Report* were submitted to IEPA in November 2007. IEPA approved the project at a time when most projects were stalled in IEPA's anti-degradation evaluation process.

In the end, it turned out to be a truly collaborative effort. The village is very proud of its collaboration and believes that the EAGs are equally proud. Many of them mentioned that the village's method was the way all WRRF projects should involve stakeholders.

Treatment processes

BWI worked closely with Itasca in selecting the treatment processes for the new WRRF. Together, they traveled the U.S. looking at treatment equipment and interviewing operators.





The village board wanted a state-of-the-art facility that required minimal labor. It did not want a treatment plant that was outdated the moment that it went into service. It wanted a long-lasting facility that could adapt to changes. Consequently, these treatment processes were selected:

1. Trench-style self-cleaning raw sewage pump station
2. Rotary drum screens
3. Grit tank (conical inclined plate settler)
4. Biological nutrient removal (BNR) in sequencing batch reactors (SBRs)
5. Phosphorus removal: biological and chemical
6. Nitrogen removal
7. UV disinfection
8. Rotary drum WAS thickeners
9. Autothermal thermophilic aerobic digestion (ATAD)
10. Rotary sludge presses

Some of these treatment processes were relatively young, but none were completely new. However, the combination of all these processes at one plant was unique in Illinois.

Site layout to facilitate multiple uses

The village acquired about 6 acres for the new WRRF. These six acres were immediately adjacent to the existing public works complex. The new WRRF was interwoven among the public works structures, making it a truly multi-functional site. It all works well. Traffic flows well in and around the site.

Funding

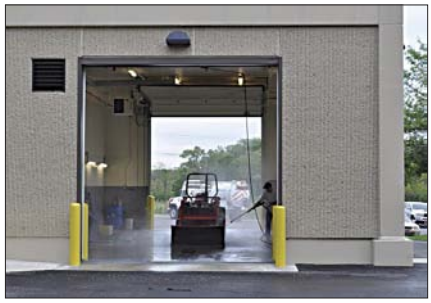
Total cost of the WRRF Project was $39 million, $35 million for construction and $4 million for engineering during both design and construction. It was funded by a combination of loans from IEPA's Water Pollution Control Loan Program and the *American Recovery & Reinvestment Act* of 2009 (ARRA). The village borrowed $20 million at 0% interest. Of that $20 million, $5 million in principal was forgiven. The other $19 million was financed with Build America Bonds (also part of ARRA). Consequently, Itasca's financing costs were drastically reduced.

Awards

APWA Chicago Metro Chapter 2013 Project of the Year – Environmental $25-75 Million

APWA Suburban Branch 2013 Project of the Year – Environmental $25-75 Million

ACEC 2013 Merit Award – Environmental CS



Click HERE to return to Table of Contents

Wastewater Project Financing:
New Initiatives and Funding Status
August 2013

By Brandon J Koltz, Brandon Koltz Water & Environmental Consulting LLC, *brandon.koltz@gmail.com*

Wastewater utilities have used a range of financing tools to implement capital projects. Federal assistance has transitioned from a grant program at the inception of the *Clean Water Act*, to the state revolving loan (SRF) programs. Municipalities and sanitary districts generally rely on a combination of low interest SRF loans, municipal bonds and direct payment from current rates to finance capital projects. States rely on congressional appropriations and loan repayment to maintain and increase the capitalization of their SRF program. New funding mechanisms are likely needed to supplement existing sources of capital funds if water and wastewater utilities are to have sustainable operations to maintain existing infrastructure and to construct new facilities to meet growing populations and increased treatment requirements.

STATUS OF SRF FUNDING

The Senate has passed an appropriations bill for FY 2014 that would increase U.S. EPA funding including finding for SRF. However, the House the House bill would reduce EPA funding by 35 percent. SRF funding for wastewater would be reduced from the current $1.44 billion to $250 million. The House bill also includes several policy riders with respect to the *Clean Water Act*. Resolution of this difference will be necessary for a final appropriations bill. Those using SRF funding are urged to inform their congressional delegation of the importance of this program.

WIFIA

A Water Infrastructure Finance Innovation Authority (WIFIA) has also been proposed. While SRF provides a low cost interest source of funding for compliance and smaller capital projects, State SRFs do not have sufficient funding for large projects. WIFIA, similar to a similar transportation funding program, TIFIA, would provide direct loans, loan guarantees and lines of credit for large infrastructure projects exceeding $20 million from the U.S. Treasury at long-term Treasury rates. States would be able to bundle projects and access the WIFIA funding. Loan repayment would flow back to WIFIA and the Treasury. Wastewater utilities have a very low rate of default and the risk to the government is minimal. Initial seed funding from Congress is expected to leverage about ten times the initial authorization in available loan funding. WIFIA would lower the cost of borrowing by about 25 percent due to the lower interest rates.

A five-year, $50 million per year WIFIA appropriation has been included in the *Water Resources Development Act* (WRDA) by the Senate. (WRDA funds Corps of Engineers water resources and related projects.) The Senate passed the WRDA bill and the House is now taking up the issue. In the House, WIFIA will be considered separately from WRDA; WIFIA has been approved in subcommittee and there appears to be significant support for WIFIA from both sides of the aisle. The House bill would not cap the annual total available lending authority. The Senate bill would limit WIFIA to funding 49 percent of a project and the remaining funding source could not be municipal bonds. The House version does not include these limitations. Differences between the two bills will be resolved in conference committee.

MUNICIPAL BONDS

There have been proposals to limit or eliminate tax deductibility of municipal bonds. Elimination of this tax advantage would raise the cost of financing for municipalities and utilities using this tool, adversely affecting ratepayers due to higher borrowing costs. Tax-free municipal bonds are a key finance tool for over 70 percent of water and wastewater utilities. Wastewater utilities should continue to keep abreast of any legislation that may remove this tool from the financial toolbox. CS

CSX '13

By Patti Craddock

CSX '13 was held on July 25 and 26 in the Wisconsin Dells again this year. For those of you who are not familiar with CSX, it's our annual working meeting for our state section officers, association officers, and committee chairs. It's an opportunity to learn from each other and to exchange ideas, successes, and challenges that each of us have experienced through our involvement with CSWEA. The venue is perfectly suited for a summer getaway with family, and the agenda offers plenty of time to have fun in addition to working for the good of the association.

This year at CSX, the meeting theme "Ideas to Sustain our Association" opened with a presentation by our Executive Director, Mohammed Haque, on a "Growth Strategy" directed at our Annual Meeting. Mohammed put forth great ideas on what we need to do to increase attendance and continued support from our exhibitors at the Annual Meeting. These ideas – while specific to increasing Annual Meeting attendance – have strong connections to our other two main initiatives from last year carried into this year: strategic planning and membership. Through our strategic planning agenda item we developed a fourth initiative – Student Involvement. The President's Message in this issue of the magazine identifies the key ideas generated from the CSX – so please refer to that article as a preview of actions in the works for our association.

In addition to the four focus areas on sustainability, attendees shared information on the following topics:

Annual Meeting. A round of applause to the Local Arrangements Committee for delivering a high profit event, particularly when there were concerns that we were low on exhibitors and registrations a few weeks prior to the event. The committee did a good job in managing expenses and with good attendance (Madison's central location to all three states typically gets the highest numbers; plus the excellent technical program certainly was a draw), we exceeded our profit goal.

YP Activities. CSWEA has several YPs involved at the WEF level and Section committees that are active. Highlights for this year and upcoming events: LINKED IN – we need more YPs to join and keep up on events and provide networking (see webpage for details); YP Academy in April 2014 (with Education Seminar) – future YP Academies may be linked to other events such as the Annual Meeting to provide better opportunities in each state for YPs to attend; WEFTEC YP event for Saturday October 5 – school raingarden construction and then a fundraiser that night for funds to have school maintain the garden (see WATERJAM advertisement at *www.weftec.org* or *www.cswea.org;* CSWEA is providing assistance by managing online registrations).

Section activity highlights (what's working, looking to improve)

State	What's Working	Looking to Improve
IL	Government Affairs Seminar – Jan	Safety and Public Ed
	YPs stepping into committee chair and vice-chair roles; not just on YP committee	Possibly move Pretreatment under lab committee
	Collections system committee very active	Competition for various events
MN	Conf on Environment and Innovative Conf continue to be strong with numbers and profit goals	Government affairs committee dormant; handled by other state entities
	YP social events occurring; still need more numbers	Safety committee dormant; Annual meeting preconf. workshop may revive or help find another structure
	Membership activity planning under way; looking to gain momentum with CSWEA role	Reviewing committees and looking to sunset or combine activities
WI	Reviewing the strategic plan and keeping it active	Continue to improve committees and bolster those that are less active
	Appointment of vice-chairs to each committee has been a positive	Continue to work with Mohammed on records alignment with CSWEA requirements
	Membership committee with plan to contact members that are not active	
	Strong seminars	

WEF Workgroups and Topics: See message from WEF Delegates, Rusty and Dave, in this edition.

CSWEA Calendar of Events: For CSWEA to continue to meet the needs of our members and to attract attendees to our events, we are reviewing our calendar of events with those of other organizations that our members often attend and sponsor. While there are conflicts throughout the year, we will be looking at some changes gradually over the next few years. No changes planned for 2014, but possibly for 2015 – we will keep you apprised!

My sincere thanks to our CSX attendees this year: Mohammed Haque, Patti Craddock, Rich Hussey, Tracy Hodel, Rusty Schroedel, Tim Tack, Keith Haas, Alan Grooms, Derek Wold, Brandon Koltz, Eric Lecuyer, Julie McMullin, Tracy Ekola, Jon Butt, Mike O'Neil, Mike Holland, Mark Enochs, Hans Holmberg, Randy Wirtz, Dave Arnott, Dean Wiebenga, Sue Baert, Chris Buckley, Mark Eddington, Jay Kemp, Jim Huchel (phone) and Eric Lynne (phone).

Your ideas, your feedback, your shared lessons learned will help shape the direction of our CSWEA initiatives. Thank you for translating your career and personal interests into work for our association. Your passion for our water environment is evident and is the fuel we need to move ideas to action. I am very excited to see the strong leadership within CSWEA and the opportunities ahead for our association.

I look forward to seeing some of you at WEFTEC this year. Remember to attend the Sunday evening CSWEA/IWEA Welcome Reception and to cheer on our Ops Challenge team (check for schedules posted by WEF and other media). Enjoy the rest of summer and keep the ideas flowing and the good working going. CS

CSWEA Welcomes Our New Members

June, 2013

- Montgomery Baker
- Zac Bonesz
- Todd Chritopherson
- Mark Duerr
- Jackie Gallagher
- Amelia Holm
- Patrick Kelly
- John Kittleson
- Jeff Kuester
- Vicki Larson
- Bryan Viitala
- Lee Hoffman

July, 2013

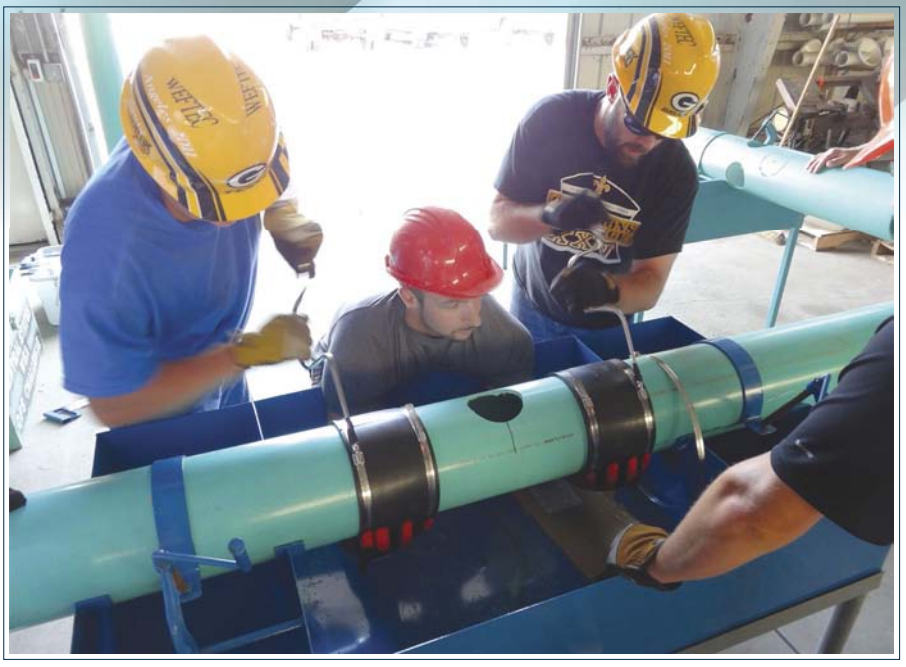
- Jupiter Adams-Phipps
- Neehar Banerjee
- Kevin Barry
- Ronald Brenny
- Timothy Brown
- Isabella Cafaro
- Mina Chhikara
- Cole Dunlap
- Joshua Gad
- Brad Hines
- Emily Hoopman
- Connor Klemenhagen
- Christopher Lefebvre
- David Lisk
- Angela Moynan
- Tom Nagle
- Jacob O'Neill
- Sarah Organ
- Shantal Pai
- Madison Pallin
- Colin Pedersen
- Linda Reid
- Cassandra Roy
- Leigh Severson
- Isaac Skalsky
- Andrew Skog
- Natasha Sohni
- Stephanie Tetzlaff
- Emily Uecker
- Sam Wang
- Samantha Woog
- Clarise White
- Ziyu Zhu

August, 2013

- Antonio Garcia
- Katherine Heflin
- Kim Kriewald
- Eric Larson
- John Larson
- Chris Liveris
- Charles McGinley
- Erin McMahon
- Matt Messley
- Cory Mortenson
- Jason Muche
- Tony Nagel
- Rick Niederstadt
- Armando Ortiz
- Daniel J Schwartz
- Matthew Strickland
- Clifford White CS

CSWEA Member List current as of August 31, 2013

Operations Challenge



The Operations Challenge and WEFTEC are only a few weeks away, and preparations for the Ops Challenge are well under way. This year the two Central States WEA teams will be made up of four veterans and four new team members. There has been one practice so far that took place at the Madison Metro Sanitary District Nine Springs Facility. I would like to say thank you to Paul Nehm and Montgomery Baker for their hospitality, and laboratory training that each team received. During the first practice, the teams started the process of getting to know each other and dividing up tasks for the five events. The events this year are Process Control, Maintenance, Safety, Laboratory, and Collections. During the first practice session, team members were able to take practice tests in preparation for the process control exam, practice the laboratory event, perform the collections event, and discuss the maintenance and safety events. The teams are made up of Central States award winners or wastewater professionals from the facility that the award winners are employed.

This year's teams are:

THE PUMPERS:

- Captain Justin Pratt, City of Moline
- Doug Haacker, Fox River Water Reclamation District
- Ron Brenny, Gold-n-Plump
- Chris Lefebvre, Stevens Point WWTP
- Coach Jim Huchel, City of Crystal Lake and Coach Todd Carlson, City of Duluth

THE SHOVELERS:

- Captain Brain Skafe, Janesville WWTP

Click HERE to return to Table of Contents

Come watch the *Pumpers* and *Shovelers* perform at WEFTEC 2013 on October 7-8, 2013.

- Tom Dickson, City of Oconomowoc
- Chris Kleist, City of Duluth
- Carrie Clement, Western Lake Superior Sanitary District (WLSSD)
- Coach Jim Miller, FOTH.

The teams are looking forward to the competition of the Operations Challenge with the hopes of a repeat in the Laboratory and Process Control events. The team members put a lot of time and effort into their training, and the support you give helps to push the teams to perform as champions. If you have an opportunity, please help cheer on the CSWEA teams at WEFTEC.

Also, if you would like to become a team sponsor, please contact Todd Carlson at *tcarlson@duluthmn.gov* or 218-591-2343 for more information.

Thank you,
Todd CS

WaterJam '13

Join us for a good time listening to water professionals recreate popular songs at **Gallery Bar** in downtown Chicago on **October 5** starting at **7 p.m.** Register online at ***www.cswea.org/events***, proceeds benefit the WEF Service Project Endowment Fund – to help sustain the O&M of our green infrastructure projects. Space is limited to the first 120 registrants, so sign up early! Contact Eric Lynne, CSWEA YP Representative for details or if you'd like to be a performer!

Gallery Bar
738 N. Clark St.
Chicago, IL

WEFTEC Service Project

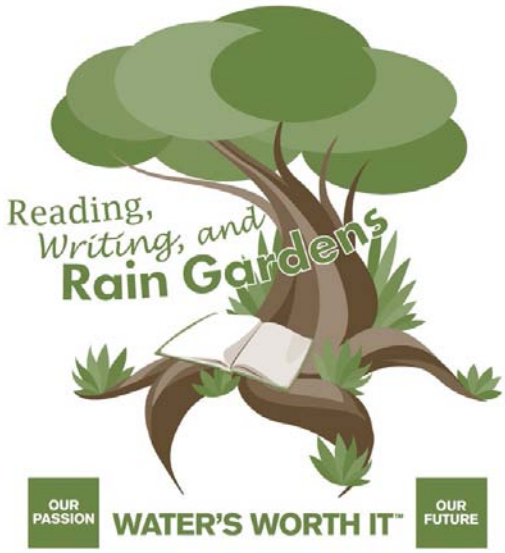
#WEFservice

Annually at this WEFTEC event, WEF volunteers come together to identify a community service project that not only gives back to the local community, but is also an avenue to provide community education on local water and environment protection and preservation for citizens to be well informed on how to protect the water environment. The education event is to be held **October 4** with the service project construction on **October 5**. The project's main goals include:

- Help make a difference in WEFTEC host city
- Leave a positive impact on the local environment
- Bring educational awareness to the importance of maintaining a healthy water environment

Register online at *www.weftec.org*. Contact Eric Lynne, CSWEA YP Representative for details.

Young Professionals Service Project:
Haines Elementary School Green Infrastructure Installation



Click HERE to return to Table of Contents

call for abstracts

87th ANNUAL MEETING

THIS IS A REQUEST for abstracts of papers to be considered for presentation at the 87th Annual Meeting of the Central States Water Environment Association, Inc., which will be held May 12-15, 2014 at the Crowne Plaza, St. Paul, Minnesota. To receive consideration, abstracts with the Abstract Information Sheet must be submitted to the Technical Program Committee **before Wednesday November 27, 2013.**

NEW A fourth track will be added to the Technical Program in 2014! This fourth track will consist of operations and utility management topics. Papers on troubleshooting, optimization studies, case studies, completed projects are of high interest.

Also, there will be an Operations Workshop on Tuesday, May 13. The workshop agenda is currently being developed. The workshop will be safety related and will include topics such as; traffic control, electrical safety, what to expect at an OSHA inspection and arc flash training.

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

Other topics that are of high interest are technology related papers. 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:
- Anti-Degradation Issues
- Habitat or Groundwater Protection or Restoration
- Non-Point Pollution Sources and Management
- Water Quality/Watershed Management Issues and Initiatives

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

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

Tracy Hodel, Chair Technical Program Committee
Phone: 320-255-7286
Email: *tracy.hodel@ci.stcloud.mn.us*
City of St. Cloud,
525 60th Street South, St. Cloud, MN 56301

Call for abstracts

87th ANNUAL MEETING

ABSTRACT INFORMATION SHEET

2014 ANNUAL MEETING • Central States Water Environment Association • May 12-15, 2014 • Crowne Plaza St. Paul, MN

Paper Title: _____

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

_____

_____

Are you involved in utility operations? ☐ Yes ☐ No Are you a Young Profession (under 35 years of age) ? ☐ Yes ☐ No

Please note the session(s) that are the best match for your proposed talk:

☐ Operations and Maintenance
☐ Collection System
☐ Residuals, Solids and Biosolids
☐ Utility Management
☐ Research and Design
☐ Watersheds
☐ Technology (IT/SCADA/Process Control/etc)
☐ Energy Production, Recovery and Efficiency
☐ Other (please describe) _____

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

If yes, where? _____

An electronic copy of the abstract should be forwarded to:
Tracy Hodel, Chair, Technical Program Committee, City of St. Cloud, 525 60th Street South, St. Cloud, MN 56301
Telephone: (320) 255-7226 E-mail: *tracy.hodel@ci.stcloud.mn.us*

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

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

Please note, Abstracts are due before November 27, 2013.

INSTRUCTIONS FOR THE SUBMISSION OF ABSTRACTS & CRITERIA FOR PAPER SELECTION

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

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

The presenting author of each abstract will be notified in February of the acceptance or rejection of the abstract. The following should serve as a guide in the preparation of the abstract and will serve as a guide for the reviewers of the abstracts.

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

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

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

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

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

Submit for an Award – 2014 WEF and CSWEA

By Jim Huchel and Keith Haas

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, often, 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 15, 2013 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 87th Annual Meeting Awards Banquet in May 2014, St. Paul, MN. WEF awards will be presented at WEFTEC 2014 in New Orleans.

2014 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 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.

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

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. CS

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

Jim Huchel, 358 Tracy Lane, Elgin, IL 60124
Phone: 815-276-9200 E-mail: j.huchel@yahoo.com

Nominations must be received no later than November 15, 2013 for consideration.

Award Name: _____

Nominee: _____

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

Employer Name: _____

Phone #: _____

Email address: _____

WEF member ID _____

Other: _____

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

_____

_____

_____

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

Your Contact Information:

Phone # _____

Email address _____

Other: _____

Additional information on these awards is located at *www.CSWEA.org, www.WEF.org*, or by contacting Mohammed Haque, 855-692-7932 ext.101, *mhaque@cswea.org*, Jim Huchel, *j.huchel@yahoo.com*, or Keith Haas, 262-636-9181, *keith.haas@cityofracine*.org.

CSWEA Wisconsin Section YP Brewer Outing on August 5.

CSWEA/IWEA

18th Annual WEFTEC Reception

Please join CSWEA and IWEA as we welcome members and friends to kick off another great WEFTEC. All members and supporters of CSWEA and IWEA are invited to attend.

HILTON CHICAGO
SUNDAY OCTOBER 6, 2013
6:00 p.m. to 8:00 p.m.

Boulevard Room & Foyer – 2nd Floor
720 S. Michigan Avenue, Chicago, IL

weftec® the water quality event™

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Testing for Statistical Difference in Methods of Water Filtration

Antonio Leandro Garcia
University of Wisconsin-Madison

Abstract

The process of drinking water treatment undergoes different steps from the time the water is received from a body of water, to the time it is determined to be drinkable. In this case, the study looked at a drinking water treatment pilot plant that processes lake water from Lake Mendota (Madison, WI). One specific area in drinking water treatment that has potential for further research is the filtration step, which is usually the final step in the solids removal process. In filtration, the water is fed through different media to collect and remove suspended particles from the water. There are two main factors that relate to the effectiveness of the filter: flow speed and the media content. In this study, different flow loading rates were tested over different media and when determining the quality of the water after filtration, there are two main response tests that were measured, turbidity level and head-loss. Through careful experimental design, the testing was set up to determine the turbidity and head loss at certain volumes of water process. The goal of the testing was to find different ways in optimizing these factors of flow loading rates and filter media. Flow loading rates were determined to have a significant increase in head loss as the amount of water processed increases. In terms of turbidity, data showed an inconsistent response in the turbidity measurements and did not correlate well with the amount of water processed, nor filter media type.

I. Background on response variables (head loss and turbidity)

In the drinking water treatment pilot plant at the University of Wisconsin-Madison, two responses are measured daily and if those responses reach a certain limit, the filters are backwashed to clean out the media. The frequency of backwashing, correlates to the amount of time and energy required to maintain the system, as well as how effective the filters are in the process train. For the purposes of this experiment, head loss and turbidity were examined as the response variables.

Head loss is the representation of a loss of pressure experienced by the water flowing through the filter. As the water flows through the media, the solids in the water become trapped in the sand, which provides solids filtration for the water. However, there is a limit to the amount of solids that the filter media can trap before it starts to prevent the effective flow. We test for the pressure before entering the

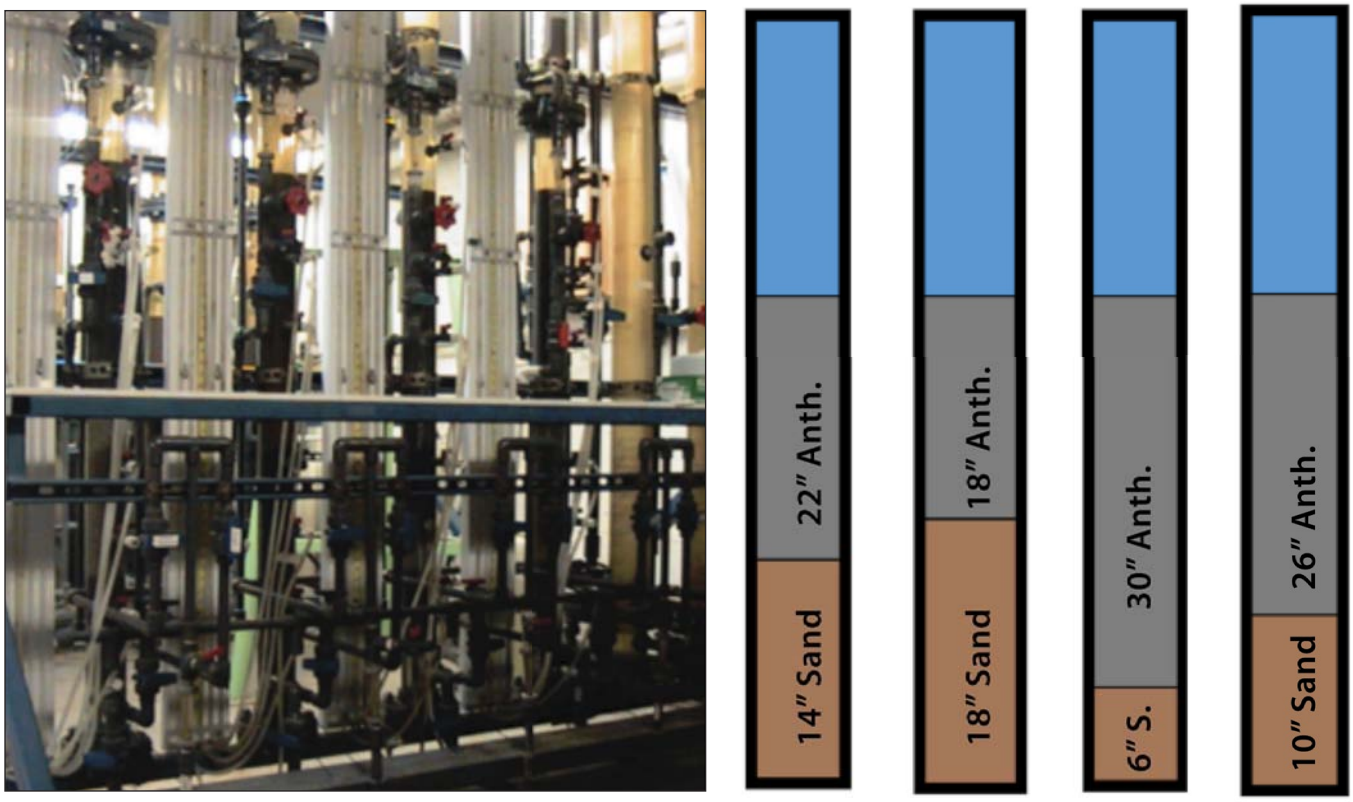

Figure 1 and 2. The image on the left shows the Water Treatment Pilot Plant filters at the University of Wisconsin-Madison. The image on the right shows the different filter media representations. Diagram not to scale.

filter media and compare it to the pressure after the water flows through the media to determine the change in pressure (head loss). If the change in head loss is determined to be too high, the filter is back washed properly to reset. In our case, 60 inches results in the limit and thus the filter would be backwashed.

Turbidity is a measure of how cloudy the water is. According to the EPA, turbidity "is a measure of how much light passes, and it is caused by suspended solid particles that scatter light" (2). Some effects of high turbid water are the diffuse of sunlight, rise of water temperature and possible influence on breeding grounds for pathogenic bacteria. It is important to have a low level of turbidity due to aesthetical benefits and also health factors. However, it can be up to the community or water supply controllers to determine how clear the water should be. In the drinking water treatment pilot plant, we test the turbidity to see if it is greater than the 0.300 NTU, in which case, we would also backwash the filter.

In most cases with the pilot plant, the level of head loss reaches the maximum limit before the turbidity reaches the designated criteria.

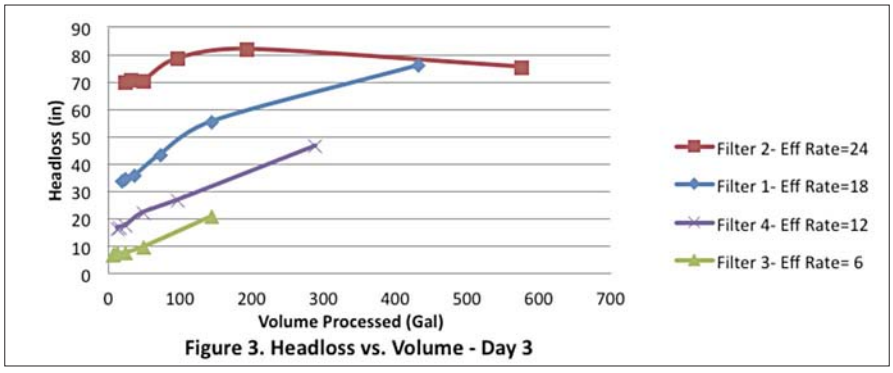

Figure 3. Headloss vs. Volume - Day 3

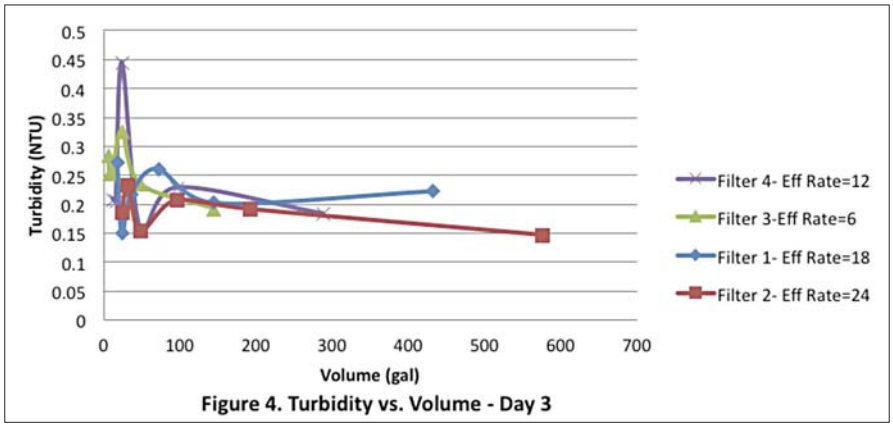

Figure 4. Turbidity vs. Volume - Day 3

Figure 3 and 4, show the data collected on one day (Day 3) of the experiment. The charts represent the head loss and turbidity response over the volume processed.

II. Description of the experiment

In the lab, four filters with four different media were used. The different treatment factors would correspond to different material being used in the filtration and labeled as Filters 1, 2, 3, 4. Filter 1 would have 22" of Anthracite Coal and 14" of Sand. Filter 2 would be 18" of Anthracite and 18" of Garnet Sand. Filter 3 would have 30" of Anthracite and 6" of Sand. Filter 4 would have 26" of Anthracite and 10" of Sand. Filter material was randomized in the selection process.

In addition to the filter media, tests on the loading rate will be determined. The different loading rates were specified and designated A, B, C and D (A = 6 gallons per hour (gph), B = 12 gph, C = 18 gph, D = 24 gph).

Tests of the turbidity and head loss were performed 6 times every day for four days. The filters were backwashed every morning and the tests were taken after the initial backwash at time equals 1- hour, 1 and 1/3 - hours, 2-hours, 4-hours, 8-hours, and 24-hours. Due to the different loading rates, there are varying amounts of water flowing through each filter, and we have to take that into account when doing a more representative analysis, and data was normalized to the volume of water processed for each filter.

III. Data results and discussion

In the analysis of head loss, the data showed that there was difference in the filters, as well as in the flow loading rates. The flow-loading rate showed the greatest difference between the two effects. Within the filters, differences were detected between filters 1 and 2 at 24 gallons processed, however, when compared to the analysis at 144 gallons processed, a less significant detection on the variability was found within the filters. The most significant detection of variability within the filters was found in the beginning of the runs. Analyzing the data on the different flow rates, the test on head loss (24 gallons passed and 144 gallons passed) both showed large differences with the change in flows. Multiple comparison tests (Wu, 2011) showed a strong difference between flow rates A (6 gpm) and D (24 gpm). This shows that the flows with the lowest extreme and highest extreme, proved to have the greatest difference, even after measured at two different volumes passed.

Click HERE to return to Table of Contents

Findings show a greater flow loading rates have a significant increase in head loss as time goes on, as well as an inconsistent response in the turbidity. A lower flow loading rate would be recommended for less frequent maintenance and subsequent backwashing of the filter thus, the plant would ideally save money.

In terms of turbidity, there was little difference and none that could be classified as being significantly different. In relating this to the work that we have done throughout the semester, the data makes sense, because the turbidity is highly variable. In my data collection, I made sure to take four samples and average them; however the data still holds strong that there is still not enough correlation in the turbidity with different flow loading rates or filter media.

IV. Conclusions and recommendations

Data from pilot plants could be used to improve the effectiveness of actual drinking water treatment plants around the country. Through the experiment, testing for two different responses of the filtration process took place at UW-Madison's pilot plant, and statistical analyzing of the data was done by use of the Latin square method. In terms of turbidity measurements, results were not conclusive in being a way to predict the levels of turbidity accurately. The effects on turbidity can also be affected from the prior portions of the water treatment train, such as coagulation chemical feed rates and settling effectiveness during the sedimentation process. Findings show a greater flow loading rates have a significant increase in head loss as time goes on, as well as an inconsistent response in the turbidity. A lower flow loading rate would be recommended for less frequent maintenance and subsequent backwashing of the filter thus, the plant would ideally save money. Depending on the needs of the water treatment plant, more flow might be requested, however a faster rise in head loss and a more frequent need to backwash the filter could be seen. CS


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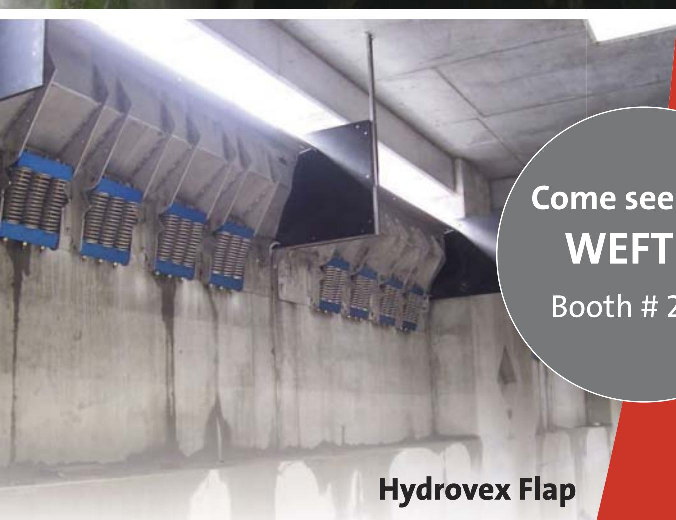
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Student Paper Design Summary
Combined Sewer Overflows in Mishawaka, Indiana

Written by: Hector Briceño
Edited by: Alyssa Sohn, Michael Azzarello, Reggie Jansen Water Environment Federation (WEF), University of Illinois Urbana-Champaign

Mishawaka is a 17-square mile city located in North Central Indiana. It currently hosts a population of 48,200 individuals and approximately 24,000 housing units. Mishawaka is one of 700 USA towns that face the issue of combined sewer overflow (CSOs). Combined sewer overflow occurs during wet weather events when the wastewater treatment plant (WWTP) does not have the capacity to adequately treat the combined stormwater and wastewater, causing the excess contaminated water to be discharged to a nearby body of water. In the case of Mishawaka, the WWTP has a maximum combined flow capacity of 42 MGD, and the excess water is discharged to the St. Joseph River. The river then flows through South Bend and then north into the state of Michigan, ultimately discharging into Lake Michigan. Mishawaka currently has a total CSO volume of 49 million gallons per year (MGPY). There are 23 CSO points in the city of Mishawaka. According to the local authorities, a storm producing 2.37[2] of water is used for long-term control planning. The storm is a 1hr-25-year return period storm, and it produces 2.9MG of CSO. It is of great importance that local governments design efficient sustainable solutions to minimize CSO volume, with the ultimate goal of one day eliminating CSO entirely.

Indiana

Source: http://www.bestplaces.net/city/in/mishawaka

Our design team contacted the City of Mishawaka and proceeded to research the available alternatives to fix the CSO problem. Designs were evaluated for three alternatives: (1) high rate clarification treatment, (2) in-line storage in the form of a reservoir basin, and (3) sewer separation.

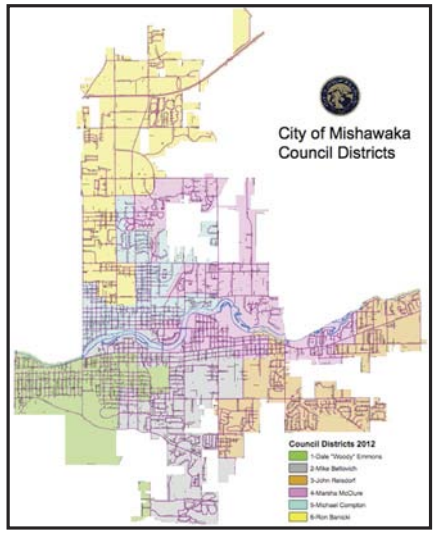
High rate clarification is a relatively new method to treat CSOs. It is installed at the CSO discharge point and treats excess water during wet weather conditions. In our project, a sand filtration system was chosen. It basically works as a small wastewater treatment plant. The process consists of coagulation, flocculation, filtration, and chemical treatment. Particular concerns must be addressed, however, including cost of operation and maintenance, the cost of operation at low flow rates, and the limited amount of documented research regarding the use of high rate clarification systems.

Our in-line storage design solution is an underground basin constructed with cast-in place concrete. It has the benefit that it produces no odor problems, since it is underground, and that the stored contaminated water is treated in the original wastewater treatment plant once the wet weather terminates. The drawbacks of this system include the permanent use of pump systems to move water into the wastewater treatment plant and the availability of land at low elevation regions, to avoid the structural and geotechnical difficulties that are encountered in deep underground designs.

Source: http://www.greatlakes.org/Page.aspx?pid=1027

Finally, the sewer separation design that we considered is the complete separation of sewer flow and storm flow through the addition of a new pipe system. For this design solution, 130 miles of pipe were ranging from 12-96 inches were used in calculation. Excavation and installation costs were taken into account, as well. Initially, concrete was considered for its life of approximately 70 years, according to the Army Corps of Engineers. In light of issues revolving around the effect of hydrogen sulfide and sulfuric acid in concrete sanitary sewers, however, PVC pipe was also considered, due to its resistance to corrosion. At this point, further evaluation is being performed regarding the type of piping to be used.

After the three alternatives were designed and their cost taken into account, we decided to opt for a combination of design #2 and aspects of #3: the reservoir basin and a partial separation work to safely route all excess water flow into the reservoir basin. From our calculations, this system will pose the best treatment for the cost out of the CSO control methods we evaluated. CS



Source: http://mishawaka.in.gov/councildistrictmaps

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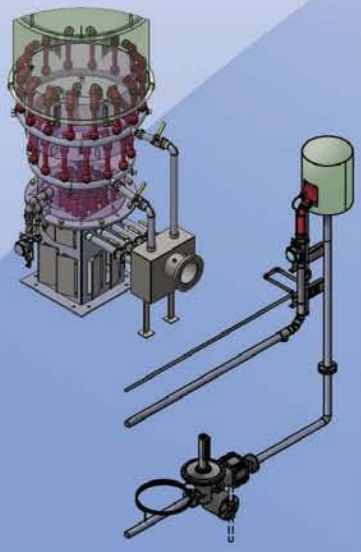

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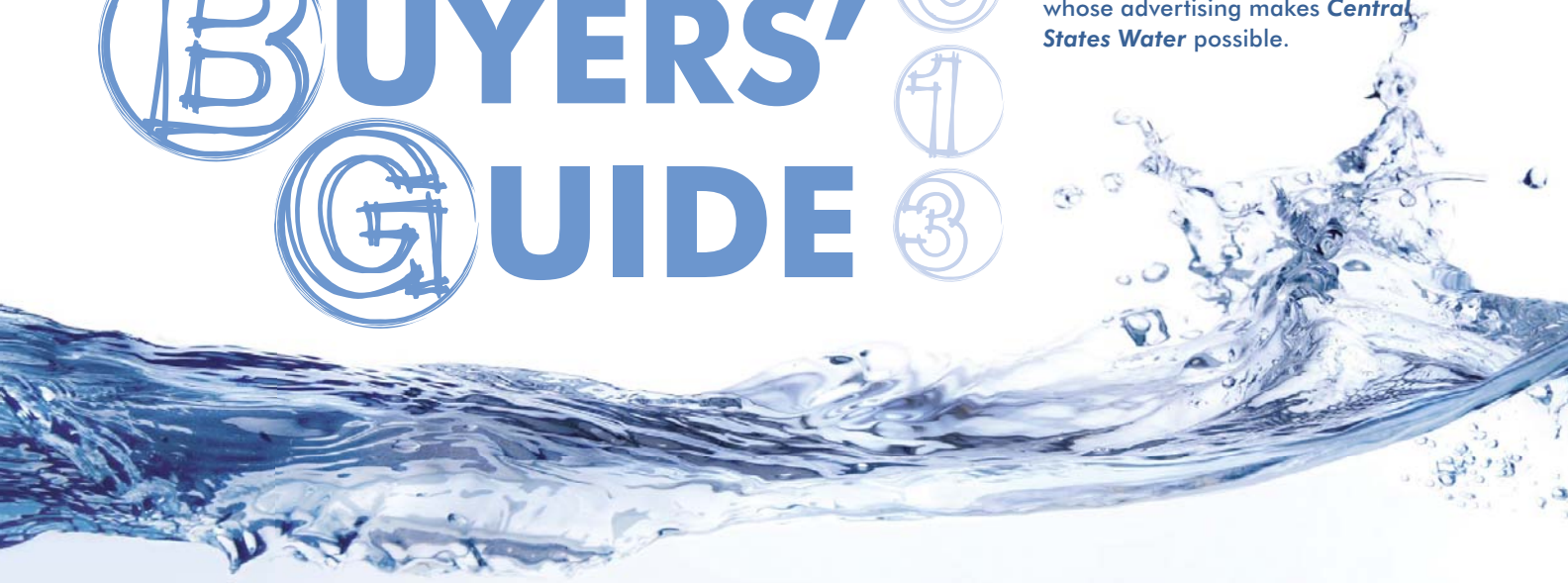

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1. A categorical listing of products and services, including a list of companies which provide them.
2. An alphabetical listing of the companies appearing in the first section. This listing includes name, contact info, website, and more.

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Carbon Enterprises Inc.

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Calgon Carbon Corp.

Belt Filter Press
BDP Industries. Inc.

Biogas Safety Handling Equipment & Flares
Shand & Jurs

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

Coatings, Lining & Corrosion Control
Crane Engineering
Dixon Engineering
SpectraShield Liner Systems

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HD Supply Waterworks

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Black & Veatch
Process Equipment Repair Services

CSO/SSO Controls, Water Resources, Distribution & Collection
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Black & Veatch
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Infilco Degremont Technologies
Donohue & Associates, Inc.
Greeley and Hansen
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John Meunier Inc.
Kruger Inc.
Metropolitan Industries
Mulcahy Shaw Water
SEH
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Symbiont, Inc.

Dechlorination
Pollard Water

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Sanitaire

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EquipSolutions
Force Flow
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Foth
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Layne Christensen

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John Meunier Inc.
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Time for Optimism

By Derek Wold

Is it football season yet? Or better yet, how about hockey season? Whether you are fan of the Cubs or White Sox, it has been a long summer for baseball in Chicago. Despite the dreadful performance of our baseball teams, there is reason for optimism, not just for sports, but for our industry in general. While out jogging last week, I heard the roar of engines firing up and sure enough, a backhoe was preparing for a day of installing infrastructure in a new subdivision. In fact, I ran past two new housing developments and numerous infill housing starts. Unemployment rates have edged lower in recent months and although it's not 2006, there is a glimmer of optimism. In the water world, low interest rates offered by IEPA have spurred many communities to initiate sewer and water rate studies to determine how they can take advantage of the low cost of money to address their aging infrastructure. The message that we know well is sinking in…Water's Worth It.

With the increasing need to address our aging infrastructure, now is the opportune time to focus on training the next generation of water and wastewater experts. One of our main focuses this year will be to re-invigorate our student chapters. Our student chapter committee will be working with student leaders at the universities to increase interaction with our industry whether it be through conferences, seminars, on campus visits or job fairs. One of the most exciting ideas discussed during brainstorming at CSX was to initiate opportunities to assist with providing wastewater treatment in disadvantaged countries. This would be similar to Engineers Without Borders, with a focus on the wastewater industry. Anyone interested in helping with the student chapter should contact Mike Holland or me.

Strategic Planning (CSX) was held on July 25-26 at the Kalahari Resort. This provided a great opportunity to share ideas with leaders from our section and the Wisconsin and Minnesota Sections. I had not attended CSX in the past, but found the forum to share ideas to be very rewarding. I will be back again next year.

WEFTEC 2013 will be in Chicago October 5-9. The conference provides a great opportunity not only for experienced members to learn new information but also to involve new members. With free entrance to the exhibit hall, there is really no excuse for anyone who is interested not to spend a day at the conference. For those of us who have been to numerous WEFTECs, think back to the first time that you attended and the overwhelming feeling of entering the exhibit hall. I remember starting down the first aisle in 1998, wasting hours at the first several booths talking to a manufacturer of equipment I would never use and some guy about how he likes to chase his cat around the house. Remembering that first conference, take a few minutes of your time and offer to guide a first time attendee around the exhibit hall. Ask them what projects they work on and are interested in and help guide them through the hall. I'll bet the time is as rewarding for you as it is for them. I hope to see everyone at the reception on Sunday evening!

Our committees have been very active this summer, organizing the TCON and Collection Systems seminars in June. Please try to make it out for the Operations Seminar on September 10 at the Algonquin wastewater treatment plant and the Biosolids seminar this fall. Our business meeting is on September 18 and we will release additional dates after that event.

So back to the topic of training the next generation, I was driving home with my two kids ages (4 and 8) and wife (age not listed) and realized we were two blocks from a large interceptor sewer project that I had designed. I diverted the family truckster from the straightest path home provided by my Google map and took the family on a field trip. Standing over an open manhole, we laughed as our son gleefully pointed as our industry's product floated by. But the laughs turned into a thousand questions. Dad, where does it go? What else is down there? What does that machine do? Do we drink that water? This short excursion reminded me that as we talk about training the next generation, we need to dedicate the time to promote our industry to students, young professional, friends, or even your family… because water is worth it. CS

Take Me Out to the Ballgame… and to the CSWEA Meeting

By Tracy Ekola

Summer 2013 included multiple activities to keep MN Section members involved in networking, educating and improving water quality. The CSWEA Minnesota Section student and young professionals welcomed back existing members and introduced newcomers to one of the benefits of CSWEA memberships – networking via happy hour and attending the Saint Paul Saints baseball game on Thursday August 22. The Central States Exchange (CSX) meeting held in July at the Kalhari Resort in Wisconsin Dells was fun and productive. You will find a review/summary of the retreat in this issue of *Central States Water*. I would like to thank Patti Craddock and Mohammed Haque for their time and effort to host this event to focus on our strategic planning efforts for strengthening our organization. Four MN Section members attended to learn and share ideas/information with our neighboring state section counterparts. Also in July as part of the MWOA annual conference, CSWEA MN Section jointly sponsored and awarded scholarships to four worthy students (i.e., think future CSWEA members).

Preparations for the Annual Conference on the Environment (COE) are almost finalized. The COE is a comprehensive one-day conference with concurrent sessions covering air, water, water resources, wastewater and regulatory issues and will be held at the University of MN St. Paul Campus on November 12, 2013. If you would like to learn more about the agenda for this event and for registration, please go to the *www.CSWEA.org/Minnesota* events page. Please also mark your calendars for the February 11, 2014, Annual Innovative Approaches to Wastewater Operations Conference in St. Cloud, MN. Conference committee chairs, Rob O'Connell (COE) and Tim Wedin (Innovative Conference) deserve many thanks, as do the planning committee members for both conferences.

These conferences embody the very purpose of our organization – to provide exchange of information and experiences while advancing the knowledge of design, construction, operation, and management of water and wastewater collection and treatment facilities. Success at these conferences is reflected by the repeated high attendance.

The MN Section Annual Business Meeting is scheduled for November 12, 2013 (just before the COE) at the University of Minnesota St. Paul Campus Continuing Education and Conference Center. The Annual Business Meeting is a great place for committees to meet face-to-face and we welcome all members to attend to help shape our sections plans for the future. Current discussion topics include reviewing and repurposing our committees to match our section's current needs. Proposed changes include reinforcing and reinvigorating committees such as the membership committee or other committees whose objectives are most needed in our organization today. And reviewing committees that are no longer active or purpose is no longer as relevant to our current industry/organization's needs. Please take a moment to review the CSWEA website including the committees and the Minnesota State Section Policy and Procedures Manual *(www.cswea.org/minnesota/governance/)*. If you would like to be involved or are thinking of joining a committee, please contact Mark Stone or Tracy Ekola – and come to our Annual Business Meeting on November 12, 2013. The annual meeting is a great place to explore your options and voice your opinion. And bring a colleague with you! CS

Click HERE to return to Table of Contents

The Importance of Membership

By Dave Arnott

I remember my first Wisconsin Section meeting. It was back in 2001. I attended the Wisconsin Section Annual Business Meeting at the Country Springs Hotel (formerly a different name) in Pewaukee. I had just joined CSWEA and Wisconsin Section a couple months before and did not know much about the organization. I remember seeing a brochure and thinking to myself "This looks like it could be a valuable organization for networking and to learn about the wastewater industry. I think this organization could help my career." I went to the meeting and really did not know many of the people. At that time, we garnered 40 to 50 people at the Annual Business Meeting. It was a little bit intimidating to be honest. At the meeting, I joined the breakout session for operations and met some people. A week later I was on the Operations Committee. About a year later, I was Chair of the Operations Committee and I have never looked back with my involvement with our Section since.

Membership is critical to our Section. New members bring fresh perspectives and new ideas. In addition, new members allow us to reach out further to the water environment community with education opportunities, outreach and professional networks.

At the Section level, there are several goals in our Strategic Plan where the action items are the responsibility of the Membership Committee. Jon Butt is leading the Membership Committee taking over for Jay Kemp. Welcome, Jon! Jon has recruited five members to join him on this committee already. The committee is well under way with the various specific tasks to support the goals of our Strategic Plan.

For the association level, at the Central States Exchange (CSX) event this past summer, one of the main things we discussed was membership. In particular, although all members are valued, there are two types of members that we felt were critical. These were municipal members and students and young professionals.

Our municipal members are the hub of the organization. Frankly, they attract manufacturing industry involvement through equipment, consulting engineers through services and academia through research. In addition and more importantly, they are the end user. Whether we are dealing with wastewater or stormwater, municipalities are the permit holders, the entity where the equipment is installed or practices implemented, and where solutions are needed to solve real problems. At CSX, it was recognized that one way to drive membership was to focus on existing and new municipal members. As part of this, we need to make sure we are providing value through our various seminars, public outreach, committees and networks. I have no doubt we are fulfilling that obligation in our Section.

Student and young professionals (SYPs) are the future of the organization. If we can get these people involved early in their careers and show them value, they will likely eventually become active members in the Association and Section. In our Section, I am seeing a progressively more involved and more mature SYP Committee.

With all that is going on in the regulatory front at the state level from the phosphorus rule, the thermal rule, Total Maximum Daily Loads implementation for various watersheds, and the Capacity Management Operations and Maintenance program, it is nice have an organization to share ideas with, disseminate information and simply try to make sense of it all.

Looking back, I sure am glad I attended that first meeting and became involved with Wisconsin Section. I feel the Section has allowed me to grow as a professional through meeting new people, becoming exposed to new ideas, and being involved in the committees and serving officer positions. I encourage all Wisconsin members spread the good news about our Section and association. Pass on the importance of membership! CS

OCTOBER

WEFTEC '13
October 5-9, 2013
McCormick Place South, Chicago, IL

CSWEA-IWEA Welcome Reception
October 6, 2013
Hilton Chicago, Chicago, IL

NOVEMBER

MN Section Conference on the Environment (Section Annual Meeting)
November 12, 2013
Univ. of Minnesota-St. Paul-Continuing Ed. & Conf. Center; St. Paul, MN

WI Section Webinar
November 20, 2013
Adaptive Management (Phosphorus)

IL Section Biosolids Conference
November 21, 2013
MWRDGC Stickney WRP; Stickney, IL

FEBRUARY

MN Section Innovative Conference
February 11, 2014
Holiday Inn; St. Cloud, MN

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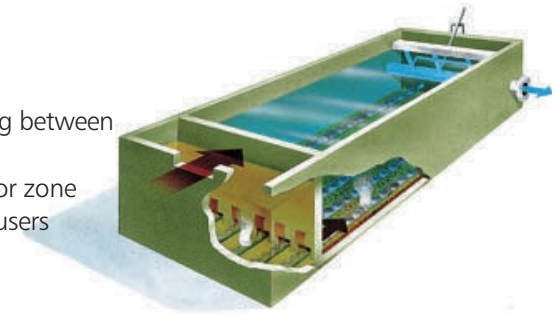

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