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Engineered for life
I am writing this message at the conclusion of the excellent 2007 CSWEA conference in Madison, WI. I wish to applaud Carol Strackbein, past president, for her steady leadership this past year and for presiding over the conference. She was right; it was “sunny and warm” all week.

The conference started with a golf match on Tuesday morning, attended by almost 90 golfers and hackers. The low best ball total was 12 under par, pretty amazing given the very windy conditions. The technical program was first-rate, with over 40 papers presented. One of the highlights was a student and young professional session with four papers, by the Stockholm Water Prize nominees, as well as the CSWEA winning student design team. I felt very inadequate as I listened to these bright young people. Thank you to Bill Marten and his group for putting together an excellent educational program. There were almost 80 exhibitors at the conference, and some signed up to do a series of quick talks on the exhibit floor that were well attended. Many exhibitors contributed items to the Water for People silent auction, and over $500 was raised for this worthy program. Thank you to Dave Dorner and crew for organizing the exhibits.

The entertainment was exceptional, with a magician and comedian providing sleight-of-hand feats and many laughs on Wednesday night. Plus we had a very entertaining singer at the Thursday night awards banquet. The highlight of the awards banquet was the surprise presentation of the WEF Honorary Life Member Award to Professor Bill Boyle for his life-long contributions to the profession. This prestigious award is typically presented to only one person each year among the entire membership of the federation. Also, hearty congratulations to John Leonhard for receiving the Bedell Award.

My final congratulations are to Paul Nehm and his local arrangements committee for putting all the pieces together for this conference.

At the risk of giving him a big head, where would we be without Eric Lecuyer, our executive director, and the help of his wife Anne? Eric has brought CSWEA into the 21st century with his organizational and administrative skills and he is arguably one of the best directors of any association.

**“JUST ONE NEW MEMBER”**

One of the messages I intend to carry this year is the need to increase our membership base. Through no fault of our own, membership is declining. It is basically demographics, with similar organizations having the same difficulty. Central States does some things very well, such as education and new initiatives with students and young professionals. In fact, it is very exciting to see all of the talented YPs coming into the profession. However, we need to have a significant effort to recruit new members. I would like each of you to attempt to get “just one new member”. You work and have contact with a variety of people. Pick one person you feel will benefit by being a member. Tap them on the shoulder and tell them about us and how membership will benefit and reward them. Some ideas:

- Networking opportunities: You will associate with the best and brightest people in our humble business.
- Professional growth: Unlimited access to high-quality technical information.
- Personal growth: Get involved and you will learn leadership and organizational skills very quickly.
- Give back to the profession that supports you.

Once you get this member, tap them again, or better yet, grab them by the collar and get them to a committee meeting. This is where all of the good work is being done. All you have to do is get them there, give them a chance to participate, and the rest should take care of itself. Also, do this with current members you may know who are inactive. I was an inactive member for about 10 years. Then, in 1987 a fellow manager grabbed me by the collar and told me to come with him to a MN operations committee meeting that plans the annual Innovative Conference in St. Cloud. I found an exciting group of people who enjoy their work, and the rest is history. You must love this business and all of the people who work long and hard to protect our waters and our health.

I have encouraged three persons to become new members in the past few months and I even witnessed a new member getting signed up on the exhibit floor at the annual conference. Please join me in our efforts to recruit new members and talent.
President’s Message

CSWEA will be coming out with promotional materials in the near future to assist with new member recruitment. Stay tuned.

Coming events

CSX 2007: This committee workshop event will be at the Kalahari Resort in the Wisconsin Dells, July 19-20, 2007, noon to noon each day. The room cost is $199/night, for up to six persons, and includes passes to the hotel water parks. We encourage all state section and CSWEA committee chairs and members to attend and bring their families. They can play while we work on improving our organization. Topics include students, young professionals, membership recruitment, committee management, etc. Call the resort by June 19 to reserve your room, (877) 525-2427. There will be no registration fees and we provide Thursday lunch, Friday night pizza for the whole family and Friday breakfast. Stay tuned for more details.

WEFTEC 2007: The annual conference will be in beautiful San Diego, October 13-17, 2007. If you have not reserved your hotel room yet, do so quickly, as they are filling up fast.

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The greater good

One of the many special moments of the 80th Annual Meeting was the comments made by our WEF visitor, immediate Past-President J. Michael Read as he addressed our annual association luncheon. He crystallized why we are members of CSWEA and WEF and what we have to offer prospective members: the ability to serve the greater good. No unique selling points, no special features, advantages and benefits, or fancy marketing plans. We are here simply to serve, improve our world, and elevate the lives of millions of people in our communities and around the world. What separates our profession from so many others? It is our ability, on a daily basis, to protect the health and safety of our communities, those who come in contact with our receiving waters, and to enhance the world’s waters by restoring water quality throughout the region. As we press forward with CSWEA President Dennis Lindeke’s membership initiative we will have many tools at our disposal, but the most important tool is the knowledge that we are serving the greater good.

I also noted at the conference how we have widened our vision from an association that considered itself a wastewater group with a focus limited to wastewater technology, to an association interested in all aspects of the water cycle with a fascinating opening session on the use of satellites for tracking weather trends and the impacts of climate change, from fresh water entering the oceans, to the effects of the thinning of the polar ice caps and the overall impact on our global water environment. We closed the 80th Annual Meeting with Professor Cherkauer discussing the impacts of population growth on our groundwater supplies and the negative effects of dewatering our aquifers on our ecosystems. The role of water reclamation as a solution to our declining drinking water supplies was highlighted with the need to return treated wastewater to where it came from, at the top of the watershed, rather than simply discharging it at the bottom. As past WEF President Joe Stowe often says, folks will only be comfortable with reusing water if it “hits dirt”, as in returned to an aquifer rather than simply reused. We have expanded our vision and need to educate our political leaders to assure that practical solutions, based on sound science are pursued, rather than the flavor-of-the-week, soundbite-based pseudo science and politically driven agendas.

How does this widening of our vision relate to our goal of sustaining our association and assuring that knowledgeable, committed and well-trained younger folks replace us as we age and retire? We face a broader audience, one not made up simply of wastewater operators, managers, and those who provide engineering services or equipment, but those who share our interest in preserving and enhancing our water environment. We are well prepared to serve as the experts in water quality, with practical knowledge and a commitment to protecting public health and the environment unmatched by anyone. We are where it is happening. WEF, CSWEA and the many other WEF member associations are the clear leaders in providing for a world with safe, high quality water. As we continue to work toward “one voice for water”, we will emerge as the world’s leaders in water quality.

How can we not invite our co-workers, associates, acquaintances, and others to join CSWEA? Is it not natural that with the opportunity to serve the greater good and preserve and enhance the global water environment through training and education, anyone remotely associated with the water and wastewater profession would want to join? Maybe they have never been invited. It could well be that no one has ever taken the time to explain what the Central States Water Environment Association is and what we do. Please take the time to invite a co-worker, an associate, or an acquaintance to join CSWEA so they too can join in doing the good work of the association and advance the art and science of water and wastewater treatment and serve the greater good.
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CSWEA’s 80th Annual Meeting: One for the ages

The 80th Annual Meeting of Central States, held May 22-25, 2007 at the Monona Terrace and Concourse Hotel in Madison, Wisconsin was a smashing success. An outstanding technical program, sold-out exhibit hall, fun and unique social events, challenging golf course and a world-class venue all combined for an enjoyable week of education and fun.

We sincerely appreciate the support of our exhibitors and thank our many sponsors. The following firms were sponsors of the 80th Annual Meeting:

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- Dan L. Busch, Green Bay WI
- LaMont J. Albers, Process Equipment Repairs Svs.
- Steven C. Vella, Fox Lake, IL
- Dennis Egge, Janesville, WI

**WEF Service Awards**
- Carol Strackbein, President ’06-07

**Laboratory Analyst Excellence Award**
- John Kennedy, Green Bay Metropolitan Sewerage Dist.

**William D. Hatfield Award**
- Albert J. Parrella, Western Lake Superior Sanitary District, MN

**Arthur Sidney Bedell Award**
- John Leonhard, City of Fond du Lac

**Burke Safety Award**
- North Shore Sanitary District, IL

**CSWEA Service Awards**
- Rusty Schroedel, WI Trustee ’05-07
- LaMont Albers, PWO Representative ’05-07
- Dan Lynch, CSWEA Treasurer ’05-07
- Bill Marten, Technical Program Committee Chair
- Jim Fisher, Education Seminar Committee Chair

**Operations Award**
- Minnesota Section
  • Les Lange, City of Willmar, MN
- Wisconsin Section
  • Dennis Egge, City of Janesville, WI
- Illinois Section
  • Jim Daugherty, Thorn Creek Sanitary District, IL

**Arthur Sidney Bedell Award**
- John Leonhard, City of Fond du Lac

CSWEA President Carol Strackbein thanks Rusty Schroedel for his service as WI Trustee.

John Leonhard accepts the Bedell Award from WEF Past President Read.

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Academic Excellence Award
• Ryan Holzem, University of Wisconsin, Madison
• Stacy Erin Metz, University of Wisconsin, Madison
• Mark Hope, Marquette University
• Yang Liu, University of Wisconsin, Milwaukee

Election to WEF Honorary Life Membership:
• Professor Bill Boyle

Marvin Sanow (L) and Scott Johnson (R) accept the Industrial Achievement Award on behalf of Schwan Food Company.

Carol Stackbein presents Ryan Holzem with his Academic Excellence Award.

CSWEA Student Design Team Winner:
• University of Illinois: “An Innovative System for Bioremediation”
  Paul Davidson, Brandon Kocher, Andrew Lenkaitis and Amanda Olsen

CSWEA Student Paper Winner:
• University of Wisconsin, Madison
  Lindsey Bergsven, “Solving the Problem of Specificity in Fluorescence In Situ Hybridization”

Stockholm Junior Water Prize Winners:
Wisconsin
• Megan O’Brien, Divine Savior School, Milwaukee, WI “The Light Factor: The Relationship to bivalve shell composition and color”

Minnesota:
• Gregory Thompson “The Impact of Beaver Dams on Southeastern Minnesota Streams”

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Dennis Lindke presents Carol Strackbein with the Past Presidents Pin.
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2007-2008 Illinois Section Officers and Committee Chairs

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CSWEA • Summer 2007
Carol Strackbein had one last task to perform prior to ending her term as CSWEA President. This last task was a fun one: announcing that University of Wisconsin-Madison Emeritus Professor Bill Boyle had been awarded honorary membership status by WEF. This is a prestigious achievement that is only achieved through long and dedicated service to WEF, its member associations, and the water environment. Bill’s career has spanned over 45 years of such dedicated service. While most of us are familiar with Bill’s involvement within CSWEA, he has also been a dedicated contributor and leader in WEF, WERF, ASCE and AAEE, in addition to educating thousands of undergraduate and graduate students in environmental engineering. Bill will receive his official award at WEFTEC 2007 in San Diego – but Carol was able to present him with a copy of the nomination booklet she had submitted on behalf of CSWEA. This booklet included approximately 60 letters from former colleagues, students and other notable water environment professionals, from across the U.S., Europe and Africa, explaining how Bill has served our profession throughout his career, while also touching each and every one of their lives in a personal, memorable and enduring way. With tears in her eyes, Bill’s wife Nancy proudly watched as Bill received a standing ovation from all banquet attendees after being surprised by Carol’s good news.
All Central States leaders, CSWEA officers, Section officers and committee chairs and members, as well as any interested or involved members should plan to attend our third annual Committee and Section Exchange, CSWEA CSX’07. The dates are July 19-20, 2007 and CSX’07 will once again be held at the Kalahari Resort in the Wisconsin Dells. The event is designed to provide for the informal exchange of ideas between sections and committees over two half-days, beginning at noon on Thursday and ending at noon on Friday. The agenda will include work on our marketing plan, further development of our newly separated students committee and young professionals committee, and much of the agenda is driven by those in attendance. In addition to the working sessions, ample time is set aside for networking and social time. The meeting is arranged so that family members can take advantage of the water park while mom or dad attends to CSWEA business and Central States provides a pizza party for everyone on Thursday evening. Make your plans to attend now, and feel free to contact Executive Director Eric Lecuyer for additional information.
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Double dose?

Pharmaceuticals in wastewater

By Michael Forest
When we turn on the tap to fill a glass to take our daily doses of medication, there may be traces of pharmaceuticals in the water, giving us a “double dose”. The effects of pharmaceuticals in the environment touch every aspect of the water table, and with the doubling of drug sales over the past five years, the issue is not going away anytime soon. These traces and their effects on the environment is an emerging issue across the nation and around the world. 

Aside from personal use, other sources of pharmaceuticals in wastewater include hospitals, agriculture, and veterinary clinics. It could be years before the trace effects are documented. In the meantime, wastewater agencies must address this issue and support source control efforts aimed at reducing the disposal of unused medications.

Pharmaceuticals and personal care products (PPCPs) deserve attention due to continuous introduction via effluents from sewage treatment facilities and from septic systems. PPCPs are referred to as “pseudo” persistent contaminants (high transformation/removal rates are compensated by their continuous introduction into environment). Pharmaceuticals are developed to perform a biological effect, and often have the same physico-chemical behavior as other harmful xenobiotics (persistence in order to avoid the substance to be inactive before having a curing effect, and lipophilicity in order to be able to pass membranes).

“Another factor which should be mentioned as concerns pharmaceuticals finding their way into our water environments is human excretions,” says Dennis Lindeke, supervisor of plant operations and maintenance for three mid-size wastewater plants in St. Paul, MN (Metropolitan Council of Environmental Services). Lindeke is also the new president of the CSWEA. “Regardless of how these chemicals do end up in our plants,” he adds, “the fact is that many wastewater plants across the country were built long before the question of what effects pharmaceuticals have on aquatic environments, let alone how to deal with this problem, became an issue in recent years.” Lindeke says that part of the solution at this point is to work with the sources of the discharge – counsel the pharmaceutical industry to perhaps use different, less toxic chemicals in their products, for example.

And therein lies the crux of the matter: the problem of pharmaceuticals in wastewater and other water environments has come under scrutiny only so recently that it is consistently mentioned as an “emerging issue” by most, if not all, professionals in the water industry. Concrete solutions appear to lie in the future, because research is barely under way in this very sensitive, highly regulated industry. The complexity of the issue will most certainly require that solutions be based on sound science, which means that it could take some time to develop treatment methods – other than incineration – to prevent pharmaceuticals from getting into the water environment.

David Lane, environmental coordinator at the Rochester Water Reclamation Plant, agrees that the relationship between pharmaceuticals and wastewater is still too tenuous to be strictly defined due to the huge array of pharmaceuticals being produced and sold by the industry. Since there are no established, definitive tests, specific parameters must be targeted and this can be difficult given the minute quantities of pharmaceuticals that we are dealing with.
“Of course, this does not mean we should not pursue the matter,” adds Lane, who says that evidence clearly shows that endocrine disruptors alter aquatic communities and interfere with reproduction in these environments. For example, female reproductive organs, or a part thereof, have been found in male fish which exhibited certain female traits. This in itself should be enough to give one pause, especially when one considers that certain government bodies not so long ago actually advocated disposing of pharmaceuticals by “sewering them.”

“We now find ourselves in a transitional period,” says Lane. The Minnesota Pollution Control Agency (MPCA) has in the last six months delved more deeply into the question, and recently produced a fact sheet concerning pharmaceuticals and wastewater. Lane adds that the MPCA and the EPA are more in alignment when it comes to the disposal of non-controlled substances. “The problem with any solution involving solid waste (i.e., garbage) is that if the latter does go to the local landfill, it may come back to the wastewater system as leachates from that place as the latter are themselves treated and eliminated at wastewater plants.” He adds that he sees changes in the medical industries, such as take-back programs being created at pharmacies, and although many questions remain unanswered, this is nevertheless a first step in the right direction. He does, however, believe that incineration appears at this juncture to be the best solution (although the solid waste burner in Rochester is up to capacity for most of the week, they are building a new one).

Brandon Katz is VP and senior project manager and business development at Symbiont in Milwaukee, a firm of environmental consulting engineers. He also sees the question of pharmaceuticals in wastewater as an emerging issue, and the need for environmental impact statements in this regard remains widespread. He adds that to date, the USGA has done what has to be considered the most thorough work in collecting information on the effects of various discharges in aquatic systems. The Milwaukee Metropolitan Sewage District has begun to address the issue of pharmaceuticals and wastewater by setting up a collection program and working with waste disposal firms for incineration.

This brings us to a highly successful program which is in its second year in Marshfield, WI. It is a pharmaceutical take-back program inspired by the efforts of the Groundwater Guardians, a group of concerned citizens who educate the public about how to protect water and the environment. Created in Marshfield in 1997, the group has conducted educational programs in schools and also encouraged youths to go home and educate their parents on how to save the environment.

“The group began by doing its own research on anomalies found in fish to see what were the effects of pharmaceuticals, and obviously [they] did not like what they found,” says Ron.
Dickrell, wastewater utility superintendent in Marshfield, who presented the project’s story at this year’s annual meeting. They were then determined to find a way to educate the public on how to properly dispose of pharmaceuticals, knowing that regulatory agencies encouraged people to flush them down their toilets. They knew that wastebaskets were definitely not the solution, as their research showed how leachates from landfills are taken back to wastewater treatment plants for processing.

They concluded that industrial incineration was the best possible solution but that the public obviously did not have access to that method of disposal. Consequently, the Guardians formed a special committee consisting of doctors, nurses, law enforcement, and solid waste professionals. The goal was to sit down and find a solution to the problem of preventing pharmaceuticals from ever getting into the water environment, as they had not been able to find any concrete suggestions or recommendations from the regulatory agencies.

The result of the group’s effort was a highly successful take-back program resulting in the collection of pharmaceuticals from the community, after having secured $10,000 in donations to help the program from places such as Target, the local hospital and clinic of the HMO, banks and city utilities.

In 2006, the first year of the take-back program, they succeeded in collecting 500 lbs. of pharmaceuticals, with volunteer pharmacists counting and logging everything as it came in. This February, at a local Walgreen’s, they collected 200 lbs. of non-controlled substances and 20 lbs. of controlled drugs. Add to that another 335 lbs. of pharmaceuticals, and in only two years, the take-back program collected a whopping 1,055 lbs. of various drugs and pharmaceuticals which were eventually incinerated in Wisconsin and never came close to entering the local water environment.

David Lane, who was intrigued by Dickrell’s presentation at the CSWEA annual meeting, is of the opinion that this is indeed the best solution – keeping pharmaceuticals far away from our aquatic environments. “We are right now sorting the information at our disposal, and holding discussions with all our stakeholders so that we may make recommendations that are in the best interests of the public and of course our water environments,” he concludes.

Supporting take-backs is in the best interest of wastewater professionals. It could cost treatment plants billions to upgrade to treat and manage pharmaceuticals and endocrine-disrupting chemicals. Such support is a start in reducing the load to our sewers and environment.

1Excerpt from “Chemical and biological analysis of pharmaceuticals and personal care products (PPCB) in river water, sediments and waste water,” from the sessions at the SETAC North America meeting, November 2007, in Milwaukee, Wisconsin.
Earth Tech Inc., a business unit of Tyco International Ltd, and a global provider of consulting, engineering and construction services, has added two new employees to its growing Sheboygan office.

**Tom Holtan** has joined Earth Tech as a Senior Program Director for the Civil Department. He comes from the City of Sheboygan, where he was employed for 19 years, as public works director and city engineer. Holtan has a bachelor of science in civil engineering from the University of Wisconsin-Platteville. He will be responsible for supervising the studies and design of wastewater collection systems facilities, water distribution systems, storm sewer networks, subdivisions, site planning, and general municipal engineering. He will also have business development responsibilities working with public works departments throughout Wisconsin. He is a member of the American Public Works Association.

**Steve Arant** has rejoined Earth Tech as the Water/Wastewater Business Line Manager. He holds a master of science from the University of Wisconsin-Madison and a bachelor of science from Marquette University. Arant comes from Donohue & Associates where he was a senior wastewater engineer. He will be responsible for managing the water/wastewater business line for Earth Tech’s four Wisconsin offices, and support major pursuits throughout the Midwest. He will also serve as a senior program director on select projects utilizing his unique technical and project management skills.

For more information on Earth Tech, visit www.earthtech.com.
The Water Environment Federation (WEF, Alexandria, Va.) Students and Young Professionals (S&YP) Committee held the third annual Young Professionals (YP) Summit to bring together young enthusiastic leaders from across the country. The goal of the summit was to promote the sharing of ideas among different member associations and sections, promote leadership and empowerment, and raise awareness of the work of the S&YP Committee. This year’s event was sponsored by WEF, American Water Works Association (Denver, Colo.), Illinois WEA, Indiana WEA, Central States WEA, Missouri WEA, and North Dakota WEA. Sixty-six YPs from 27 MAs or sections attended the event, making it a huge success.


The summit provided a forum for young professionals to learn from leaders in the industry and work together to develop and promote a better understanding of the needs of YPs in our field. Speakers at the event focused on communication aspects. The diverse group of speakers included representatives from academia, WEF, AWWA, various MAs, and YPs. Copies of the presentations and more information about the S&YP Committee are available on WEF’s Web site at http://www.wef.org/MembershipCareers/MembershipInformation/MAResourceCtr/MAYoungProfessionals.htm.

With the continued transfer of knowledge and the willingness of current leaders to share their experiences with YPs, the water and wastewater industry will be stronger. The enthusiasm and energy from the group was inspiring.

Rachel Lee (foreground) enjoys the YP summit. Many area YPs attend the summit.
Solving the problem of specificity in fluorescence in situ hybridization

By Lindsey Bergsven

The following is the abstract and introduction of the CSWEA winning student paper by University of Wisconsin, Madison student Lindsey Bergsven. The full paper can be found on www.cswea.org

Abstract
Fluorescence in situ hybridization (FISH) is an integral part of the full-cycle rRNA approach to the identification and quantification of microorganisms in a community. This technology has already demonstrated useful in many environmental engineering applications such as activated sludge, anaerobic digesters, biofilms, and natural environments. Due to its increasing importance, the research presented in this paper is focused on improving efficiency for users of FISH. In particular, the goal was to gain predictive power over the performance of probes regarding specificity in FISH by producing a ranking of mismatches through incorporating three key variables: mismatch type, mismatch position, and nearest neighbors. In the end, the mismatch stability ranking determined was based on the first two key variables: (most stable) \( \text{rUdG} < \text{rGdT} \approx \text{rUdT} < \text{rUdC} < \text{rAdG} < \text{rGdG} = \text{rAdA} = \text{rAdC} < \text{rGdA} \) (least stable). The third variable, nearest neighbors, was addressed using the theoretically determined \( \Delta \Delta G^\circ \). This proved to be well correlated (\( R^2 \) value of 0.6097) with the experimental results, indicating that a theoretical base for predictability is possible.

Introduction
As the public has increased its focus on environmental sustainability, wastewater effluent regulations have become more and more stringent. Thus, a demand has been created for creative ways to address these tighter regulations. Fortunately, researchers are helping to meet this demand by creating new technologies that increase the quality of wastewater effluent. One important step in the wastewater treatment process, biological treatment, has benefited from recent advances in the biotechnology industry. This research has focused on the advancement of the engineering field’s knowledge on this subject.

Fluorescent in situ hybridization (FISH) is one such innovation helping to advance microbial knowledge. FISH is an integral part of the full-cycle rRNA approach to the identification and quantification of microorganisms in a community. Traditional culturing methods have proven incapable of producing the type of unbiased information that results from FISH. Along with quantification, researchers are now looking into combining it with micro sensors of micro autoradiography to fully understand the metabolic functioning of microbial communities (Wagner et al., 2003).

Understanding the various roles that microorganisms play in their communities is essential for the advancement of the pollution control profession (i.e. wastewater engineering). FISH has already demonstrated useful in many environmental engineering applications such as activated sludge, anaerobic digesters, biofilms, and natural environments (Yilmaz, 2006). It is clear that FISH is a valuable tool with many applications, and deserves continued study. This research has focused on the advancement of the engineering field’s knowledge on this subject.
An innovative system for bioremediation of agricultural chemicals for environmental sustainability

Agricultural chemicals (both inorganic and organic) in drainage discharge from watersheds have raised concerns about the quality of surface water resources. For example, hypoxia in the Gulf of Mexico has been related to the nutrients discharging from agricultural watersheds in the Mississippi River Valley. Finding an efficient and cost effective solution to the nutrient problem is of utmost importance. Experiments were conducted during September 2006 to April 2007 at the University of Illinois to determine the efficiency of various biomaterials for removing agricultural chemicals from drainage discharge. Soil columns were used to investigate the chemical reduction in water when it passes through biological filters; beaker experiments were conducted to investigate if biological activities would enhance chemical reduction.

The results from both the soil column and beaker experiments support the hypothesis that a properly designed, naturally available biofilter can significantly reduce the amount of chemicals leaving agricultural fields. Hardwoods (in general), cocoa bean shells, and granular activated carbon materials perform exceptionally well for the reduction of nitrate, atrazine and alachlor. Granular-activated carbon was expected to perform well, however, the discovery that biomaterials such as hardwood chips and cocoa bean shells can perform as well, or better than, granular-activated carbon could revolutionize water treatment technologies.

From the soil column experiments, it was also determined that retention time does have a positive effect on the amount of nitrate that can be reduced by various filter media. Therefore, a material with a porosity that optimizes filtration rate and nitrate reduction will ultimately be the most useful material for this sort of application. Furthermore, the benefit of extended retention time could promote the implementation of conservation practices such as controlled drainage in tile-drained watersheds.

The beaker experiments proved that biological activity is at least partially responsible for nitrate reduction. The possibility of other factors (soil organic matter, moisture content, etc.) contributing to nitrate reduction cannot be ruled out at this point, but it is clear that there is some biological degradation occurring. This was discovered when the materials that were re-inoculated with indigenous soil bacteria showed a much greater reduction in nitrate than the materials that had been sterilized of all microorganisms. Additionally, the beaker experiments confirmed the findings of Davidson (2005), showing that nitrate is significantly reduced in the presence of atrazine and alachlor. This finding could have serious implications for agricultural producers, considering that atrazine and alachlor could potentially render fertilizers useless if applied in close time proximity of these pesticides.

U of I student design team receives $75,000 grant

In late April, a team of University of Illinois students was one of the top winners of the "People, Prosperity, and the Planet (P3)" competition sponsored by the U.S. Environmental Protection Agency. In the award ceremony on April 25, at the National Academy of Sciences Building in Washington D.C., the Illinois team was awarded $75,000 as one of six overall winners of the national competition. This is the first time any group of students from UIUC has won this award.

Last year, the team competed in a preliminary competition, and their proposal received a $10,000 award, which allowed for development of the actual project.

The U of I team project focuses on the bioremediation of agricultural chemicals to protect both surface waters and groundwater. The team, consisting of 10 undergraduate and three graduate students from the departments of agricultural and biological engineering, civil and environmental engineering, and chemistry included Stephen Anderson, Malia Appleford, Greg Byard, Paul Davidson, Joseph Good, Gregory Goodwin, David Haase, Daniel Koch, Brandon Kocher, Andy Lenkaitis, Jacob Mitchell, Amanda Olsen, and Luke Zwilling.

The team has already developed an agreement with a university in India, and plans to collaborate and work with students there. Water quality is a primary concern everywhere, and this collaboration will seek to use the team’s biofilter technology to help improve water quality around the world.

In all, about 50 teams from across the nation participated in the EPA’s design-research competition held at the National Mall. The judges were all members of the National Academy of Engineers.
**Abstract**

The South Zumbro Watershed Storm Water and Capital Improvement Plan was a proposal put before the City of Rochester Planning and Zoning Department as a solution to an increasing problem with storm water runoff management. It was tabled due to total costs and controversy. One concern was the environmental impact of placing concrete structures in streams to slow and impound storm water runoff. Beaver dams may provide a more natural solution. Beaver dams on streams in Southeastern Minnesota are largely positive with differences in upstream and downstream characteristics during normal stream flow.

Data and observations were noted for 15 different physical, chemical, and biological parameters collected upstream and downstream at three active beaver dams from August to December, 2006. Physical parameters were: hourly water and water surface temperatures, flow velocity, silt depth, transparency, water depth and dam measurements. Chemical parameters were: dissolved oxygen, dissolved organic carbon, ammonia nitrogen, total suspended solids, total phosphorus, nitrates, and select anions. The biological parameters were: aquatic macro invertebrates using Kick net, D-Net and Hester-Dendy samplers and E. coli bacteria using coliform surveys.

Some of the results were unexpected. Macro invertebrate results showed higher diversity and a higher level of pollution-intolerant species in five out of six downstream samplings. The dissolved oxygen concentrations were higher than expected downstream. The temperature differences at the downstream Whitewater site show a compelling result currently being reviewed by natural resource experts to develop follow-up studies.

The results support a change in current state policy which would allow beaver dams to be present on streams. The restoration of this keystone species has the potential to improve the natural hydrology and support native flora and fauna on streams in southeastern Minnesota. Using beaver dams as a natural alternative to expensive artificial structures in watersheds is a thought-provoking idea to challenge multi-agency cooperation in their efforts to manage storm water runoff.
The Light Factor: The relationship to bivalve shell composition and color

By Megan O’Brien

The following is a summary of Wisconsin Section entry to the Stockholm Jr. Prize. The full paper can be found on www.cswea.org

BACKGROUND
The Quagga mussel (Dreissena bugensis) was first reported in the Great Lakes basin in 1989. The Quagga mussel is a close relative of the well-known Zebra mussel (Dreissena polymorpha), which arrived in 1986 and is the only other Dreissena mussel in the United States. The mussels are similar in size and have the same basic anatomy, and differentiation between the two species has become increasingly difficult. The mussels are best distinguished by the shell shape and shell coloring. The Zebra mussel has a flat ventral side and is as wide as it is thick. The Quagga mussel has a rounded ventral side and is narrower than it is thick. The Zebra mussel is best known for its distinct dark stripes that run vertically up and down the shell. The Quagga mussel is primarily white, sometimes with a single dark stripe.

The Quagga mussel is quite prolific and is spreading rapidly, causing huge economic and ecological repercussions. The Quagga mussels are able to filter a liter of water a day and do not hibernate the long cold winters, thus they strip freshwater ecosystems of zooplankton and algae. In addition to uninterrupted feeding, the Quagga mussel outbreeds native mussels and are threatening native mussel populations. The mussel has had resounding effects on the Great Lakes ecosystem far beyond the native mussels. The rapid proliferation of Quagga mussels also has huge economic repercussions. Unlike their cousin the Zebra mussel, Quagga mussels have a wide range. They tolerate both the deep cold offshore waters as well as the mild inshore waters and colonize on all substrata. This range has caused more damage than the Zebra mussels. The Quagga mussels cause billions of dollars of damage to water intake pipes as well as fouling boats, docks, buoys, and beaches. These mussels are continuing to expand their non-indigenous range, and will soon overtake the Zebra mussels in causing ecological and economic damage.

The Dreissena mussels are native to the Dneiper River in Ukraine and are exotic species to North America, arriving in the ballast water of trans-Atlantic ships. The invasion of the Zebra mussel is well known and documented. It is only recently that scientists have begun to study and understand the biology, ecology, and physiology of the Quagga mussel. When the Quagga mussels arrived in 2002 to Lake Michigan they were all white. Within months most of the mussels were dark-colored. The experiments I am conducting may be some of the first of their kind on Lake Michigan Quaggas, and on the last of the white Quaggas.

HYPOTHESIS
After sorting and counting dozens of samples, I came to the realization that the white mussels were found at depths greater than 30 meters and dark mussels were found mainly in waters shallower than 20 meters. Because light penetrates to a maximum depth of 15 to 20 meters in Lake Michigan, I hypothesize that the Quagga mussels adapted to increased light exposure. This adaptation could have resulted from a dramatic or destructive element, such as ultraviolet light.

I hypothesize that the introduction of ultraviolet light caused the change in shell coloration of the Quagga mussels as they adapted to its destructive properties.

PURPOSE
The rapid shell coloration of the Quagga mussels shocked and still perplexes scientists today. The idea of hybridization is a topic of consideration in the scientific community. If proven that this coloration similar to that of a Zebra mussel is an adaptation, it refutes the idea of mussel hybridization. It also could prove the sensitivity of mussels to ultraviolet radiation. Perhaps the mussels are protecting their soft body tissues or more importantly their gametes. If bombarded with UV radiation before the mussels could adapt, this could be a possible method of mussel control. As there are no effective molluscisides or ways of controlling the mussels, UV treatment would be an important advancement in the management of ballast tanks, intake pipes, and inland lakes.
JUST SAY NO

“No” to leakage
“No” to cracks
“No” to unsightly staining
“No” to long construction time
“No” to service interruptions
And “yes” to decades and decades of reliable service.
On April 19-21, the University of Wisconsin at Madison held its biennial Engineering Expo. As we had recently set up our student chapter of WEF/AWWA at the university, we had very little time to come up with an idea and put something together. However, things nearly went off without a hitch. Thanks to the hard work of several of our new members, a booth was set up with a demonstration on filtration and many people heard about our organization throughout all the different areas of engineering on campus.

On the first day, elementary students were invited to the event, so the display needed to be interactive and exciting to capture their attention. To aid in this, the students (most fourth and fifth graders) were able to try different combinations of sand, gravel and screens to create the best filter in their group. The sand and gravel was placed in a cut-off two-liter pop bottle turned upside down with a pipe to collect the water. Water quality was checked with a turbidimeter to determine who won some candy. Granted, it does not take efficiency into effect, but it was a nice introduction to filtration.

Day two was for middle and high school students, which created yet another challenge in keeping people interested. Luckily, some of them were genuinely interested and asked many good questions, which kept our presenters on their toes, but unfortunately, the high school students were not at all interested in getting their hands dirty making a filter.

The final day was open to anyone who was interested in coming to see all the projects in engineering. It was also the day for judging the booths. There were prizes of $800 for the top undergraduate student, organization, and graduate student displays. Although we did not win, one parent told me that her daughter enjoyed our booth the most out of all of them, so at a minimum we have one new member 10 years from now and a goal for the 2009 Expo.
Announcing the 3rd Annual Midwest Water Industry Expo

The 2nd Annual Midwest Water Industry Expo is now over and again it was successful. Attendance was higher than the first year and all vendor spaces were sold out. If you were not there you missed a great experience, so plan on coming next year. You will not regret it, as the expo is only going to get bigger and better. It continues to receive very favorable comments from both the attendees and the exhibitors. Most people left looking forward to next year.

The expo is intended to be a means to bring water and wastewater professionals into contact with equipment suppliers and manufacturers to promote the free exchange of information. Our goal is to bring a quality water and wastewater exposition to the upper Midwest so operators and others can have a chance to see equipment that is usually only on display at national conferences. The expo is the exhibitors’ opportunity to present their goods and services to their customers and potential customers without all of the other normal conference activities that take people away from an exhibit hall. The first two expos have accomplished these objectives.

Planning for the 3rd Annual Midwest Water Industry Expo is now under way. The big change will be in the event’s location. Instead of holding it at the Kalahari as we have in the past, the 3rd expo will be held at the Chula Vista Resort in Wisconsin Dells on January 23 and 24. The reason for the change is simply that the Kalahari was not available on the days we needed. The Chula Vista is a premier Wisconsin Dells vacation resort with many of the same (or better) facilities that we have had in the past. Although it is a new location, next year’s expo will continue many of the past highlights, including:

• A fundraising raffle with thousands of dollars in prizes with the proceeds going to help solve water or sanitary problems in third-world countries
• Over 100 exhibitors
• Over 700 attendees
• Over 30 vendor presentations
• Wednesday and Thursday lunches and a Wednesday meet and greet.

We are very appreciative of everyone who exhibited in the past and hope many more will join us next year. The past expos could not have been considered successes without the large number of operators and other water professionals who attended. We want to see all of you at the Chula Vista in 2008.
**BACKGROUND**

Heart of the Valley Metropolitan Sewerage District (HOV), in Kaukauna, Wisconsin, provides wastewater treatment services to the City of Kaukauna, Villages of Little Chute, Kimberly, and Combined Locks, and the Darboy Sanitary District. The City of Kaukauna Wastewater Treatment Plant, originally constructed in the 1930s was expanded into a regional facility in the late 1970s, using the following process:

- Screening
- Primary clarification
- Primary effluent pumping
- Pure oxygen activated sludge
- Secondary clarification
- Secondary effluent pumping
- Filtration
- Chlorine disinfection

Solids handling consists of gravity thickening of primary sludge, DAF thickening of WAS, anaerobic digestion, on-site liquid biosolids storage and liquid land application (Class B biosolids).

In 2003, HOV retained McMahon Associates, Inc. and initiated facilities planning due to rapid growth, peak wet weather flows, and the need to nitrify.

**CHALLENGES/OPPORTUNITIES**

During facilities planning, the following discovered challenges presented creative opportunities to the engineering team:

- **Growth** – During the planning period, an increase in loadings of 60% was projected.
- **Effluent limits** – Wisconsin Department of Natural Resources (DNR) imposed an effluent ammonia nitrogen limit of 3.6 mg/l summer, 10 mg/l winter. Current ammonia effluent was 20 mg/l. The existing pure oxygen system was incapable of meeting these limits. Also, there was no room on the site to use conventional technology to nitrify.

**Peak flows** – The plant, originally sized for a peak flow of 16.5 MGD, was modified to treat a peak flow of 35 MGD (using blending) in the 1990s. Actual peak flows since 2000 were approaching 50 MGD. SWMM modeling predicted peak flows to the plant of 60 MGD during a 10-year storm and over 70 MGD at a 100-year storm. The plant staff desired a facility that would result in zero sewer system overflows (SSOs) in the sewer system or at the plant during a 100-year storm event.

- **Site constraints** – The existing site, consisting of approximately 5.5 acres, had little room for future expansion. Constraints included Thilmany Paper Mill on the west and south, part of the old Fox River Locks/Canal on the north and Fox River to the east and shallow bedrock, 5 to 8 feet below grade.
- **Conventional technology was not an option** – There was simply not enough space on site to allow for conventional technology such as primary clarification, single-stage nitrifying activated sludge, secondary clarifiers, and return sludge pumping.

**TECHNOLOGY CHOICE**

To expand on the existing site, the engineering team chose processes that were high rate, resulting in a small footprint and vertical, if possible, to minimize excavation. Other desirable features included proven technology, operator friendly and reliable systems, and systems that used existing tankage and structures as much as possible. Plant staff also desired a Class A biosolids to minimize future environmental risks associated with beneficial reuse via land application. HOV chose ballasted sedimentation for primary treatment and peak flow treatment, Biological Aerated Filter (BAF) for CBOD removal and nitrification and conversion of the existing anaerobic digesters to Auto-thermal Thermophilic Aerobic Digestion (ATAD).

**TECHNOLOGY DESCRIPTION**

**A. Liquid Flow Sheet (Figure 1)**

The ballasted sedimentation (Actiflo) process uses micro-sand as a seed for floc formation. The micro-sand provides surface area that enhances flocculation and acts as a ballast. The resulting sand ballasted floc allows for clarifier design with
high overflow rates and short retention times, resulting in a system footprint that is between 5 to 50 times smaller than conventional clarification systems of similar capacity.

The system consists of two parallel treatment trains; each train consisting of an injection tank, maturation tank, and clarifier with a scraper.

Ferric chloride is added to the screened and degritted wastewater to destabilize suspended solids (SS) and colloidal matter. The wastewater flows into the flash mix tank (injection tank) where polymer and micro-sand are added to initiate floc formation.

Treatment continues as wastewater flows from the injection tank into the maturation tank. Here, relatively gentler mixing provides conditions for the formation of polymer bridges between the micro-sand and the destabilized SS. The large surface area of the micro-sand provides enhanced opportunity for polymer bridging and enmeshment of micro-sand and floc already in suspension.

The ballasted floc leaves the maturation tank and flows into the settling tank. Clarified wastewater exits the Actiflo system via series of collection troughs or weirs for discharge to secondary treatment (26.5 mgd) or blending (>26.5 mgd), with treated effluent.

The ballasted floc sand-sludge mixture is collected at the bottom of the settling tank and is then pumped to the hydrocyclone for separation of the sand from the sludge. Once separated, the micro-sand is concentrated and discharged from the bottom of the hydrocyclone and re-injected into the Actiflo process for reuse. The lighter density sludge is discharged out of the top of the hydrocyclone and sent to thickening.

The Biological Aerated Filter (BAF) uses synthetic media to filter out SS, as well as to provide surface area for bacteria to grow and provide CBOD removal and nitrification. The system operates an upflow submerged fixed film aerated reactor. Backwashing occurs using treated water in a downflow mode. Spent backwash water flows to the existing Unox reactors, from which it is pumped to Actiflo for further treatment.

The media in each cell is composed of specially manufactured high-density polystyrene beads (4.5 mm) covered by active biomass, providing biological treatment to the wastewater as it flows through the cells. Ceiling plates with regularly spaced nozzles are used to retain the filter media. The nozzles allow the treated water to enter a common water reservoir above the filters, which, in turn, is used to provide water during backwash sequences.

Growth of biomass and the retention of SS in the filter media make periodic backwashing necessary. The BAF process is designed for a backwash interval of 24 hours or more.

Water from the common treated water reservoir flows down through the filter by gravity, thereby expanding the media bed. The air grid, located below the media, is used to supply scouring air during the backwash sequence.

What makes the use of this technology in the flow sheet unique?

- The Actiflo process will be operated 24/7/365 as HOVs primary treatment process, rather than only during a peak flow event.
- During dry weather flows, pilot testing showed that Actiflo could be operated without sand fluidization at flows as high as 15.6 MGD while still achieving or exceeding the goal of 50% CBOD removal, 70% TSS removal and 75% phosphorus removal. This is at a rise rate of 13 gpm/ft², or equivalent to a surface overflow rate of 18,720 gpd/sq. ft.
- During wet weather flows, Actiflo will treat up to 60 MGD using ballasted sedimentation. Approximately 26.5 MGD of the 60 MGD is divided to the BAF for secondary treatment and nitrification while the balance is diverted to disinfection, to be blended with the disinfected BAF effluent.

B. Solids Flow Sheet (Figure 2)

BAF sludge is wasted to Actiflo to cosettle with primary sludge. This mixture is gravity thickened and transferred to
the dissolved air floatation units for thickening to a minimum 5% solids. Thickened solids are pumped to a mixed batch tank from which the ATAD is fed once per day in a one-hour period.

The existing primary anaerobic digester was retrofitted to an ATAD reactor with the addition of a pair of jet aeration headers, two mix pumps, PD blowers and foam control pumps. HRT at design maximum month loading conditions is 12 days. Volatile solids destruction is anticipated to be 60 to 65%, at a VSS loading of 210 lbs./1,000 cubic feet of digester volume, or 2.6 times the typical loading of a conventional mesophilic anaerobic digester (80 lbs./1,000 c.f.).

After the ATAD, the sludge is transferred to two existing 40-foot diameter digesters which are aerated and cooled to 98°F to create optimal conditions for nitrification. This reduces sidestream ammonia strength from sludge storage decant to 200 mg/l.

The process is PFRP, resulting in 23 hours’ holding time of the biosolids at 50° to 55°C, to achieve a Class A pathogen reduction. All sludge is stored on site in two covered glass-lined tanks (4 MG total) prior to land application by injection as a liquid twice/year.

**WILL IT WORK?**

There are ballasted sedimentation and BAF systems in the United States treating municipal wastewater, however, none of these systems are coupled together as proposed for HOV. We had to rely on European experience for similar full-scale flow sheets.

To convince ourselves and the owner that this coupled process would work, we undertook due diligence, pilot testing, and developed a process guarantee.

Four plants in France and Switzerland were toured in 2005, all of which had similar flow sheets to HOV. Data from each plant was reviewed and operators were interviewed. Fifteen specific design recommendations were brought back and applied to the HOV project and all data suggested the system was capable of meeting the design objectives.

A pilot test of ballasted sedimentation and BAF was conducted on HOV raw wastewater at the HOV plant site from June 15 to November 5, 2004. The purpose of the test was to obtain performance data to meet testing objectives and to provide design data to size these unit processes.
The Actiflo pilot operation demonstrated that the unit is capable of meeting the performance goals as noted below:

**Actiflo pilot test**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Goal</th>
<th>Actual performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOD Removal</td>
<td>50%</td>
<td>61%</td>
</tr>
<tr>
<td>TSS Removal</td>
<td>70%</td>
<td>79%</td>
</tr>
<tr>
<td>P Removal</td>
<td>75%</td>
<td>85%</td>
</tr>
<tr>
<td>Chemical Dose, Fe&lt;sub&gt;2&lt;/sub&gt;(SO&lt;sub&gt;4&lt;/sub&gt;)&lt;sub&gt;3&lt;/sub&gt;</td>
<td>50 - 90 mg/l</td>
<td>50 - 100 mg/l</td>
</tr>
<tr>
<td>Polymer Dose</td>
<td>1 - 2 mg/l</td>
<td>1.5 - 2.25 mg/l</td>
</tr>
<tr>
<td>Rise Rate, gpm/ft&lt;sup&gt;2&lt;/sup&gt;</td>
<td>50</td>
<td>65</td>
</tr>
</tbody>
</table>

2 – 30 MGD Units will treat up to 15.6 MGD w/o Sand

The Actiflo process met treatment goals while maintaining rise rates as high as 65 gpm/square foot (78 mgd for two 30 mgd Actiflo units). This indicates that during wet weather events the process will maintain treatment that is comparable to or better than conventional primary clarification treatment.

The coupled Actiflo/Biostyr process test met the performance objectives, as shown below:

**Test objectives & results of Actiflo & Biostyr**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test objective</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOD&lt;sub&gt;5&lt;/sub&gt;</td>
<td>15 mg/l</td>
<td>5.5 mg/l</td>
</tr>
<tr>
<td>TSS</td>
<td>20 mg/l</td>
<td>8.3 mg/l</td>
</tr>
<tr>
<td>NH&lt;sub&gt;3&lt;/sub&gt;N</td>
<td>3.6 mg/l – Summer</td>
<td>1.1 mg/l</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>1.0 mg/l</td>
<td>0.31 mg/l</td>
</tr>
</tbody>
</table>

The final element of assurance included a negotiated process performance warranty from Kruger, which requires a demonstration test of the installed system to confirm compliance with the specified performance.

**Area required**

How much room did we save over conventional technology? See the following tables.

**Comparison:**

Conventional primary clarification vs. ballasted sedimentation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conventional</th>
<th>Ballasted sedimentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Overflow Rate, gpd/sf</td>
<td>1,500</td>
<td>46,875</td>
</tr>
<tr>
<td>Foot Print, sq. ft.</td>
<td>40,000</td>
<td>3,850</td>
</tr>
<tr>
<td>Performance Removal, %</td>
<td>30</td>
<td>50-60</td>
</tr>
<tr>
<td>▼ BOD</td>
<td>50</td>
<td>70-80</td>
</tr>
<tr>
<td>▼ TSS</td>
<td>0</td>
<td>75-85</td>
</tr>
</tbody>
</table>

**Comparison:**

Nitrifying activated sludge vs. biological aerated filter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conventional</th>
<th>Actiflo &amp; BAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD Loading, lb./1,000 cf</td>
<td>15</td>
<td>86.8</td>
</tr>
<tr>
<td>HRT, hours</td>
<td>10.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Aeration Tank or BAF Area, sq. ft.</td>
<td>54,000</td>
<td>10,800</td>
</tr>
<tr>
<td>Clarifier Area, sq. ft.</td>
<td>40,000</td>
<td>0</td>
</tr>
<tr>
<td>Total Site Area, sq. ft.</td>
<td>94,000</td>
<td>10,800</td>
</tr>
</tbody>
</table>

The Actiflo system uses 1/10 of the space required for conventional primary treatment and performs better.

The BAF uses 1/9 of the space required for nitrifying activated sludge, is not reliant upon sludge settling in a clarifier and does not require return sludge pumping.

The ATAD used less than half the space required for mesophilic anaerobic digestion.
WEF looking toward maintenance professional certification

By Gary Scott, CPMM, IL Section Safety Committee Chair

Water and wastewater maintenance professionals today must confront a wider variety of technology issues than in the past and therefore must possess an extensive knowledge of the many facets of industrial maintenance. Position descriptions are designed to validate that individuals possess the professional expertise and knowledge required to successfully perform plant and facilities maintenance activities according to the most current professional standards. More than ever before the roles of water and wastewater maintenance professionals involve diverse issues and concerns as organizations work to improve and grow. Yet there are few industry-accepted certification programs for maintenance technicians, specifically relating to water and wastewater. The EPA state offices provide licensing and training programs for collection system operation, cross-connection inspection, water and wastewater laboratory testing, and water and wastewater treatment works operation, but do not currently sanction such programs for agency maintenance professionals.

The Water Environment Federation (WEF) has developed a partnership with the Association of Boards and Certifica-
tion (ABC) in developing a standardized plant maintenance technologist certification program for drinking water and wastewater plant maintenance personnel. ABC represents its membership on certification matters to national and international governmental agencies, organizations, and professional associations; maintains a database of state/provincial certification laws and regulations; and conducts research on certification issues, such as validation, revocation, and litigation. ABC’s services may be broadly categorized into three main areas: testing service, reciprocity, and technical assistance/information exchange.

ABC has been assisting states and provinces with environmental certification programs since 1972. Their membership consists of over 90 certifying authorities representing more than 45 states and 10 Canadian provinces which certify over 150,000 water and wastewater operators, laboratory analysts, and backflow prevention assembly testers.

ABC, in participation with WEF, has solicited personnel involved in the day-to-day maintenance of treatment facilities to complete a job analysis survey. Participation from plant maintenance personnel is essential to developing a quality, valid certification program. In the survey, participants were asked to rate a list of job tasks and their associated knowledge and abilities for frequency of performance and consequences of inaccurate performance. The results of the survey will be used to determine what is both appropriate and required to cover on plant maintenance technologist certification exams that are developed through ABC. When exam development is complete, voluntary certification through ABC will be available through WEF in local jurisdictions, as IEPA is not currently a member of ABC. Effective plant maintenance is a key component to every treatment facility so WEF is excited about partnering in this new program.

Suzanne De la Cruz, manager of testing for ABC, reports that participation in the online survey by personnel currently working in the water and wastewater maintenance field encompass nearly all states not currently participating in licensing and certification programs. She reported that as of June 1, 2007 more than 550 technicians had requested to take the online survey which could be completed through June 13, 2007. No date is given for development and implementation of certification exams, but is believed to be late in 2007.

The Instrumentation, Systems, and Automation Society (ISA) has maintenance industry-recognized programs for certified automation professional (CAP), certified control system technician (CCST), and certified industrial maintenance mechanic (CIMM), none is recognized by WEF, EPA, or IEPA for examination equivalency, or license reciprocity. ABC has been in direct contact with both the EPA and WEF during this process, and they express optimism that the state sections of EPA will initiate licensing programs based on the resulting ABC developed certification exam and program where they do not currently exist.

Did you know that CSWEA participated in an ABC voluntary laboratory certification program from the early ‘90s until it was discontinued in 1997? Suzanne reports that many of you in Wisconsin may still have these reciprocal certifications. I believe that a WEF-endorsed maintenance technologist certification program in both water and wastewater maintenance is long overdue, will provide additional benefit to staff retention, industry-specific technical development, and provide another tool to bolster the programs of the CSWEA.

Perhaps CSWEA will consider initiating a voluntary plant maintenance technologist program should such state sections of EPA not initiate licensing programs as a result of this effort. If you have interest in this discussion let CSWEA know.
Superior sewer system costs less.

AIRVAC vacuum sewer systems save up to 60% compared to other systems and offer additional advantages:

- Eliminate multiple lift stations
- No power required at the valve
- Shallow burial depth
- Smaller pipe
- Minimal surface disruption
- Ease of field changes
- Environmentally sound
- Low O&M
- No I/I or exfiltration
- No exposure to raw sewage

How the AIRVAC Vacuum Sewer System works:

1. Traditional gravity lines carry wastewater from up to 4 customers to an AIRVAC valve pit package.
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The CSWEA Annual Meeting is a wrap and what a great event it was. The Madison venue was great, kudos to the local arrangements committee, and especially their ever-hard-working leader, Paul Nehm, for a great job. Highlights included the entertainment both nights, and the great weather for most of the conference (not sure how they arranged that one, though).

As outgoing chair of the technical program committee, I would also like to extend a special thanks to the committee members (Jason Benson, Professor Bill Boyle, Scott Fronek, Pavel Hajda, Steve Reusser and Beth Vogt) for a great job in planning the technical sessions and in moderating them, and to all the technical session presenters – I received a lot of compliments from folks about the quality of the papers – a testament to all of your hard work in sharing information with our membership.

Now that the Annual Meeting is over, I get to switch hats and take over as chair of the Wisconsin Section. I am really excited about this opportunity – we have so many good things going on, and so many great people actively involved, that I know this will be another fun and successful year. I would like to acknowledge, and thank, our section board including outgoing chair Tom Mulcahy, outgoing past chair Randy Wirtz, WWOA liaison Randy Thater and outgoing trustee Rusty Schroedel. Also a special thanks to secretary-treasurer Dave Arnott, who has learned the ropes extremely fast and is doing a great job as the glue of the section.

I am a firm believer in not trying to fix things that are not broken, and I am glad to say that I will get to apply this perspective to my year as section chair. Under Tom’s leadership, our committees and their chairs, who really are the keys to our section’s success, have really stepped up to the plate – with the result that all of our committees have sitting chairs and active memberships once again. The work put in by the ad hoc committee on committees, led by Jeff Brochtrup, has really been paying dividends.

As I look to the coming year I am hoping we can maintain our momentum, while building on it in a couple key areas. One of those key areas is our students and young professionals committee. Dan Busch has done a great job leading our efforts here, and has now handed over the reins to Rachel Lee. While Dan is truly young at heart, it is encouraging to see this transition to someone who actually meets the young professional criteria (I think Dan misses it by just a year or two). I know Rachel has a lot of energy and plans for this committee, and we all look forward to helping them grow in numbers and active involvement – they are the future of our organization.

Among the other initiatives I am excited about are a couple of seminars. First off, our collection system seminar will expand to two seminars in 2008, one to be held in Watertown, as usual, and a second to be held in the Northwoods, with Ron Dickrell leading the charge. And secondly, Bill Oldenburg is leading the efforts within our industrial waste committee in planning for our first annual pretreatment coordinator’s seminar, to be held in the Fox Valley area in 2008.

In closing I want to again thank our board members, including new members Steve Godfrey (vice chair) and Ken Sedmak (trustee) and all of our active members and committees for all they do. In addition, a big thanks to the CSWEA executive committee, and especially Eric Lecuyer, for all their hard work and leadership – they provide a great example for all of us. Finally, I would like to encourage all members to get involved – we have great committees and volunteers, but we can always use more hands and help, and I know you will cherish the experience.

Protecting our water environment, amongst friends – what a great way to help people and our planet.

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Salutations from the Illinois section chair. I am honored to hold such a prestigious position and look forward to the opportunities and challenges ahead. I would like to thank past chair Steve Bollweg for his help and guidance in organizing the upcoming events in 2007-2008.

Last month I attended the annual conference at Madison's Monona Terrace. It was a learning and fun-filled experience. Water for People held a silent auction, and thank you to all who participated for its success. As always we had great speakers, vendors, and entertainment. I tried the walk/run event for the first time. It was a lot of fun and I plan to win something next year in Minnesota so watch out. I would like to thank Debra Ness for being coerced into walking, or strolling, with me.

The lab committee held a workshop June 20 at Courtyard Banquets in Warrenville, IL. The speakers were Idexx Labs discussing alternative fecal coliform/E. Coli testing procedures, and Hach demonstrating their new DR5000 for phosphorus and other analytes. I hope you marked your calendars and managed to attend. It was an all-day affair with lunch included.

July holds the CSX planning meeting for Central States at the Kalahari. If you have any ideas come to the two-day meeting. If you would like more information go to our web site at cswea.org.

Champaign-Urbana has graciously agreed to host the operations quick talks in late August. They finished completing their south plant for phosphorus removal. Brochures will be sent out soon. We still need a few speakers, so please contact me if you are interested.

Mr. Bachman, thanks again for hosting.

Watch in November for another maintenance/safety quick talk. Hosts, speakers, and ideas are welcomed.

I would like to extend the challenge that Dennis Lindeke, the new CSWEA president, gave at the Illinois section meeting. Find a new member or a non-active member and invite them to become involved with Central States. Together we can keep our association strong.
Working together

I am very excited about the upcoming year at Central States. There are a lot of outstanding individuals in our organization and I am looking forward to working with all of this year’s officers and committee chairs. Becoming involved in one of the Minnesota committees is an excellent opportunity to give back to our profession and communities, meet new and interesting people, and network with professionals who enjoy being part of a great organization. Additionally, the Minnesota Section cash flow is in the black and we have several opportunities to use that money to strengthen our membership and get our message out to the public.

The CSWEA 80th Annual Meeting – “Water is Our Life” was held in Madison, WI May 22-25. The keynote speaker, Dr. Steven Ackerman, updated everyone on the capabilities of current satellite systems. There were plenty of great technical presentations and vendor displays, J. Michael Read (Immediate Past President of the WEF) was the luncheon guest speaker, and Pat McCurdy’s unique entertainment style was well received after the Annual Banquet.

The MWOA/CSWEA laboratory committee annual training session was held June 20-21 at the Holiday Inn in St. Cloud. Mike Raynovic of North Central Labs was the instructor on nitrogen analyses.

Upcoming events in the Minnesota Section include:

CSWEA CSX’07 is this July 19 & 20 at the Kalahari Resort in the Wisconsin Dells. This will be the third annual event and is designed to provide for strategic planning, brainstorming, and the exchange of ideas from committee to committee and Section to Section. If you are an officer or committee member, please consider attending this event. It is fun for the whole family.

The Collection System/MWOA Joint Fall Conference will be in Owatonna, MN this year and the topic will be fats, oils, and grease (FOG).

The 22nd Annual Conference of the Environment to be held November 8 at the Earle Brown Heritage Center in Brooklyn Center. Please contact Marion Graham if you are interested in volunteering to plan this event.

The Innovative Conference next February will focus on global warming and Jonathan Yuhas will be the keynote speaker.

The CSWEA 81st Annual Meeting will be held in Bloomington, MN in 2008. The MN Section is hosting this event and the local arrangements committee, led by Eric Evans, is looking for good ideas to make this a great event. If you have ideas or would like to get involved, please contact Eric.

Finally, all our committees are doing a great job promoting Central States, mentoring students and young professionals, providing training opportunities for our members, and representing our industry to the public. If you want to grow professionally and give back to the community, please consider joining one of the many committees or activities. Let us work together to make this a successful year at Central States. For further information, contact any of the MN Section committee chairs found on the website: www.cswea.org.
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<td>14</td>
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<td>NOVEMBER - 2007</td>
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<td>8</td>
<td>22nd Annual Conference on the Environment, Earl Brown Heritage Center, Brookland, MN</td>
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### APRIL - 2008

| 1 | 13th CSWEA Annual Education Seminar, Madison, WI |

### MAY - 2008

| 19-22 | 81st CSWEA Annual Meeting, Sheraton Bloomington Hotel, Minneapolis South, Minneapolis, MN |

To include your event in the calendar, contact the CSWEA Executive Director Eric Lecuyer at erlec@prodigy.net
MemBERS ON THE MOVE

Erik Lanphier Promoted
CSWEA member Erik Lanphier was promoted to Wastewater Manager at the Glenbard Wastewater Authority, Glen Ellyn, Illinois on May 7, 2007. Lanphier is an eight-year member of the Glenbard staff, with previous wastewater experience in Alaska, California, and Arizona.

The Glenbard Wastewater Authority treats domestic sewage from approx. 109,000 residents of the Village of Glen Ellyn, Village of Lombard, Illinois American Water, a private utility, and unincorporated DuPage County. The authority operates the 42 MGD Glenbard Advanced Treatment Facility employing a two-stage activated sludge process using a high-purity oxygen production and aeration system, ultraviolet disinfection and land application of its biosolids; a 58 MGD Lombard Combined Sewage Treatment Facility; North and South Interceptor Systems; and four regional lift stations.

Greg Kester Leaves DNR for California
Greg Kester, the Wisconsin Department of Natural Resources biosolids coordinator, recently announced his resignation from WDNR. In Greg’s own words:

“It is with very mixed emotions that I must inform you that I have accepted a new position and will be leaving DNR. It has been my pleasure to guide the state residuals program and work with you wonderful people over the years. I will miss so many of you and will hold nothing but the fondest of memories. The position I have accepted is the biosolids program manager for the California Association of Sanitation Agencies (CASA). I will be working with California treatment plants, legislators, local government, etc. to advance and improve sludge treatment, biosolids management, and recycling opportunities in California. I have long held the belief that California is a huge domino and if it falls in the biosolids recycling world, it will negatively affect the rest of the nation. I hope I can effect positive change there and prevent the domino from falling. They have offered me an incredible opportunity and challenge that I could not refuse. I will be able to remain based in Madison although I will spend a lot of time in California. When my wife retires, we will likely spend our winters on her family farm in Ventura, California, but have no plans to permanently leave Madison.”

GBMSD Names New Executive Director
Green Bay Metropolitan Sewerage District (GBMSD) has hired Tom Sigmund as executive director. Tom assumed his position June 4, replacing Paul Thormodsgard who retired after serving as GBMSD’s executive director since 1989. Tom brings more than 20 years of experience as a consultant for governmental agencies and private industry in wastewater treatment and facility design and construction. He holds B.S. and M.S. degrees in Civil and Environmental Engineering from the University of Wisconsin – Madison.

GBMSD is a regional wastewater utility made up of 18 surrounding communities including: the City of Green Bay, parts of the City of De Pere, Villages of Ashwaubenon, Allouez, Bellevue, Hobart, Howard, Luxemburg, Pulaski, Suamico, Towns of Green Bay, Humboldt, Lawrence, Ledgeview, Pittsfield, Red River, Rockland, and Scott.
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