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The Clarifier
WISCONSIN WASTEWATER OPERATORS' ASSOCIATION, INC.

43rd Annual W.W.O.A. Conference
October 6-9, 2009 • Green Bay, Wisconsin
The Hotel Sierra, KI Convention Center
Green Bay Metropolitan Sewerage District - Host
President’s Message

Earlier this spring, a young man repairing a water pipe in a nearby town was killed after the saw he was using kicked back, striking him in the throat. It is a very sad and tragic story.

It got me thinking about how quickly life can change for any of us and that we are not as invincible as we would like to believe ourselves to be. The wastewater industry can be a dangerous profession, but it doesn’t have to be, if you follow a few simple rules:

1. Make sure your safety policies are up to date. More importantly, KNOW your safety policies and FOLLOW them.
2. Be sure you have the proper safety devices before starting any job. More importantly, KNOW how to use them, and DO use them every time.
3. Whatever job you are doing, think ahead and have an escape plan.
4. Keep your monitoring devices calibrated. Use them!
5. Work with a buddy when necessary.
6. Use common sense. If something seems unsafe, it probably is. Just don’t do it!
7. No one can make you perform a task that is not safe. If you feel your or anyone else’s safety is at jeopardy, do not proceed with the job until it can be done safely.

It is very easy to become complacent in our jobs. I have been guilty of thinking nothing will happen to me because I have done something hundreds of times and nothing went wrong. All it takes is once and you may not have a second chance to do things right. I know it takes a little extra time and effort to do things safely, but it is well worth the effort. Sixty-three percent of all people killed in car crashes were not wearing seatbelts. In 2008, there were 587 car crash fatalities in Wisconsin. If those 587 people would have all taken the 3 seconds needed to buckle up, there could have been 370 fewer fatalities.

If your facility does not have a good safety program, work with your superiors to help develop one. Areas of potential hazard in our profession include: confined spaces, drowning, traffic hazards, collapse of trenches, chemical hazards, digging up or rupturing buried utilities, falls, fires and explosions, and injuries from heavy lifting. A good safety program needs to identify potential hazards, how to protect the employee and the public from these hazards, proper initial and ongoing training for their employees, and a plan on how to deal with emergencies should they arise. Your safety plan does not have to be elaborate, but you do have to have one and all your employees need to follow it.

I will leave you with one parting thought. The most important part of any task you do, at home or at work, is to keep yourself safe so you can go home to your family at the end of every day.

John Bond
WWOA President
Belleville’s Population Surge Requires Upgrade to Wastewater Treatment Plant

By: Tom Fitzwilliams, MSA Professional Services

The Village of Belleville was founded in 1851 along the banks of the Sugar River in south central Wisconsin. The location on the river provided a source of water and energy, making it an attractive community to early settlers. Now, it is the natural beauty of the river and its millpond that attracts people to Belleville. In 1995, Dane County predicted that the community’s population would reach 2,174 in 2017, but by 2006, the population had already reached 2,100. As a result, a wastewater treatment plant upgrade was required only 10 years after the latest improvement.

A 2004 study revealed that the projected hydraulic and organic loading to the wastewater treatment facility would soon exceed its capacity. In 2006, MSA Professional Services prepared a Wastewater Facility Plan to assess what improvements would be required to serve the community through the year 2027. Midway through the planning process, developers approached the Village with plans to develop 400 acres of new residential and commercial property. The existing headworks facility and oxidation ditch were not going to have enough capacity to meet this new demand. As a result, the wastewater improvements...
were planned to serve a population of 3,313 forecasted for the year 2027. The 20-year wet-weather design flow was set at 696,000 gallons per day.

Throughout this process, the Village took a proactive approach to the anticipated growth. Village officials brought all stakeholders to the table with the goal of providing a long-term solution to wastewater treatment. A modular design was approved that would allow for easy expansion in the future. In addition, process piping was sized for future conditions that will minimize disruptions to the site. Ultimately, this site will be able to accommodate a Village population of up to 10,000 people.

The wastewater design parameters that resulted from this long-range planning exercise for the Village of Belleville were as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Current</th>
<th>Design Year (2027)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Day Flow (mgd)</td>
<td>0.181</td>
<td>0.346</td>
</tr>
<tr>
<td>Peak Month Flow (mgd)</td>
<td>0.426</td>
<td>0.696</td>
</tr>
<tr>
<td>BOD Loading (lbs/day)</td>
<td>546</td>
<td>892</td>
</tr>
<tr>
<td>TSS Loading (lbs/day)</td>
<td>617</td>
<td>1,008</td>
</tr>
<tr>
<td>TKN Loading (lbs/day)</td>
<td>96</td>
<td>157</td>
</tr>
<tr>
<td>Phosphorus Loading (lbs/day)</td>
<td>24</td>
<td>40</td>
</tr>
</tbody>
</table>

The existing facilities were evaluated for their ability to meet these new design conditions. While some of the existing processes could remain, the amount of growth projected required a substantial facility upgrade.

The Village retained the use of an oxidation ditch activated sludge process, but an entirely new reactor basin and aeration system was needed to provide the required capacity. The wastewater treatment facility includes the following unit processes:

- Influent Mechanical Fine Screening
- Raw Wastewater Pumping with VFD Control
- Grit Removal
- Oxidation Ditch Biological Treatment
- Final Clarification
- RAS/WAS Sludge Pumping Station
- Effluent Disinfection: Chlorination- Dechlorination
- Aerated Waste Sludge Holding Tank
- Wastewater Facilities Area-Wide SCADA System

The wastewater treatment facility improvements increased capacity to meet existing and future population growth, added a grit removal process to improve treatment efficiency,
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and added mechanical fine screening to eliminate the need for operators to handle raw screenings, which reduced labor costs. Throughout the design and construction process, the Village’s Director of Public Works, Jerry Butts, gave input to the project team on preferences for equipment and layout of the facility. This method ensured delivery of a product that met the Village’s expectations.

Belleville’s wastewater treatment facility now has the capacity to accommodate future growth for at least the next 20 years. Translated as “beautiful village,” Belleville can continue to open its doors to residents and businesses who wish to locate in this attractive community on the Sugar River.
The 2nd Annual “Northwoods” Collection System Seminar

WHEN: Thursday, August 6, 2009

WHERE: Clearwaters Hotel & Convention Center
Marshfield, WI

MORNING SESSION: Speakers on Collection System Issues

AFTERNOON SESSION: Vendor and Equipment Displays, Door Prizes
Product Demonstrations

TENTATIVE TOPICS: Private Property Virtual Library
Private Property I/I Reduction Survey Results
Odor Control in Collection Systems
Safety – Selecting and Using the Correct PPE
Successful I/I Reduction Case Study
Sanitary Sewer System Maintenance Case Study
CMOM Update
Open Discussion – Funding/Budgets

DNR CREDIT HOURS: Credit hours will be available.

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General Information: Ron Dickrell
715-591-2022

Vendor Information: Bob Lecey
262-377-6360
Energy Management Methods to Reduce Usage

By Ray Grosch
IntelliSys Information Systems
rgrosch@intellisys-is.com

The first step in an Energy Management Plan is to measure energy usage. While an audit of the monthly utility bill is a good place to start, that bill does not provide the detail needed to identify crucial peak demand issues and verify changes made at the facility are actually saving energy. There are too many variables occurring over a month period of time to identify the effectiveness of small changes in facility operation. A real-time energy use program on a PC is ideal for this purpose as energy savings can be visualized immediately. For electrical energy usage there may be an output from the utility company meter which will allow a continuous readout, totalization, trending and peak demand periods. If an output is not available relatively inexpensive submetering instruments are available to allow collecting the data continuously on a computer or through a SCADA system.

What methods might you employ to reduce energy usage and bills at your facility? The US EPA Energy Management Guidebook suggests considering the following methods for areas of high energy use.

Pumping Applications:
- Reduce the pumping load
- Manage the pumping load
- Improve wire to water efficiency
- Pump and drive selection
- Automated control

Aeration Applications:
- Fine bubble aeration
- Improve surface aeration
- High efficiency motors and drives
- Blower variable frequency drives
- Automated DO and mixing control

Dewatering Applications:
- Replace vacuum systems
- Minimize recycle
- High efficiency motors
- VFDs for plant water pump
- Schedule during off-peak hours

Facility Lighting:
- Motions sensor controls
- T5 low and high bay fixtures
- Pulse Start Metal halide
- LED exit signs
- Indirect fluorescent
- Super efficient T8s
- Comprehensive controls

HVAC:
- Water source heat pumps
- Heat pump for generator oil sump
- Low volume fume hood
- Occupancy controls
- Setback thermostats
- Waste heat recovery

There are many other areas of energy management to consider depending on the type of utility operation. Energy production from renewable sources has long been a part of the waste treatment process in the US.

Another area of energy consumption to consider is gasoline and diesel fuels. These fuels can be tracked automatically or manually to determine performance improvement that are achieved. SOPs may need to be modified to achieve lower fuel consumption and cost.

No matter what methods may apply to your Energy Management plan it is important to measure. You cannot manage what you do not measure. It is also important to share the success with staff and management as it will help to motivate them to participate in additional energy management.
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A Cost Effective Way to Rid Your System of Excessive Filaments

System Type: Activated Sludge
Type of Waste: Pulp and Paper
System Flow: 6.5 MGD

Well here we go again, someone upstream dumps who knows what into the sewer and expects the wastewater treatment plant to fix it. Let’s be honest, it gets dumped without another thought. So what do we do when Thiothrex, Nostocoida, and a few other types of filaments start to get out of control? We pour the hypochlorite to the bio system for a few days and upset the rest of the family. That always takes care of things. That’s if you have any hypochlorite in your tank. Current economic conditions have required our spending habits to change dramatically. We no longer are able to carry the inventory of chemicals we all would like to have. So what do we do? We call accounting demanding $5,000.00 for the first load of hypo and another $5,000.00 for the next load, and hope that it will take care of the filament problem. But, what happens if we get turned down and the system continues to get out of control? Do we wait and let the sludge blankets rise? Or, what if we can get the load, but its one or two days out? Can the system wait 2 days for the load and then another 3-5 days for the hypo to take effect? While the hypo is working, can we afford to loose the good biology we have and still meet the effluent standards outlined in your WPDES permit?

TRY THIS
Our team of certified operators and environmental coordinator tried something that most waste treatment plants have never heard of when things get a little out of control. How do we get control of the sludge blankets fast? The answer to this is to waste them down at maximum wasting rates. Leave the recycle rates alone. There is no reason to make an adjustment with the recycle. The fewer changes that are made to a bio system the better off it will be, including pumping hypo to kill off filaments. We discovered that at maximum wasting rates, the sludge blankets dropped fast. The blanket dropped from 120 inches of expanded sludge in our Pickett clarifier to our normal 25-30 inches of semi-compacted sludge in less than 16 hours. Yes, we were on the edge of our seats the first time we tried it and also the second time it was put to use. After the third time in six months, we felt comfortable about using this procedure again. What we found was wasting at a high rate to bring down the blankets also eliminated a lot of the filaments by sending them to our GBT where they were trapped with the rest of the sludge and sent to the farmer’s field. It is easy to determine how many are going out the door and how many get back to the system through the GBT filtrate. Just grab a sample of the sludge wasted to the GBT and a sample of the GBT filtrate and compare side by side on a slide under the microscope. We have determined we get about 98% removal from this procedure, which is a large number.

Another benefit to not chlorinating is that we do not damage all the filaments because we need some filaments to hold the flock together and trap the TSS to have low TSS in the final effluent. One down side to wasting a lot is that
the good inventory will drop in the aeration basin considerably. It’s a difficult thing to watch at first, but with not having to chlorinate the whole system, we have seen very rapid system rejuvenation. There is significant regrowth within 24-36 hours, and there is no loss of treatment to the final effluent while this is taking place. Another option is to reseed from a good basin if you think your inventory dropped too low. This has also worked extremely well for us.

COST SAVINGS
The cost savings from eliminating our hypochlorite use is making us a more profitable company. We’ve learned a lot and have been able to keep the filaments and sludge blankets under control. We also take action when the system shows signs of stress to stop it before the system gets out of control. We have kept a low level in our hypochlorite storage tank just in case we encounter a massive invasion of tetrads or other nasty bugs that can’t be wasted out so easily. However, we’ve found that it is no longer necessary because of our tighter controls.

If you’re ever in a filament situation, give this a try. It may take a few times until you feel comfortable, but if it works, you will see some great cost savings. Worst case is if you feel you still need to chlorinate after the draw down, the system will have less filaments to kill off thus using less hypochlorite and still saving you money.

Now that’s what this article is all about.

Written By
Chuck Gierczak
WDNR Certified Operator

Edited By
Sherri Selting
Environmental Coordinator

WWOA
Conference Schedule

2009 - Hotel Sierra & KI Center, Green Bay
2010 - Kalahari Resort, WI Dells
2011 - La Crosse Civic Center, La Crosse
2012 - Kalahari Resort, WI Dells

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West Central District Meeting
Ellsworth – May 12, 2009

On May 12, 2009, the West Central District meeting was held at the Ellsworth Country Club and hosted by the West Central Wisconsin Biosolids Facility. Approximately 40 people attended.

The meeting started with the West Central District President, Steve Skinner, making a few announcements. Steve reminded members to get their nominations in for State awards and scholarships. Steve also called for volunteers to participate in the Operators Competition. The WCD would like to assemble a three-person team for the fall conference.

The WWOA President, John Bond, also addressed the audience. John mentioned changes that are coming to the WWOA website and also reminded people that there are scholarships and continuing education funding available through the WWOA.

The first speaker of the morning was John Selvog of Infratech. John spoke of the many products and services that Infratech provides. John also talked about the various tools and remedies available to correct almost any collection system problem.

Bob Stark of the City of Red Wing, Minnesota gave a presentation on Red Wing’s Integrated Waste Management Facility. This facility serves several functions including a waste to energy plant, industrial wastewater pretreatment, recycling and material recovery, yard waste composting, demolition debris processing, brush wood product processing, and biosolids processing. The long-term goals of the Integrated Waste Management Facility is to address future biosolids needs, improve the pretreatment plant to better serve industries and to attract new industries, and to provide benefits to its users such as steam and hot water.

Gene Laschinger of Town and Country Engineering spoke about recent upgrades to the West Central Wisconsin Biosolids Facility. Gene mentioned several problems that the facility was having with the Cement Tech liming equipment and described replacing it with a Schwing Bioset unit. The Schwing Bioset unit treats ammonia,
eliminates the use of fly ash, it is simpler and cheaper to operate, and produces a wetter cake with less dust. The Schwing Bioset has also reduced the volume of biosolids produced because the end product contains no fly ash.

The next speaker was going to be John Mylin of Emerald Dairy located near Baldwin, WI. John was unable to attend the meeting so Pete Skorseth of the Wisconsin DNR talked about the Emerald Dairy and their anaerobic digester and methane utilization process. Pete then mentioned that the CMAR is now available and there are some changes this year to the collection system and financial sections. Pete also talked about the shortfalls in the State budget and how it will affect the DNR. Pete said employees will be required to take unpaid days off and cover larger areas. For these reasons, DNR personnel will be more difficult to get a hold of and their response time will be longer.

Jon Schwichtenberg of SEH gave a presentation of GIS and GPS systems. Jon gave examples of typical uses for GIS and GPS in facilities management. He stressed that GIS should be designed to fit your needs; you don’t need to set it up all at once and you can implement a GIS on a limited budget.

The last speaker of the day was Dave Braun of Braun Pump. Dave has worked in the pump and lift station business for over 20 years. Dave spoke in detail about pump and lift station maintenance and gave numerous preventative maintenance recommendations.

The day concluded with Sam Warp giving a tour of the West Central Wisconsin Biosolids Facility. Sam showed us the new Schwing Bioset unit and talked about how it has improved the process.
**Marshfield Golf Outing**

*Northwoods Collection Seminar Pre-Conference Golf Outing*

Date:       Wednesday, August 5th
Location:   River Edge Golf Course (Marshfield)
Time:       12:30pm Shot Gun Start
Cost:       $55.00 Includes: 18 Holes / Cart / Rib-eye dinner
Format:     4 player scramble

Join us for the day of golf before the Northwoods Collection System Seminar. For more information and registration, please go to the website. Any questions, e-mail to tmulcahy@mulcahyshaw.com.

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Sheboygan and Spencer Wastewater Treatment Facilities Named 2009 Registered Laboratories of the Year

From the more than 240 registered laboratories in Wisconsin, two wastewater treatment facilities (WWTF) were recently recognized by the Wisconsin Department of Natural Resources. The Sheboygan WWTF in Sheboygan County and the Village of Spencer WWTF in Marathon County were the recent recipients of the 2009 Registered Laboratories of the Year award.

The awards were presented at a recent meeting of the Natural Resources Board by DNR Deputy Secretary Administrator Susan Crawford, and Environmental Science Services Section Chief David Webb. This is the fourteenth year of the awards. The quality of the data generated by these laboratories is very important since it is used by the DNR to make regulatory decisions that protect our natural resources and provide a healthy, sustainable environment.

Award recipients are selected based on the following criteria:
1. The laboratory's commitment to exceeding the minimum requirements for compliance with Department rules and guidance.
2. The laboratory's commitment to correcting instances of non-compliance.
3. The measures taken by the laboratory to ensure the production of high quality data.
4. The manner in which the laboratory uses its quality assurance program to evaluate and improve laboratory procedures.
5. The laboratory's engagement in other noteworthy practices or achievements deserving recognition.

The Sheboygan WWTF discharges treated wastewater to Lake Michigan. They were recognized in the large facility category for being well grounded in the fundamentals of quality control and making outstanding efforts to produce quality data.

“The Sheboygan WWTF extensively utilizes control charts to monitor QC [quality control] results and has an excellent system for capturing DMR [discharge monitoring report] qualifications,” wrote DNR Laboratory Certification and Registration Program Audit Chemist Dave Ekern in the nomination he submitted for this facility. Two other nominations for this facility were submitted by DNR Wastewater Specialist Christine Lilek and DNR Wastewater Engineer Curt Nickels.

At the awards ceremony, DNR Environmental Science Services Section Chief David Webb said, “The Sheboygan lab staff take a great deal of pride in their laboratory work and that ownership has paid off.” Sheboygan was represented at the awards ceremony by Laboratory Analyst.

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Tom Tocco, Laboratory Supervisor Al Zengler, and WWTP Superintendent Dale Doerr.

The Village of Spencer WWTF discharges treated wastewater to a tributary of the Wisconsin River. The laboratory was recognized in the small facility category for being completely in compliance with the newly revised NR 149 and for their dedication to producing quality data.

DNR Wastewater Engineer Eric Donaldson nominated this facility writing, “Chris Helgestad (main analyst) is diligent about his work and when problems arise he investigates to determine the cause of the problem, comes up with a plan to resolve the problem, and then contacts the Department to inform and document.”

Another nomination submitted by DNR Audit Chemist Camille Johnson reads, “I think this lab is one of the most up to date and informed WWTFs (in regards to lab matters) that I have seen in many years.” The Village of Spencer was represented by Laboratory Analyst Chris Helgestad and recently retired Laboratory Analyst Gerald Marden.

Congratulations to these facilities and their staff for winning the 2009 WDNR Lab of the Year Awards.

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**Answers to April Brain Teasers**

**Intro**

**Answer:** a. volatile fatty acids

**Advanced**

**Answer:** b. 1.6 mg/L

\[
\text{Total phosphorus} = \text{soluble} + \text{particulate phosphorus} = \text{Soluble phosphorus, mg/L} + \left(\text{effluent TSS, mg/L} \times \text{MLSS Total Phosphorus, mg/L}\right) = 0.1 \text{ mg/L} + (25 \text{ mg/L} \times 0.06) = 1.6 \text{ mg/L}
\]

**References:** Wisconsin Department of Natural Resources Study Guide - Phosphorus Removal, Introductory and Advanced, January 2009

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The spring meeting of the North Central Region of the WWOA was held on April 29, 2009. The meeting was hosted by North Central Laboratories. The meeting was held at the NCL facility in Birnamwood, WI.

Mike Raynovic opened the meeting at 8:30 am. He welcomed those in attendance. He gave a brief description of the NCL facility and highlighted a recent addition.

Mike introduced Jerry Cookle of the NCL staff, who gave a presentation on the current status of ammonia probes.

Mike followed Jerry with a presentation on the Secrets to a Successful Wastewater Lab. He shared a number of helpful hints and lessons learned from NCLs experience working with wastewater labs. He also shared several “Myths of the Lab”, including “Probes that are put in the drawer will fix themselves” and “You don’t need to wash your glassware if you use the same reagent every time”.

Tours of the new facility were offered during the morning break.

After the break, the meeting resumed with a discussion by Jerry Cookle on various aspects of complying with NR 149.

Lyle Lutz called the business meeting to order.
1. He thanked everyone for attending today’s meeting. He thanked the speakers for their presentations.
2. He thanked Mike Raynovic and NCL for hosting the meeting and for providing this morning’s refreshments.
3. Lutz introduced Randy Thater and Dave Carlson representing the WWOA State Board.
4. Thater and Carlson announced several upcoming events and benefits activities of WWOA.
5. Lutz called for any questions/comments or changes to the meeting minutes from the Edgar/Marathon regional meeting in January as posted on the WWOA website. Hearing none, the minutes were accepted as printed.

6. Treasurer's report: As of July 29, 2009, our escrow balance account is $728.79 and the checking account balance is $2,374.36.

7. The WWOA Annual Conference will be October 6 – 9 at the KI Conference Center in Green Bay. Registration is available on-line at the WWOA website.

8. Anyone interested in the Operator Competition Team should contact a Steering Committee member for details.

9. Membership for all non-members is encouraged. Benefits include discounted rates to annual convention and training opportunities, student scholarships, tuition aide, the Clarifier Magazine, the Membership Directory, and eligibility for WWOA awards.

10. Scholarships- two $1,000 scholarships available for either 2- or 4-year program students. Candidates must be a child or grandchild of a member and in an eligible program this academic year. More information available on the WWOA website.

11. Nomination forms for the Regional Operator of the Year awards are available on the WWOA website. Scholarship applications can also be obtained from the website.

12. Tuition reimbursements- Six for $150 each academic year, credit courses or advanced non-credit seminars. Contact Wade Peterson for more information.

13. Anyone interested in having your community host a future meeting should contact a Steering Committee member for details. The Steering Committee members are available to provide you with as little or as much help as you need. It is a great way to showcase your community and your facilities.

14. There was no new business. The meeting was adjourned. Lunch was served.

Toni Glymph gave a very educational and well-received presentation on understanding wastewater organisms. She discussed the common wastewater organisms’ classifications and characteristics. She discussed environmental affects on the organisms and specific conditions such as low DO and nutrient deficiency. She also covered how and why filaments and other poor settling organisms develop.

Tours of the existing NCL facility were offered during the afternoon break.

Toni followed with a Laboratory Program for Wastewater Microbiology. She covered topics such as microscope selection and use, slide preparation, and population counts.

Submitted by Rich Boden, Secretary, North Central Region
**Brain Teasers – June 2009**

**SUBJECT: LABORATORY**

**Introductory:**
You have just tested the pH of your BOD sample prior to setting up a BOD test and find that it has a pH of 8.5 S.U., which is outside of the recommended guidelines. You adjust the pH with 1N H2SO4. What is the maximum amount of 1N H2SO4 that you can add to a 300mL BOD bottle to avoid dilution of the sample?

a. 0.5 ml  
b. 1.5 ml  
c. 5.0 ml  
d. 50 ml

**Advanced:**
What chemical is used to neutralize chlorine in BOD samples?

a. Sodium sulfate  
b. Sodium bisulfate  
c. Sodium sulfite  
d. Ascorbic acid

---

**For Sale**

The Black River Falls Utilities Wastewater Treatment Plant has for sale a Fairbanks Morse Model 5432-T20 pump. The pump has a 7 1/2 hp, 1150 rpm motor, which includes the volute (right discharge) and wear plate. This was purchased new in 2005 for a back-up and never installed. There is also a good used unit of the same model and size. The new headworks consist of submersible pumps and these units are no longer needed.

If interested or would like to make an offer, mail to City of Black River Falls Utilities, 119 North Water Street, Black River Falls, WI 54615 (Attention: Rick Weikel) or you may call (715)284-2913 if any questions. The Black River Falls Utilities has the right to revoke any bids.
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| BLOWER FILTERS |                      |
| MECHANICAL SEALS|                    |
| BEARINGS       |                      |
| MISCELLARY PARTS|                   |

| VALVES         |                     |
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George F. Bernauer Award

The WWOA's Bernauer Award was created in memory of Mr. George F. Bernauer following his death in an automobile accident October 8, 1958 at the age of 48. Mr. Bernauer began his employment with the Wisconsin Board of Health on February 5, 1940 and was promoted to the Central Office in 1942 as a Public Health Engineer.

During that time he held increasingly responsible duties, including serving as the Board of Health engineering consultant to consulting engineers on sewage works designs and to municipalities on sewage works operations and maintenance.

The Award was first presented at the Sewage Works Operator's Short Course at the University of Wisconsin – Madison. A course Mr. Bernauer taught and regularly participated in. His innovation and practical solutions were highly regarded by operators throughout the State of Wisconsin.

1. The Bernauer Award is presented annually to a qualified municipal, industrial, or institutional wastewater plant operator, administrator, or an educator in the State of Wisconsin.

2. The Award is available for presentation to both members and non-members of the Wisconsin Wastewater Operators' Association.

3. Criteria for the Award shall include successful plant performance as indicated by operations records; and/or successful solution of important or complicated operations problems; and/or outstanding contributions in the field of wastewater technology in the State of Wisconsin.

4. The principal purpose of the George F. Bernauer Award is to stimulate improvements in the field of wastewater treatment. Therefore, in view of the relatively large number of small wastewater treatment plants in the State, consideration shall be given to the resources available to the nominee.
Koby Crabtree Award

The WWOA's Koby Crabtree Award recognizes excellence in technical support provided to others in the field of wastewater.

Dr. Crabtree was born in Japan and was a survivor of the atomic bomb attack in Hiroshima. He moved to the United States in 1945. His formal education consisted of a B.A. in Chemistry from Ohio Wesleyan University (1958), a M.S. in Bacteriology (1963), and a Ph. D. in Bacteriology and Civil Engineering from UW–Madison (1965).

Dr. Crabtree joined UW – Marathon Center in Wausau in 1966; later serving as Chairman of the Department of Biological Sciences from 1974 until 1993. He was made an Honorary Member of the WWOA in 1986 in recognition of his never-ending support of the wastewater profession and the WWOA.

The Crabtree Award is available to only WWOA members who are engaged in the technical aspect of the wastewater treatment for outstanding achievements and/or contributions to the water pollution control industry.

A technical person is defined as an individual who is employed in and engaged in wastewater collection, wastewater treatment, laboratory engineering, education, or sales. Nominees for this award need not be a wastewater treatment operator in order to receive consideration.

Transfer of technical information in the primary characteristic of this award. Research and education in the wastewater field is another important element. More importantly, is the ability to deliver this knowledge in a way that is understood by all who receive it.

Dr. Crabtree specialized in microbiology of wastewater. Recipients of the Crabtree Award will all have their own area of expertise unique to each individual. What sets them apart is the manner in which they share this information freely and openly with all those they come in contact with.
**WWOA Service Award**

The WWOA's Service Award is presented each year to a person who has made an outstanding contribution to the Wisconsin Wastewater Operators' Association Conference in the areas of promotion, operation, management, program participation, or education.

There are several qualifying criteria that all nominees must meet in order to be considered for this particular award. All nominations received by the Awards Committee will be reviewed based upon these criteria; subsequently, a formal recommendation will be forwarded to the WWOA Board of Directors for approval. The qualifying criteria for the WWOA Service Award are as follows:

1. This person must be an active member of the WWOA for a period of ten years.
2. Officers or members of the WWOA Board of Directors are not eligible for this award.
3. The efforts for which this person is being recognized may be from the current year or from previous years.

The Service Award is presented annually with a qualifying date of August 1 and is presented at the annual conference.

---

**WWOA Scholarships and Tuition Aid**

Are you thinking about going back to school to finish up a degree or just to further your knowledge?

Is one of your children or grandchildren in college or headed to college?

Go to the WWOA website and check out the criteria for a scholarship or aid. You will find it in the Membership Tab.

The WWOA offers two $1,000 scholarships annually. The student’s studies must be related to the water/wastewater field. The student must be in their 2nd, 3rd, or 4th year of college and enrolled in a minimum of 12 credits per semester.

The WWOA offers six $150 tuition aid reimbursements annually to its members. The members must be in good standing for a minimum of three years and are eligible for one reimbursement per school year.

Again, check us out on the web or contact the scholarship committee chairperson!!

---

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Region of the Year Award

The WWOA is comprised of six regions: the Southern, Southeastern, Lake Michigan, North Central, Northwest, and West Regions.

This award is presented annually to a region that has done outstanding work in their respective areas of the State. These regions promote the organization by bringing training and support to local communities, wastewater treatment plants, and operators. The regions also provide information to their area about the WWOA organization through the State and regional website. The regions also provide written information to the official WWOA publication *The Clarifier*.

Criteria for selection shall include, but not limited to, regional information provided to the WWOA website, *The Clarifier*, WWOA Board of Directors, Historical Displays, Operators Competition, and what creative ideas the region has.

The Selection Committee shall be comprised of the Website Committee or representative, Clarifier Committee or representative, and the WWOA Board of Directors with each group weighing equally.

A region cannot win two years in a row. The Lake Michigan Region won the inaugural award last year and is thus ineligible for this year’s award.

The Region of the Year Award is presented annually with a qualifying date of August 1 and is presented at the WWOA Annual Conference.

The selection of the WWOA Region of the Year Award will be based on the following point system. Point breakdown is based on 90 possible points.

**Point Breakdown**

**Website Committee**

a. Written material supplied to Regional Website  1–6 Points
b. Pictures/graphics supplied to Regional Website  1–6 Points
c. Written material supplied to Website  1–6 Points
d. New/Fresh ideas supplied to Website  1–6 Points
e. Creativity  1–6 Points

**The Clarifier Committee**

a. Written material supplied to The Clarifier  1–6 Points
b. Pictures/graphics supplied to The Clarifier  1–6 Points
c. Other regional information besides meeting information supplied to The Clarifier  1–6 Points
d. New/Fresh ideas supplied to The Clarifier  1–6 Points
e. Creativity  1–6 Points

**WWOA Board of Directors**

a. Information/pictures supplied for historical display  1–6 Points
b. Operator Competition (based on involvement not team placing)  1–6 Points
c. Regional information supplied to the WWOA Board of Directors  1–6 Points
d. Involvement/participation in WWOA Board meetings  1–6 Points
e. Creativity  1–6 Points
Newcomer of the Year Award

Do you know of a person that is new in the wastewater treatment field and is doing an exceptional job? We need you to recommend that person for the WWOA Newcomer of the Year Award. This award is designed to recognize people that are new to the field of wastewater and are outstanding in their work. In the last few years, WWOA has made many efforts to encourage new professionals to enter into the field of wastewater treatment, and we believe that this award will offer further encouragement. The criteria for the award are as follows:

**WWOA Newcomer of the Year Award**

The WWOA Newcomer of the Year Award has been developed to honor the efforts and achievements of new operators in the wastewater field in Wisconsin. All new wastewater operators deserve to be commended for their hard work; however, some stand out as being exceptional. The nominations for this award are designed to be placed by personnel that have been working closely with the nominees and appreciate their day-to-day efforts. Eligible candidates will have less than three years of wastewater operation experience as of August 1 of the year for which he/she is nominated. Interns in wastewater treatment plants may also be eligible for this award; however, students with no operating experience are not. The candidate must be employed either part- or full-time by a permitted wastewater or pretreatment facility in the State of Wisconsin. Other key factors for this award are listed below. Along with a plaque, the recipient of this award will receive a two-year membership to the Wisconsin Wastewater Operators’ Association. It is the hope of the WWOA that this award will give outstanding new operators the recognition and pride they deserve.

**Criteria**

1. Must be a wastewater operator, support staff in a wastewater facility, or environmental lab technician for less than three years.

2. Must be employed in the State of Wisconsin at a wastewater treatment facility, pretreatment facility, or environmental laboratory.

3. Must be nominated by a supervisor or manager, peer or co-worker, or DNR personnel familiar with the day to day efforts and achievements of the nominee.

Preference will be given to nominees who:

1. Are a Wisconsin licensed wastewater operator.

2. Show exceptional enthusiasm for their profession.

3. Have a willingness to learn.

4. Have shown higher than average growth in his/her place of employment.

5. Frequently attends training in the wastewater field.

6. Have shown innovation on the job.

7. Are exceptional in public relations.

8. Have shown outstanding personal development.

9. Are active in WWOA.

Nominations for this award need to be submitted to Bruce Bartel by August 1, 2009. Contact information is on the WWOA Award Nomination Form included in this issue of the Clarifier. Please assist us in this effort to commend superior efforts of new members of our profession. 

Siemens Water Technologies Intra-Link™ LC150 pump-control telemetry units for water and wastewater industry. Features include: 2 or 3 pump controls, alarm/event log, VFD control, volumetric flow calculator, security, telemetry ready and DF1 (Allen Bradley) protocol. Contact Siemens Water Technologies at 800.224.9474.

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Water Technologies
**WWOA AWARD NOMINATION FORM**

Deadline:  August 1, 2009, except Regional Operator July 1, 2009

Check Award Nomination:  Bernauer  ____  Crabtree  ____
Newcomer of the Year  ____  Service  ____  Regional Operator  ____
(regional affiliation)  ____

Nominee’s Name:  _____________________________________
Address:  ___________________________________________
City:  ________________________________________________ State:  ________ Zip:  __________
Home Phone:  __________________________ Work Phone:  __________________________
Employer:  __________________________________________________________________________________
Occupation/Job Title:  __________________________________________________________________________
Date Joined WWOA:  __________________________ WWOA Membership Number:  _________________
Regional Affiliation:  __________________________ Regional Officer Positions ?  ______________________

Brief Description of Nominee Activities and Achievements:  (attach sheets if needed)
____________________________________________________________________________________________
____________________________________________________________________________________________
____________________________________________________________________________________________
____________________________________________________________________________________________

Why Do You Feel Nominee is Deserving of Award Being Nominated For?
____________________________________________________________________________________________
____________________________________________________________________________________________
____________________________________________________________________________________________
____________________________________________________________________________________________

Please Complete the Following:  Submitter Name:
Address:  _____________________________________________________________________________________
City:  ________________________________________________ State:  ________ Zip:  __________

Please mail or email nomination forms –
For Bernauer, Service, Crabtree, and Newcomer of the Year to:
Bruce Bartel – President Elect
Green Bay MSD
P.O. Box 19015
Green Bay WI 54307-9015
Work 920 438-1006
Fax 920 438-3006
bhartel@gbmsd.org

For Regional Operator to:
Regional Award Contact
Please see page 2
Regional Operator awards contacts are the regional chairs unless otherwise noted:

<table>
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<tr>
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<td>John Schoen</td>
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<td>Seymour WWTP</td>
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<td></td>
<td>445 Municipal Drive</td>
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<td></td>
<td>Seymour, WI 54165</td>
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<td></td>
<td>W: 920-833-2397</td>
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<td><a href="mailto:jschoen@seymourutil.com">jschoen@seymourutil.com</a></td>
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<tr>
<td>North Central</td>
<td>Lyle Lutz</td>
</tr>
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<td></td>
<td>Village of Plover WW Utility</td>
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<tr>
<td></td>
<td>P.O. Box 37</td>
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<td></td>
<td>Plover, WI 54467</td>
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<td>W: 715-345-5259</td>
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<td><a href="mailto:LLutz@ploverwi.gov">LLutz@ploverwi.gov</a></td>
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<tr>
<td>Northwest</td>
<td>Katie Goin</td>
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<td></td>
<td>Cumberland WWTP</td>
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<td>1165 St. Anthony St.</td>
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<td>Cumberland, WI 54829</td>
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<td>W: 715-822-2951</td>
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<td><a href="mailto:cumbwwtp@charter.net">cumbwwtp@charter.net</a></td>
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<tr>
<td>Southern</td>
<td>Joe Zakovec</td>
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<td>Janesville WWTP</td>
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<td>123 East Delavan Dr.</td>
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<td>Janesville, WI 53545</td>
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<td>W: 608-755-3120 Ext. 3460</td>
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<td><a href="mailto:zakovecj@ci.janesville.wi.us">zakovecj@ci.janesville.wi.us</a></td>
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<tr>
<td>Southeast</td>
<td>Dave Piquett</td>
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<td>1600 Liberty Avenue</td>
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<td>West Central</td>
<td>Steve Skinner</td>
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<td>156 East First Street</td>
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<td>New Richmond, WI 54017</td>
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<td>W: 715-246-2726</td>
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<td></td>
<td><a href="mailto:stevskinner@yahoo.com">stevskinner@yahoo.com</a></td>
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The regional awards committees are to forward the selected nominee to Bruce Bartel by August 1, 2009 for approval by the board.
**WWOA WEBSITE**

May 13, 2009 was a big day for our website at wwoa.org. That day was our “go-live” day for the newest version of the site. Created back in April of 1996, (has it really been 13 years?) the wwoa.org domain name has witnessed numerous site revisions and major overhauls in attempts to keep up with the technology available. This latest change should help us get closer to the goal of a website that works hard for the benefit of its members.

The latest change involved incorporating what worked well from the previous site design, but at the same time weaving in some additional features. The biggest leap for us will be the ability to offer members the chance to register online ahead of time for meetings, seminars, and the annual conference. This should really help streamline the registration process and paper trail.

Another improvement is offering members the way to manage their own membership account. Contact information, usernames and passwords, etc. will all be managed by the members through the site. Our newest web host offers unlimited webmail addresses with each account. An idea being tossed around is to offer members their own free webmail account through the wwoa.org domain. Webmail is a convenient way to keep up with email messages while traveling away from your home-base computer. It also helps minimize the nuisance and problems that viruses present.

Some other features we’re working on:

Front page of the site will show off a different WWOA plant each time it’s viewed. Members will have the ability to upload their own plant photo to the site for this feature. Members will be able to post their own job openings and used equipment items.

Appointed people at the Regional level will be able to edit to-use interface. While you’re browsing the regional pages, watch for a clever YouTube viewer application used to view submitted video summaries from regional minutes. Things really are changing!

Remember the Tips and Ideas section from the previous version of the site? The plan is to offer this once again on the site in a format that members can add their own content; all done through a controlled interface form.

Big changes at wwoa.org! ©
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Chairman Katie opened the meeting with a welcome and a brief introduction of herself and her wastewater career. Chairman Katie then introduced Rick Jari, Utilities Manager. Rick welcomed the group to the City of Barron, with as few words as possible as Rick is a man of few words. Chairman Katie gave the floor to Secretary Thom who cleared up some agenda issues and mailing issues along with the significance of being a state member, and Thom also passed around the directory for any operator and plant changes.

Chairman Katie introduced the first presenter, Steve Seigfried from Henkel Corp. Steve discussed bolt thread assembly failures. A thread locker product can fill voids between the nut and bolt which is 85% air. This is where most corrosion starts. Even with thread locker, you can still remove the nut. Steve briefly discussed anti-siege products which make disassembly much easier. Steve discussed freeze and release product, which is a product that lowers the surface temperature of a nut and bolt 80 degrees instantly and fractures the rust bond. This is not as effective in below zero weather where the temperature is not that different from the bolt and nut. Steve then discussed the advantages of ceramic coatings, which are life extension and a rust prohibiter. Steve then discussed the different types of anti-slip flooring and the proper applications for non-slip surfaces.

Chairman Katie introduced the next presenter, Neil Swenson from Chemtreat. Neil outlined the phosphorus removal methods most common, which are Chemical precipitation, Biological, and Chemical followed by biological. Biological phosphorus removal will convert for every 100 ppm of BOD, 1 pound of Phosphorus. This can be improved by controlling aeration rates/M ratios, and residence time in activated sludge in secondary clarifiers. Chemical precipitation of phosphorus can be done by precipitation of orthophosphate with metal salts; the three metal ions used to precipitate phosphorus are Aluminum compounds, Iron compounds, and Calcium (lime). Aluminum compounds are Alum, Sodium aluminate, Aluminum chloride, Poly aluminum chloride, and Aluminum chlorohydrate. Phosphorus removal can be done with the following iron compounds as well: Ferric Sulfate, Ferric Chloride, and Ferrous Sulfate. Phosphorus removal with lime poses a few problems in that you need to raise the pH up so high to be effective only to adjust the pH down again before discharge and most polymers don’t work well under higher pHs. In addition to the chemistry lesson we
received, Neil then discussed the coagulant characteristics. Inorganic coagulants (add to sludge volume) such as Alum, Aluminum Chlorohydrate, Ferric Chloride, Ferric Sulfate, Sodium Aluminate. Organic coagulants do not add to sludge volume such as Polyamines and polydadmac.

Chairman Katie introduced the next presenters, Rob Conney and Bill Shuttle from General Repair Services. The boys discussed the dynamics of centrifugal pumps, both horizontal and vertical, and the importance of proper troubleshooting. A good troubleshooting kit should consist of mechanical or strobe tachometer, amp meter, manufactures performance pump curve, owner's manual, and a high grade set of pressure gauges. Pump noises can be attributed to mechanical or hydraulic issues, most often the mechanical problem is the bearings. Consider running the pump briefly to pin point noise. Mechanical noises could also be debris in the impeller, impeller rubbing, alignment, or impeller imbalance. Hydraulic noises could be cavitations, vortexing, surging or water hammer, and excessive velocity of the fluid. Liquid coming into the pump needs to be flowing at the same velocity as it is flowing out of the pump. If you have lower suction velocity than discharge velocity, vaporizing can occur in the liquid forming bubbles and then the bubbles clasps in the discharge side of the pump thus producing a noise. Another good maintenance idea is to use gauges on both suction and discharge side of a pump with initial installation. Record the information and if either pressure diminishes greatly then you have a direction to start with. Some other problems that create pump problems are chemical attack, abrasive water, discharge cavitations, suction cavitations, shaft breakage, radial twist in shaft and too much torque. If submersible pumps are used, be aware of inlet flow drops into wetwell so as not to cause air entrapment in the pump. Also be aware of your pump sizing so you do not put in bigger pumps than the design was for. Last but not least, keep good records; be proactive and your pumps will have a longer life.

Chairman Katie introduced the next presenter, Dave Fenten. Let’s talk vibration for a minute. Dave discussed the importance of vibration analysis. One advantage if this kind of test is that it is trendable. Different load factors can cause you to look at other factors such as using time waves and ODS –operating deflections signals. This test can uncover problems like bearing deflections, belt drive, bent shaft, electrical motor problems, gear wear, loose bearing fit, pump cavitations, and resonance. When anything is running in its resonance, all components have a natural frequency. Vibration testing can save on warranty work.
and prevent catastrophic failure. Vibration testing can also identify electrical fluting. This is where microscopic pitting occurs on bearings when electrical current travels through lubricant to ground. Another maintenance activity that is very worthwhile is Ultrasound Dilusion. This activity can determine air leaks, vacuum leaks, electrical arching, wind and water leaks, steam traps and underground leaks. Bottom line, all these tools and techniques are valuable in the fight against preserving the capital budget.

Chairman Katie introduced the following presenter: Joe Kniseley from H-D Supply. Since this was after a great lunch, we took the presentation outside to the parking lot where Joe did the presentation off the tail gate of his truck. It was a beautiful day in the neighborhood. Joe started with HDEP manhole adjusting rings. He demonstrated the light weight of them and discussed the ease of handling. They are affordable, will not break if you drop it, rated for traffic, comes in tapered edges, and range in size from 1-1/4 inch up to 4 inch. This product is also available for storm catch basins. Joe then went into Restraints (MEGA LUGS) for ductile and PVC. Joe discussed proper installation procedures and how to identify the difference between PVC and ductile restraints. Joe discussed the latest in MJ and flanged gaskets. The new version has a lip that fits over the pipe end and will not slip out of the way when assembling a connection. With the new code changes in locating, Joe showed the latest items for tracer wire connections for water and sanitary connections. Joe’s last show and tell item was Hymax couplings. Two bolt vs. the old four bolt design; one size fits all types of pipe.

Chairman Katie introduced the next presenter, Bernie Hangels from Great Lakes Underground Equip. Co. Bernie’s main focus was to train us on proper use and care of a jetter hose for your jet-vac truck. To start, Bernie commented that all hoses have a pressure rating and are color coded to reflect that. Yellow color represents 2000 PSI-no longer manufactured. Orange color represents 3000 PSI, Blue color represents 3000 PSI, and Green represents 4000 PSI. On your jeter truck, you need to know your pump capacity in order to size the hose. The newest hose size out there is 1-1/2 inch. Water capacities for hose sizes are ½ inch is 35 gpm, ¾ inch is 53 gpm, 1 inch is 85 gpm and the new 1-1/2 inch is 125 gpm which will require an auxiliary water supply if you do any amount of cleaning. To know who manufactured the hose on your truck, look into the cut off end of the hose, the company name will be printed on the inside. To extend the life of your hose, use a fined extension (something like a skid on a camera) a tiger tail, and a lap manhole roller. When splicing, never use two different manufacturer hoses and always use the splice kit from the manufacturer. When you remove the old hose, throw it away. A quick and dirty way to extend the life of your jetter hose is when it is getting worn on the end by the nozzle, unroll the entire hose off the reel and put the hose on backwards. You will get double the life. Never push, pull, or move the truck when the hose is in the sewer. Some proper hose use and safety ideas are: never use hydraulic fittings for splicing; watch your pressure on the gauge; when the hose
is above ground, never use more that 100 PSI on hose; and never bend the hose in a tight radius. Be sure to look at the hose for cuts, kinks, blisters, and scrapes. All these issues can cause premature failure.

Chairman Katie introduces the final presentation on community digesters presented by Cory Davis (DPW of Turtle Lake) and Mark Proses (S.E.H.) The duo teamed up to present the Collaborative digester feasibility study for the Village of Turtle Lake. The study focused on combining organic waste streams from cheese factories, dairy farms, egg layers, and the municipal contribution. The study looked at types of waste treatment, bio-gas energy opportunities, and financing options for public and private sectors. The new digester need concept came about as a result of Turtle Lake having difficulty handling industrial waste and slug loading along with the industries having difficulty meeting DNR requirements in land applying high strength waste. This digester project could address both problems. A focus on energy grant was secured to do a feasibility study along with the industries picking up difference with matching funds. The core participants are Lake County Dairy, Kerry Foods, Northern Liquid Waste Management, Village of Turtle Lake, and Focus on Energy. Other study participants include Barron and Polk Counties, UW Extension, Turtle Lake School, other food industries, and large dairy farm operations. A background on some of the players:

- **Lake County Dairy** - currently makes 70,000 lbs. of cheese/day
- Utilizes 800,000 lbs. of milk/day
- Land spreads 11 million gallons/year
- Planning to have significant growth in near future

- **Kerry Foods** - separates soy flour and removes protein for human consumption
- Sells to Nestle and Kelloggs
- Land spreads 30 million gallons of waste/year
- Produces 7 million lbs. of product/year
- Estimating 10 million lbs. of product in 2009
- Planning for significant growth in the near future

- **Northern Liquid Waste Management** - Hauls the industrial waste and land applies from these companies

- **Village of Turtle Lake** - New plant in 2003
- Design flow of .546 mgd—current flow is .514 mgd
- Design BOD is 2,464 #/day—as of March 2009 BOD loading was 2,958 #/day

- SS design is 2,407 #/day—current SS is 1,762 #/day

The project looked at waste streams as far as a 100 mile radius to be processed at a single location to produce biogas and a reusable solids bi-product. The goal of the facility is to produce enough biogas that if it were to be used to generate electricity, could produce up to 4 MW of energy.

The scope of the study will be in 4 phases:

Phase 1: Digester preliminary evaluation; Phase 2: Digester final feasibility and business plan; Phase 3: Construction plans and specs; and Phase 4: Construction. Much work needs to be done and these are always the issue of the HOT Buttons. Specifically—Traffic, Traffic, Traffic; Odor, Odor, Odor; Noise and local participation.

Chairman Katie called the business meeting to order with a few comments on the district. Chairman Katie turned the floor over to Wally—District Secretary, who brought the group up to speed on state programs and the benefits of becoming a state member. The minutes of the fall meeting were approved and a treasurer’s report was given and approved. The meeting was adjourned.
IN CONTROL
Successful Operations through Process Control

June 2009

Capacity, Management, Operation & Maintenance

CMOM IN WISCONSIN
1. GOALS

By Jack Saltes, Wastewater Operations Engineer
Department of Natural Resources

Goals are the first and one of the eight elements of a Capacity, Management, Operation & Maintenance (CMOM) Program.

Why set Goals?

Goals provide something positive to strive for regarding your collection system. Setting goals is your starting point towards developing and implementing your CMOM program. If you don’t already have a CMOM program, maybe that should be your very first goal, establishing one. Goals provide direction for your collection system work activities, focusing your time and money.

Collection system goals can be investigative, rehabilitative, operational, construction-related, budgetary or legal. Goals should be specific, realistic, and achievable. Goals should be those that direct resources to accomplish collection system tasks or have an outcome in mind. Results should be measurable, such as the task of cleaning a certain percentage of your system a year or outcome of reducing basement backups.

Some examples of goals:

Investigative goals:
- Setting a certain percentage of the sewer system that will be televised, or smoke tested, or flow-monitored, or manholes inspected each year
- Determining the amount of I/I coming from certain subbasins to prioritize sewer rehab projects
- Determining areas with excessive grease build-up or root intrusion for establishing a cleaning program

Rehabilitative:
- Upgrading a certain number of manholes each year
- Rehabing a certain percentage of sewer mains/year
- Rehabing a certain number of laterals/year

Operational:
- Updating the sewer system map
- Using GIS for sewer system
- Developing a prioritized, comprehensive preventative maintenance schedule
- Assigning work hours for collection system work

Construction-related:
- Replacing a certain amount of sewers annually
- Developing an installation procedure for laterals
- Developing and implementing an inspection program for new sewers

Budgetary:
- Developing a separate line-item budget for collection system O&M and equipment
- Establishing a replacement fund for sewers
- Establishing a private lateral program

Legal:
- Reviewing and updating the sewer use ordinance
- Establishing ordinances for private lateral inspection and repairs
- Fat, Oil and Grease Control Program

When reaching a goal, it provides a sense of accomplishment and success in making your collection system better. Collection system performance indicators, such as reduced basement backups or SSOs, or less pump or pipe failures, should be realized as goals are reached.

The end result of achieving all your goals is optimized flow capacity and conveyance through a well operated and maintained collection system. Crisis-free work and satisfied residents will be testament to a top-notch collection system CMOM program.
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WISCONSIN WASTEWATER OPERATORS’ ASSOCIATION, INC.

Board of Directors Meeting

Thursday, December 11, 2008 and
Friday, December 12, 2008

Hotel Sierra and KI Center Green Bay, WI

1. President J. Bond called the meeting to order at 1:15 p.m. on Thursday, December 11, 2008. Roll call was taken. All Board Members were present. Also present was Jon Butt, Clarifier Editor.

2. The minutes of September 29 and 30, 2008 were reviewed. After review, D. Carlson made a motion to approve the minutes as corrected. The motion was seconded by D. Doerr. Motion Carried.

3. McKee presented the Financial Statement and vouchers for Board approval. McKee reported that as of November 30, 2008, WWOA had $209,151.69 in revenue with $246,501.94 in expenditures with excess expenditures over revenue of $37,350.25. After discussion, D. Egge made a motion to approve the Financial Statement as presented, and B. Bartel seconded the motion. Motion Carried. McKee presented the Vouchers (238-327) for review and approval. After discussion and clarification, J. Thalke made a motion to approve the Vouchers as presented, and the motion was seconded by W. Peterson. Motion Carried.

4. COMMITTEE REPORTS-
   a. Nomination - J. Thalke reported that there will be three Directorships up for Election in 2009. At this point there are no Nomination papers received.
   b. Promotional - No report.
   c. Membership - McKee reported that we have 1965 members with 149 members-in-arrears. McKee provide an arrears list for the Board. R. Thater will provide the list to the Regional Officers.
   d. Scholarship - W. Peterson presented the Board with a cleaned up copy of the scholarship criteria. W. Peterson will get a copy to McKee for the policy book. A discussion ensued regarding providing scholarship to our members who are part time students and working full time at a wastewater facility. It was the consensus of the Board that this issue should be addressed under the Tuition Aid. The Board asked W. Peterson to come to the April meeting with some suggestions.
   e. Executive Committee - No report.
   f. Clarifier - J. Butt informed the Board that the transition process from Dan Busch to Jon Butt as editor continues. The work load for the September and December issues seemed especially difficult to produce. The reasons for this were: work loads, loss of organization, rush to produce, and high volume of pictures compounded by software limitation. Jean Van Sistine and Jon Butt met with Sun Printing on November 4, 2008. Jean and Jon feel that Sun Printing is doing a good job for WWOA and they plan to continue to use them. The Clarifier Committee will switch from Quark to InDesign for a cost of $450.00 to $500.00 per license. They will purchase two licenses and Sun Printing has offered to provide training and support for the InDesign software. The Clarifier Committee will update the look of the Clarifier.
   g. Career Development - D. Doerr reported that again in 2009 the plans to exhibit on behalf of the WWOA at the Wisconsin School Councilors Association Conference on February 18 and 19, 2009 at the Ramada Inn in Stevens Point. D. Carlson and D. Doerr will represent WWOA at the Conference. D. Doerr will update the “Careers in Water Quality” brochure and get it to McKee for printing.

Wastewater Systems
   ✔ Facility Plans
   ✔ Sewer Planning/Models/Design
   ✔ Pump Station Design
   ✔ I&I/SSS/SSES/CSO/SSO Analysis
   ✔ Biosolids Management
   ✔ SCADA/Automation
   ✔ Energy Studies
   ✔ Funding Assistance
   ✔ Treatment Facilities
   ✔ Electrical/Mechanical/Security

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h. Awards - No report.
i. Operator Training - No report.
j. Directory - McKee reported that he has received 200-300 of the plant evaluation forms back. He will update the database as they come in. He hopes to go to print by middle of May.
k. Publicity - The Publicity Committee has sent out press releases for all of the Award Winners except for the Honorary Member. When information is received for the Honorary Member, a press release will be sent to the local newspapers. A discussion ensued regarding award winner photos. Next year McKee will supply the Publicity Committee with a CD with all the photos he has taken so they have them in a timely matter.
l. Regional Coordinator - Regional Officers updated list has been posted on the web site. R. Thater will be sending out the first regional newsletter in December/January to lay out goals for the next year. R. Thater will be working with B. Bartel to update the “Regional Operator of the Year” nomination form. R. Thater will encourage regions to assemble their teams for the Operators Competition next year and to do it early.
m. Government Affairs Seminar - R. Thater reported that the Government Affairs Seminar has been set for February 19, 2009 at Madison Marriott West. R. Thater provided a tentative agenda for the seminar. Due to the problems with getting the desired date for 2009, the committee decided to set the 2010 seminar date. The date booked is February 23, 2010 again at the Madison Marriott West.
n. Biosolids Symposium - The Biosolids Planning Committee met on September 15, 2008. They have decided to change the lunch from a buffet to a sit down lunch. The committee feels that the symposium and its attendees would be served better, and helps address the afternoon schedule while allowing time for networking. There will be a 30-minute session during the second half of the meal.
o. Liaison - D. Egge stated the annual business meeting of the Wisconsin Section of Central States Water Environment Association was held on November 21, 2008 at the Holiday Inn Hotel in Fond du Lac, Wisconsin. CSWEA has committed $1,000.00 and would like to solicit WWOA for a similar amount to help support the efforts of

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A Clean Technology Company
purchase of WWMD testing kits. A discussion ensued. After discussion, D. Egge made a motion to allocate $1,000.00 toward the purchase of the WWMD testing kits and R. Thater seconded the motion. Motion carried. CSWEA has increased its support for the Water Resources Library project by $1,000.00 in the next budget year.

p. Web-Site - B. Bartel and Scott Thompson reported the Committee met with Webfitter, a Green Bay web design firm in late October. The meeting with Webfitter went extremely well. The Committee recommends that the WWOA switch to Webfitter. Webfitter will get the web site up and running. Scott will then have total access to make any changes as needed. Scott doesn't have access with our current provider. At the October meeting Webfitter was asked to come up with a cost estimate to implement the listed items. 1. Transfer contents from existing site from our current provider to Webfitter. 2. Provide for on-line conference registration via credit card for the 2009 Conference. 3. Allow members to update their contact information on their own using the web site. 4. Have a message board available for WWOA BOD use only. This would eliminate the email system that is currently used and questions and responses would be in one spot for the BOD members to review. 5. A blog area for use on web site in place of the mailing list that was used prior to our current provider. After discussion, D. Doerr made a motion to switch from our current provider to Webfitter for a total cost of $13,500.00 to be paid for in three installments. Payment method: 1/3 at acceptance, 1/3 when prototype is running, and final when work is done. J. Thalke seconded the motion. Motion carried.

q. Technical Program - B. Bartel provided the Board with a wrap up of the 2008 Conference in Stevens Point. D. Carlson, Technical Program Committee Chair, reported the Call-For-Paper for the 43rd Annual WWOA Conference 2009 at the Hotel Sierra and the Ki Center in Green Bay went out the last of November. To date, D. Carlson has received eight presentation submittals with one being submitted as a Pre-Conference Workshop. D. Carlson has set the Technical Program meeting on February 24, 2009 in Green Bay at 10:00 a.m.

r. Exhibit/M&G Committee - McKee reported for C. Strackheim. The last Annual Conference was a success as far as the exhibitors were concerned. There were a few complaints, but that is the nature of the beast and will occur when you are trying to please as many individuals as we do each
The Committee consists of: Tom Mulcahy - Mulcahy Shaw; Dave Dodge - Adapter Inc.; Dave Dorner - Dorner Company; Jim Shaw - retired; and Carol Strackbein - CSS Consulting and Chair. C. Strackbein requested that the exhibitor information be posted on the Web site by June 1, 2009.

McKee presented the Board with a contract form from Valley Expo for the booth setup for the 2010 Conference at the Kalahari in Wisconsin Dells. After discussion, D. Doerr made a motion to sign the contract with Valley Expo for booth setup for the 2010 Conference and D. Carlson seconded the motion. Motion Carried.

Operators’ Competition - D. Doerr reported that there were a total of five teams from four regions; Lake Michigan Region had two teams. “Bay Bowl Busters” won the 2008 competition from the Lake Michigan Region. “The Deuce is Loose” took second place. The Lake Michigan Region’s “Turd Herders” took third place.

Local Arrangements - B. Bartel presented to the Board various tour ideas. The GBMSD and De Pere Facilities will be under construction so they will not make good tour facilities. A discussion ensued. After discussion, the Board settled on Heart of the Valley MSD, which is about 35 minutes away by bus. The alternative tour will be to FEECO International and ENCAP. ENCAP is a firm that uses animal waste and combines it with grass seed to sell commercially. They are currently exploring the idea of using Biosolids to mix with the grass seed.

Spouse/Guest Program - Jean Van Sistine has agreed to take care of the Spouse/Guest Program for the 2009 Conference in Green Bay. Jean is exploring other options for the 2009 program, but has nothing set for sure at this time.

Golf Outing - Jeff Czypinski has agreed to head up the Golf Outing for the 2009 Conference. Jeff is looking into various golf courses in the area and is leaning toward Royal St. Patrick’s Golf Course in Wrightstown, which is approximately 25 minutes south of the KI Center. McKee reported that the Golf Outing escrow is about $1,500.00 in the red from the October 2008 Conference Golf Outing. McKee informed the Board that the Golf Outing has to pay for itself. The 2009 golf fee will have to be high enough to make up the deficit from the 2008.

Sporting Clays - J. Thalke reported that the 2nd Annual Sporting Clays event was held at Pine Ridge in Wautoma and was very successful with 48 participants. The Committee is looking at J & H Game
Farm outside of Shiocton for 2009. J & H is 28 miles from Green Bay and could support a group of 50-70 people. J. Thalke will come to the April meeting with a recommendation for the Sporting Clays.

w. Permanent Arrangement - McKee reported for J. Leonhard. McKee stated that he and J. Leonhard met with the Hotel Sierra, which was the first time since it became Hotel Sierra. McKee reported WWOA has the same contact people we have been dealing with.

x. Resolutions and Bylaws - No report.

y. Historical - No report.

B. Bartel made a motion to except the Committee Reports as presented and R. Thater seconded the motion. Motion Carried.

5. OLD BUSINESS - No Old Business

6. New Business -

a. A discussion ensued regarding the April meeting. After discussion, it was decided to move the April Board Meeting to April 16 and 17, 2009. The special March meeting is cancelled with that business included in the April meeting. Regional officers will be invited on the 16 with all business affecting them scheduled for that day.

b. Budget - McKee reported that the Board will need to change the budget meeting to something other than April since the fiscal year now begins January 1 of each year. After discussion, it was decided that the budget meeting be changed to the December meeting of each year.

c. A discussion ensued regarding the President Elect progression. After discussion, K. Freber made a motion to recommend to the membership at the next Annual Business Meeting in October 2009 to amend the By-Laws eliminating the Election of the President Elect and the Vice President will move automatically into the position of President Elect. R. Thater seconded the Motion. Motion Carried. McKee will notify the Chair of the Resolution and Bylaws Committee, John Leonhard to prepare an amendment to the By-Laws to be presented at the next Annual Business Meeting in October 2009 for membership action.

7. Adjournment -

There being no further business, J. Thalke made a motion to adjourn. W. Peterson seconded the motion. Motion Carried. The Meeting adjourned at 10:00 a.m. on Friday, December 12, 2008.

Respectfully submitted, Richard D. McKee
Southern Region WWOA Meeting

Hosted by the Janesville WWTP at the Pontiac Convention Center
Thursday – May 14, 2009

There were 80 people in attendance at the meeting. We were greeted by Joe Zakovec – Southern District Chairperson who introduced City Manager Eric Levitt of the City of Janesville. Eric told the audience he has only been City Manager for a short period of time and has found the wastewater treatment plant to be a very positive experience. He appreciates that the facility is in compliance (not the case where he formerly was employed) and a very competent staff who are a pleasure to work with on a day-to-day basis. Eric recognized Dennis Egge, who recently retired as the City of Janesville Wastewater Treatment Plant Superintendent and Joe Zakovec, who was recently promoted to Superintendent. He invited everyone to visit and enjoy the many features the City of Janesville has to offer – one of which is the park system and the many miles of paved trails.

Our first presentation was by Ray Grosch – IntelliSys Information Systems. Ray’s PowerPoint presentation was titled, “IntelliSys Information Systems - Design, Build, Support your path to the Knowledge Staircase.” Ray had information which shows that energy costs, a major O&M expenditure, accounts for 28% of a wastewater treatment plant budget. Wastewater and water operations account for 3% of all this country's electrical energy usage (56 billion Kw/yr). Energy costs are continually climbing and although many utilities have reduced energy use, energy costs continue to rise. Operation costs can be managed with the right tools reducing both usage and cost. EPA states that a 5% to 20% reduction in energy can be achieved at most wastewater facilities without the need of any major capital expenditures. Measurement and management is all that is required to achieve these savings. You cannot manage what you do not measure… Step 1 is to Audit utility bills; Analyze time of day usage; Analyze peak demand charges; Review seasonal variations; Track and trend daily energy use, peak demand, abnormal use periods; Automate reporting daily, monthly and yearly. Step 2 is to develop a Project List and Prioritize It. Step 3 is to Document Performance. Step 4 is to publicize Achievement and Step 5 is to Re-assess. EnergyView is proprietary Energy Management Software available to assist is energy conservation.

After our break, Jan Scott – Unison Solutions spoke to the group about Technologies for Biogas Conditioning. Equipment damage and performance issues are the driving force for conditioning biogas. The key system components of conditioning include: hydrogen sulfide removal, moisture...
removal, a compressor or blower, siloxane removal, controls/automation and carbon dioxide removal. Hydrogen sulfide needs to be removed to prevent equipment damage from corrosion (hydrosulfuric acid), health and safety issues (1,000 ppm will cause an individual to become unconscious), odor control and prevent fouling of siloxane removal media. Moisture removal to prevent condensation downstream, improves energy content of gas, condenses in compressors, prevent the formation of weak acids from interaction with H2S and CO2 and prevent fouling of siloxane removal systems. Gas compression is accomplished by using either blowers: Centrifugal – high cost, high compression and resistant to H2S, Rotary Lobe (low cost but noisy), or Regenerative (low cost and low compression); or compressors: Flooded Screw – H2S resistant, Sliding Vane – simple oil system but high temperatures. Siloxane is an organosilicon produced by Dow Chemical. It is used in the manufacture of many commercial products including makeup, tooth paste, shampoo, lubricants, and many other products. Siloxane is present in almost all digester gas from 500 ppbv to 140,000 ppbv. Siloxanes do not break down during processing at wastewater treatment plants or landfills. Pressure and temperature transform the siloxanes into various abrasive silica forms from sand to glass. Siloxanes cause damage to boilers, internal combustion engines and microturbines, with usage increasing 5-10% annually. Siloxanes are removed using: fixed bed carbon filters, fixed bed silica gel bead filters, regenerated desiccants, regenerated carbon, regenerated graphite and regeneration with microwave. Controls/automation are imperative to monitor and control inlet conditions, process conditions, outlet conditions and site conditions. End use of biogas includes direct use-boiler fuel, electrical generators, fuel cells, turbines, distribution pipeline injection and compresses gas for vehicle fuel. There are currently 75 systems in operation in the United States.

Steve Arant, Earth Tech/AECOM, gave the morning’s final presentation – The Latest Blower Technologies – Are They

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Worth It or Are They Just a Lot of Hot Air. The general types of blowers include: Centrifugal (constant pressure, variable capacity) and Positive Displacement (constant capacity and variable pressure). A centrifugal blower converts kinetic energy into pressure energy. The centrifugal action increases the pressure at the outer wall of the volute. Increasing the volute area converts additional kinetic energy into pressure. The centrifugal action increases the capacity and the reduction in inlet pressure reduces horsepower. The adjustable driver. The inlet control valve reduces the inlet pressure, which in turn reduces the capacity in terms of mass flow (with total head remaining constant) and the reduction in inlet pressure reduces horsepower. The adjustable discharge diffuser allows the head to remain constant and the capacity is adjusted by changing flow direction. Dual point control has the following: combination inlet guide vanes and adjustable discharge diffuser; combination variable speed and adjustable discharge diffuser; and PLC control – optimize efficiency at required flow and pressure. Variable speed blowers have the following: the blower flow rate is proportional to speed; blower head is proportional to speed squared; and blower power is proportional to speed cubed. The efficiency remains constant at variable speed. An ABS Blower is single stage, high speed VFD driven motor, magnetic bearing (oil free), air cooled VFD, controls and motor; and has a vaneless diffuser. A Turblex Blower is single stage; 3600 rpm to 20,000 rpm; oil lubricated and cooled; and has adjustable diffusers and inlet guide vanes. Other high speed single stage blowers, which are oil free and air cooled include: Atklas Copco, KT urbo, Neuros and HAS. Steve mentioned Boyle’s Law and Charles’ Law before closing his presentation.

After lunch, Joe Zakovec conducted the business meeting for the Southern Region. After approval of the agenda, minutes, and the Treasurer’s report, Joe introduced Randy Thater, who told the group about various upcoming events of interest. June 4 is the Collection System Seminar in Watertown with another seminar being held in Marshfield on August 6. There are two golf outings forthcoming.

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(one in Lomira and another in Marshfield). There also is an operator’s ride this summer. The WWOA Annual Conference will be held in Green Bay from October 6 to October 9, 2009 (pre-conference workshop will be two consecutive sessions). Randy also reminded the group about various scholarships and tuition reimbursements that the WWOA has to offer. The UW Water library is our reference library location. Please refer to the WWOA.org website for details about the library and upcoming events. Randy solicited nominations for various awards to be given out at the 43rd Annual Conference in Green Bay and to start thinking about nominations for next year’s conference.

Joe presented Dan Lynch a plaque acknowledging the appreciation of the Southern Region for hosting the meeting in Janesville. Presently we are looking for host communities for 2010 and also seeking nominations for the Secretary to be elected at the next regional meeting, August 13 in Baraboo. After adjournment of the business meeting, door prizes were then drawn. Thank you to all of our vendors for the many prizes and support with their displays at the meeting, and a special thanks to Madison Metropolitan Sewerage District for the use of their laptop computer!

DNR Update by Larry Benson, Basin Engineer for the Wisconsin DNR. There have been a few changes to the Operators Certification. A few of the notable exam changes: Phosphorus Intro and Advanced exams have been rewritten with new comprehensive study guides available. May 6 was the last exam date and there were a few glitches with the newly released Intro and Advanced Phosphorus Exams. Those that took either of those exams in the A.M. are being given credit for all of those questions on the respective exams which were incomplete (three questions on the Intro Exam and nine questions on the Advanced Exam). Errata sheets were available for the afternoon examinees so the questions were all complete. The DNR promised to do a better job of proofreading before releasing new exams in the future.

Larry also reminded permittees to have the CMAR resolution passed by the appropriate local government body before submitting it to the Department. Permit backlog will continue to grow as the permit drafter for the Southern Region is working on a part-time basis. Your current WPDES permit is in effect until a new permit is issued.

Our next speaker was Larry Wavrunek from Rosemount Instruments and his topic was Wireless Instrumentation. The first step is to answer the fundamental question, “Where is my data?” What types of applications are targeted for monitoring and where do their data points exist? Many facilities lack the necessary hard wiring to allow the installation of typical data management transmission systems so a wireless device, or devices, may be the most practical and cost-effective method of data acquisition. These wireless units are lithium battery powered (five to eight year battery life - battery technology is ever evolving so even longer lasting batteries are in development) and have...
an integral antenna. The wireless units are capable of transmitting a signal between unobstructed devices of up to 750 feet. Moderate infrastructure between devices will allow transmission up to 250 feet and up to 100 feet with heavy obstructions. Devices serve as repeaters or a separate range extender can be utilized, although not frequently necessary. These wireless devices can serve as the backbone or extension of your current SCADA system to measure DO, TSS, pH and flow (to name a few). Easy integration into existing SCADA – nothing proprietary (five levels of security). The devices are not intended to do continual monitoring but instead systematic monitoring. They are secure and reliable and will “talk” to the proper gateway (similar to walkie talkies).

Wireless devices are frequently used in wastewater treatment plants – frequently for effluent monitoring, highest installation cost (trenching, wiring and conduit). Wireless devices are also used for tank level measurements. Another example given was to measure vibration (example: sludge pumps) to track trends on a pump or several pumps.

Jay Kemp, AECOM, then gave a brief overview of the Janesville wastewater treatment plant and directions on how to get to the site.

Finally, the members were given a tour at the plant by the entire Janesville staff (with refreshments provided by AECOM).

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