Ripon Wastewater Treatment Facility

39th Annual W.W.O.A. Conference
October 4-7, 2005
Regency Suites/KI Convention Center, Green Bay

HOST:
Green Bay Metropolitan Sewerage District
President’s Message

WWOA Members,

Isn’t it amazing how time flies by so quickly? The older I get the more I seem to use that phrase. I could have sworn I just finished the February 2005 Clarifier President’s Message and I am already late with the April Message. About the only thing that doesn’t seem to be flying by as of late is the wait for my desperately needed income tax refund checks!

The eCMAR implementation and training is still a “hot topic” as I write this letter. The WWOA has provided training at a variety of venues including winter regional meetings and even a few host WWTPs. Every indication is that eCMAR completion and filing should be fairly painless for most of us if we have done a little eCMAR “homework” ahead of time! The DNR remains firm in their commitment to have the “working” electronic version available by April 30th.

Planning for the 39th WWOA Annual Conference is well on its way to becoming another outstanding success. Presentations have been selected, hotels are filling-up quickly, vendor information is being compiled, the keynote speaker and banquet entertainment have been hired and menu selections have been made for the Operator’s Luncheon and Awards Banquet. Even with all that - Technical Program Chair Kay Marshall is holding up amazingly well! Way to go Kay! Hope to see everyone this October in Green Bay.

The first 3-4 months of 2005 have offered many opportunities for wastewater training and networking. Aside from the eCMAR training, WWOA members have also had the opportunity to attend several outstanding regional meetings in addition to other WWOA sponsored offerings such as the Government Affairs Seminar and the Spring Biosolids Symposium. My sincere gratitude and appreciation goes out to the many Regional officers and committee members responsible for planning these very well attended events.

This past February, President-Elect Tom Kruzick and I had the opportunity to attend and exhibit at the 2005 WI School Counselors Association Annual Conference held in Stevens Point. The three-day event allowed Tom and I to make some very good contacts with state elementary and high school guidance counselors as well as 2- and 4-year college admissions counselors. Our attendance had one primary goal, to spread the word about career opportunities that currently exist in the field of wastewater treatment.

It was truly amazing just how many conference attendees informed Tom and I that a career in the water pollution control field was seldom if ever given consideration when career counseling sessions with students occur. Along that same line of thought, how many of us have actually gone into the elementary and high schools in our very own communities armed with water pollution control career information? There is so much more work yet to be done re-igniting student interests in this career field.

By the time this message finds its way to each of you, “old man winter” should hopefully have packed his bags and hopped onto the first train heading north. That means many of us will be turning our thoughts to all those enjoyable outdoor activities such as wet well cleaning, sewer main rodding/jetting, clarifier maintenance and spring sludge hauling. Then again, there are also those of us getting in some early practice swings at the local driving ranges, cleaning out and organizing our fishing tackle boxes, and oiling up our baseball gloves. Enjoy the Spring!

In Your Service,

Timothy A. Nennig
WWOA President
DESIGN FEATURES: The conventional oxidation ditch design was improved by using oxidation-reduction potential (ORP) probes to control the activated sludge process. The ORP probes are the nucleus of the treatment process. The accuracy achieved through ORP technology enables control of aeration to precise levels. This feature also allows for denitrification in the oxidation ditch, further reducing energy costs. Automatic pacing of supplemental nitrogen (urea) based on aerator speed achieves consistent nitrogen levels in the process. This
safeguards against nutrient limitations and process upsets affecting performance of the activated sludge system. Nitrogen removal occurring in the oxidation ditch minimizes nitrate in the process, which improves the biological phosphorus removal process and eliminates the need to add chemicals for phosphorus removal. ORP probes comprehensively enhance the treatment process. The probes allow the control system to:

- Reduce aeration power requirements for treating high organic loadings,
- Remove nitrogen (further reducing power consumption),
- Maintain low nitrogen levels for biological phosphorus removal efficiency, and
- Maintain operational stability within the oxidation ditch (nitrogen, phosphorus and oxygen) for optimal sludge settling with low organic and suspended solids levels.

Process simulation was used to demonstrate the ability of the proposed design to enhance nutrient removal under the widely variable industrial loadings. The BioWin simulator accurately predicted design outcomes. Problems associated with high swings in loadings and nutrient deficiencies were resolved through a design incorporating automated aeration using ORP probes. This project demonstrates effective use of ORP probes for aeration, nitrification-denitrification, biological phosphorus removal, and supplemental nutrient feed control technologies to biologically reduce ammonia, nitrate, and phosphorus levels within the oxidation ditch activated sludge process. This ORP-enhanced process removes 99.4% of the influent organic pollutant loadings. An additional breakthrough is that the strict 10 mg/l suspended solids limit can be met without filters under extreme variable loadings.

Design solutions for the 1.8 MGD plant included automatic control of process aeration, a nitrogen (urea) feed system that anticipates nutrient conditions, a biological method for phosphorus removal, elimination of chlorine disinfection, and treatment that produces high quality effluent. High-performance, covered clarifiers with an energy-dissipating inlet and flocculating feedwell design improves flocculation and settling, reduces organic pollutants, and eliminates the need for polymer. Ultraviolet disinfection eliminates chlorine use, reduces toxics, improves effluent quality, and reduces health and safety risks. An automatic monitoring and control system maintains a constant state within the treatment processes for stabilized control during varying influent conditions.

Figure 1 - Comparison of Effluent Quality and Limits
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The ultraviolet disinfection system brought additional energy savings. The new ultraviolet (UV) system’s variable output matches the required disinfection dosage – a feature that saves energy costs. Comparison data shows the annual operating costs for UV disinfection of $2,100 is $5,400 less than previously spent for chlorine disinfection – a projected savings over 20 years of over $100,000.

**SYSTEM EFFICIENCY:** The automated wastewater treatment system has produced immediate improvements noted by plant staff. Jack Wendler, Laboratory Technician at the Ripon plant, reported that foaming brown scum is no longer generated during the activated sludge process. The foaming has been eliminated through the improved biology of the activated sludge process – a direct result of the nutrient feeding.

The new streamlined system produces effluent with low levels of ammonia, nitrate, and phosphorus – without tertiary filtration. Phil Hoopman, Ripon’s wastewater treatment plant director, states that the new system achieves a “net reduction of over 2,000 lbs. of phosphorus annually into the local water environment.” He notes improvements: “No surface foam and green algae stringers [appear] in the effluent discharge downstream” which offers immediate positive environmental impacts for both stream and lake.

The new wastewater treatment system is significantly more reliable and cost-effective than the old plant. The new plant, while technologically far more sophisticated, is significantly easier to operate. This frees plant staff from labor-intensive monitoring of operations, enabling plant staff to redirect energy and focus toward system maintenance. Hoopman said that plant personnel “appreciate the operational ‘comfort zone’ provided by the new plant.” Effluent quality well below permit levels will accommodate more stringent limits of the future and provide additional capacity for industrial and residential growth in the community. The design solutions contribute to Ripon’s economic vitality, protect sensitive environmental fish habitats, and improve quality of life by providing cleaner water in central Wisconsin.

Construction costs were budgeted at $9.10M. Actual construction costs were $7.63M. Phased operation of the new plant began in spring 2002 with construction completed for full operation in fall 2003.
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WWOA Vendor Database

He should have used the vendor database instead.

Can’t find parts?
Don’t take it out on your equipment, use the WWOA vendor database.

Are you looking for parts, services, or supplies? Maybe you need equipment for an upgrade at your facility. In that case check out the WWOA vendor database. Just go to: wwoa.org and click “Vendor Database” in the lower left-hand column. Then click “Search The Database” where you will select your items of interest from a listing of products and services. Be specific in your choice, because the database will provide vendors that offer all the items selected. For example, if you are looking for safety equipment and a SCADA engineer, perform your searches separately by either deselecting a previous item or clicking the “Clear” button between searches. Searching for both items will give you vendors that offer safety equipment and SCADA engineering together, not one or the other.

The database will also provide contact information for a precipitating vendor. Just type in the vendor’s name in the appropriate field and hit “Search.”

It’s never too late to use your WWOA vendor database. If you’ve already beaten your equipment into submission, search for some new stuff.

The Great GASB 34
By Judy Tholen

Pronounced Gaz-bee, it’s yet another acronym to add to our ever-growing vocabulary list. As a plant manager or operator you may have not heard of GASB 34. But if you are an accountant for a municipal, county or state government, chances are that you have or are in the process of complying with this statement.

So what is GASB 34? GASB stands for the Governmental Accounting Standards Board. 34 is the statement number issued in 1999 by GASB that affects how municipal, county and state governments track and report capital fund and capital asset financial information.

Chances are that you may not be involved with nor particularly care about the general accounting practices done by your local government. But it is something that you should be aware of at the very least.
Most states have statutes requiring all state and local governments to comply with Generally Accepted Accounting Principles (GAAP). Not complying with GASB 34 or GAAP can and usually will result in an “unclean” audit of the community’s financial statements. An unclean audit result means that your community may be prohibited from issuing capital improvement bonds to raise money for capital improvement projects, or it may raise the interest rate you must pay to issue bonds. Either scenario is not what you want to hear when crucial equipment and infrastructure improvements need to be financed.

To give you a quick lesson in accounting, private companies have long been required to report all revenues earned, all expenses incurred, and the value of all of the capital assets it owns for a given financial period. It’s called full accrual accounting. Governments however, typically did not follow full accrual accounting and had no system in place to track infrastructure cost information and value. GASB 34 requires governments to follow this practice. They must inventory their entire infrastructure and report capital values and expense information using either of these methods: Depreciation or the Modified Approach.

The good news is that governments can actually utilize BOTH Approaches in their accounting in order to comply with GASB 34. Most of us are familiar with depreciation. The capital value of an asset is reported and a certain amount of depreciation is charged against the asset each year. Depreciation works well with assets that are replaced frequently like vehicles. The Modified Approach is a unique accounting method that is great for assets used and preserved over a long period of time, like collection systems and water distribution systems. Its purpose is to show the true condition and worth of a community’s infrastructure. It also helps a community get away from the traditional dire-need maintenance program to one of preventative maintenance and renewal.

To report capital assets using the Modified Approach, a system to manage infrastructure and create standard operating practices must be established. These procedures must define how to track and record inventories, track maintenance activity costs, and create condition-inspection reports. A minimum condition level at which to maintain your infrastructure must be established. At least once every three years, a complete inspection and rating of assets must be done to make sure that you are meeting your minimum condition goals.

A Computerized Maintenance Management System (aka Asset Management) is an invaluable tool to have if your local community is going to use the Modified Approach in their accounting practices. All water and wastewater equipment and infrastructure, maintenance costs, inventory, and condition reports can be done using a CMMS. If you currently do not have a CMMS, please consider getting this invaluable piece software. There are many programs on the market today. Be sure to ask the manufacturer/vendor plenty of questions to make sure the software is capable of satisfying your plants unique needs.

If you would like additional information about GASB 34 or CMMS software, please contact Intellisys. We have a couple of documents that we can send to you that provide more information.
Clean Water Fund Program Eligibility For Security Equipment And Maintaining Confidentiality of Your Security Measures

By Julia Riley, Wastewater Specialist, DNR

Are you planning a wastewater treatment plant modification or major upgrade? If so, consider planning for the future and adding security equipment as part of your construction project. The most cost-effective time to install security equipment is during construction of new facilities, compared to retrofitting existing buildings and structures.

This article features the following tips on how to:

• Determine what types of security equipment are eligible for subsidized loans through the Clean Water Fund Program (CWFP).
• Assess your security equipment needs
• Protect the confidentiality of your security measures during the:
  o Plans and Specification Review Process by the Department of Natural Resources (DNR)
  o Bidding Process
• Secure your construction site

Types of Security Equipment Eligible for Funding Through the Clean Water Fund Loan Program

Most security equipment is eligible for CWFP loan funding when it is included as part of an overall treatment plant upgrade. Examples of security equipment include: barriers, fencing and gates; security lighting; door and window locks, bars or mesh; proximity access card readers; motion and beam detectors; alarms; surveillance cameras and video or digital taping equipment; smoke and chemical detectors and alarms; glass-break detectors; emergency back-up generators; locking manhole covers; personal safety equipment; and computer fire walls and anti-virus software programs.
The Environmental Protection Agency’s (EPA) security website: www.epa.gov/safewater/security, includes a Security Products Guide with information on costs and sources of security equipment.

The CWFP may not be a cost-effective source of funding for security equipment installed as a separate “stand-alone” project with costs under $200,000. A better source of funding for separate security equipment projects under $1 million might be the DNR’s Small Loan Program. Stand-alone security would generally receive a very low score as a water quality project and may remain low on the funding priority list.

How to Assess Your Security Equipment Needs

Vulnerability Assessments are a good way to determine what types of security equipment meet your wastewater treatment plant’s needs.

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No federal or state regulations currently exist which require wastewater treatment plants to conduct a Vulnerability Assessment. The DNR encourages municipalities to complete a Vulnerability Assessment, but the CWFP program will not require a municipality to prepare a Vulnerability Assessment in order to receive funding for security equipment.

**How to Protect the Confidentiality of Your Security System**

Information submitted to the DNR during plans and specifications review is subject to the open records law. The DNR must make this information available to the public upon request. To protect the confidentiality of your security system during plans and specifications review by the DNR, follow these recommended steps:

- General security measures to take throughout your wastewater treatment plant,
- Additional measures to take to protect the critical parts of your plant that are essential to maintain operation, and
- Measures to protect staff and important documents and information.

Small to medium plants may wish to use the “Security Vulnerability Self-Assessment Guide for Wastewater Systems” developed by the National Rural Water Association. This assessment method uses a simple checklist and evaluation. You can download a copy of the assessment form by going to the Wisconsin Rural Water Association website: http://www.wrwa.org/pdf/WRWA_Wastewater_System_VA.doc

Larger wastewater treatment plants and those with SCADA systems may wish to use the Vulnerability Self-Assessment Software Tool (VSAT) developed by the Water Environment Federation. This assessment tool uses a computer software program to determine potential threats to a wastewater system and security measures to reduce those threats. You can obtain a free copy of the VSAT software by registering at the Water Environment Federation website: http://www.vsatusers.net/about.html

EPA is sponsoring free VSAT workshops in cooperation with the Water Environment Federation in the following locations:

- **Albany, NY** - April 20-22
- **Columbus, OH** - June 1-3
- **Austin, TX** - June 22-24
- **Salt Lake City, UT** - July 20-22
- **Charleston, SC** - September 7-9
- **St. Louis, MO** - September 21-23
- **Olympia, WA** - October 12-14
- **Washington, DC** - November 2-4
- **Memphis, TN** - November 16-18
- **Santa Barbara, CA** - December 13-15

For more information on these workshops, visit http://www.wef.org/watersecurity.
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Do not submit plans and specifications showing the routings or location of security equipment.

Do submit a list of security equipment items and associated costs.

Do send normal plans and specifications for back-up generators.

To protect the confidentiality of your security system during the bidding process, consider these options:

- Request prospective contractors prepare their bids on the installation of security equipment using plans and specifications retained by you on-site in a designated area.
- Security equipment separated out as an equipment item in a construction contract may not be subject to competitive bidding requirements.

How to Secure Your Construction Site

Here are a few examples of measures you can take to secure your wastewater site during construction:

- Post additional “No Trespassing” or “Authorized Personnel Only” signs on buildings and fences.
- Alert your Police Department of construction occurring at your wastewater treatment facility. Request additional patrols at night and on the weekend if wastewater treatment plant staff are not available on-site.
- Provide temporary fencing around critical buildings at your wastewater treatment facility if you need to take down your perimeter fence during construction.
- Lock all buildings at night and on the weekend.
- Immediately remove construction debris from around critical parts of the wastewater treatment system that could be used to gain access by breaking windows or doors. Examples: Rocks, bricks, cement blocks, iron and steel bars or piping, portable tanks, tools with sharp blades or pointed ends, and other tools, parts or equipment.
- Keep a record of all keys, access cards, personal identification cards, and visitor vehicle passes issued to construction employees. Stamp all keys provided to construction employees with the words “Do Not Duplicate.”
- Discuss measures with contractors to safeguard sensitive documents, keys, or tools that could provide access to your system — for instance, lock vehicles if they are used to store your building access keys, plans, drawings or specifications.
- Request your contractor provide their personnel with photo identification cards (IDs), and require that the IDs be worn during construction at your wastewater treatment plant site. (IDs also help identify an employee quickly if an accident occurs.)

Have a safe, secure, and successful wastewater treatment construction project!
THE 18th ANNUAL COLLECTION SYSTEM SEMINAR

WHEN: Thursday, June 2, 2005
WHERE: Turner Hall
        Watertown, Wisconsin
MORNING: Speakers on Collection System Issues
AFTERNOON: Vendor Displays, Door Prizes

FEATURED TOPICS:
• National Fire Protection Act and Electrical Safety
• WE Energies and Energy Conservation
• Fats, Oils and Grease in the Collection System
• Case History: Lateral Rehabilitation/Replacement
• Private Property Issues regarding I/I and Rehabilitation/Repair
• Storm Sewer Exfiltration

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“Clean Water is Our Life”
The Southern District WWOA held its winter meeting on February 14 at Beloit. Fifty-three members gathered at the Rock River Convention Center – Ramada Inn in South Beloit, IL.

City of Beloit Manager Larry Arft began the day by welcoming attendees to the greater Beloit area. He expressed his appreciation for all the work that wastewater professionals do for their communities.

James Orr of Sherwin-Williams presented members with interesting and informative information about coatings used for wastewater treatment facilities. He discussed the three major types of coating that one has available to them. Epoxy coatings are often chosen and are very durable but the applicator must be aware of sweat times, the recoat window, and the limited pot life. Non-submerged epoxy coated surfaces should be clear coated with polyurethane or they will become chalky. Polyurea coatings offer quick dry times, 100% solids, and 24 hour return to service. Polyurethane coatings are another option but are very sensitive to cool temperatures and moisture.

Mr. Orr then reviewed issues that are important to remember about preparation and application. Adequate safety equipment needs to be at the job site before hand to insure worker protection during the project. Structural integrity should be closely checked before blasting begins to insure that material to be coated has acceptable remaining thickness. Surfaces to be blasted should be high pressure washed first. Surfaces that have been blasted each day should be primed the same day. Surface temperature should be five degrees above the dew point during application. Jim stressed that using a qualified contractor is the best way to get quality work.
After a short break to visit with the vendor displays, members reconvened and listened to Jack Saltes of the DNR talk about the upcoming electronic CMAR. Jack encouraged members to go to the DNR informational website (type in “CMAR”) and read over the section information to become familiar with eCMAR. He briefly discussed WAMS (Web Access Management Systems). He explained the systems self registration and that each person at a facility that will be entering data needs to register in WAMS. Jack said that entering and submitting data can be done by one person or by a number of different staff members. He said that during entry if no activity is detected for 20-30 minutes a “time out” will occur. Running time will be listed on the screen. It is recommended that you save data occasionally and do not submit until all sections are completed and checked. Once you submit you cannot change anything! If problems occur one can click on “contact us” and a feedback form will appear. Variances may be allowed (unlikely!) for accepting a paper CMAR form.

After a delicious prime rib and chicken lunch members conducted the Southern District board meeting. Chairperson Harry Mathos presided over the meeting. The Treasurer’s report showed a balance of $5164.65. The 2005 Southern District officers then introduced themselves. Members discussed a motion that was made to purchase computer audio visual equipment to be used at Southern District meetings. Harry explained that he can provide speaker audio visual equipment as long as he is involved with the board, but he said we need to look to provide this equipment for the future. Jack Saltes noted that most organizations provide their speakers with the needed equipment for presentations. He also cautioned that compatibility can be an issue between supplied items and those brought by guest speakers. A formal motion was made by Dale Neis to purchase only a projector with district funds. Motion was seconded and approved.

Harry said the next meeting scheduled will be a joint meeting with the Southeast District at Beaver Dam on May 12. Jack Saltes suggested that time be allotted for issues in regards to the eCMAR at the next meeting as members will have had an actual
encounter with it by then. The summer meeting is scheduled at Watertown on August 25. Other dates were mentioned for the Collection Systems Seminar on June 2 in Watertown and for the annual WWOA conference October 4-7 in Green Bay. Harry said that team members were still needed for the Southern District operator competition team. Also he encouraged members to apply for WWOA educational scholarships.

A brief update of DNR affairs was given by DNR engineer Larry Benson. Larry reminded operators that the next wastewater exams will be given on May 4 with an exam application deadline of April 6. He said that Mary Wagner will be the replacement contact for Peg O’Donnell at the DNR. Larry reminded members that training request forms were available to fill out if credit is to be given for related training. He also mentioned the upcoming Government Affairs Seminar and the Biosolids Symposium scheduled for March 15.

Meeting attendees were all invited to tour the Beloit Pollution Control Facility courtesy of Harry Mathos and the facility staff.

Southeast District
February 16, 2005
West Bend, WI

The winter 2005 Southeast District meeting was held at the Knights of Columbus in West Bend, Wisconsin on February 16. Good topics, a central location, or good weather brought out a large number of members. There were 166 from our area that attended the meeting.

District Chairman Kerry Gloss started the meeting at 8:30. Kerry welcomed the large crowd and introduced Jim Hron. Jim is the West Bend sewer utility manager. He introduced the Mayor of West Bend, Michael R. Miller. Mayor Miller welcomed the WWOA members to West Bend and thanked us for helping keep our environment clean.

Jim Hron acted as master of ceremonies and introduced the speakers. Jim Fratrick of the DNR southeast district office was the first speaker. Jim addressed the new electronic submittal of the CMAR report. He informed the attendees that the eCMAR
should be available on the DNR website by April 30, 2005. Communities will not receive paper copies of this report as they did in previous years. A paper certification form must be sent to the DNR along with the approval of the governing organization. The governing body must pass a resolution concerning the CMAR as in the past. Jim provided pictures of many of the screens that will be accessed on the internet to complete the forms. Your treatment plant’s data is in the DNR database and will be inserted into the forms from the database. Jim said to make sure that it is in fact your facility’s data in the form. If anyone has questions about the eCMAR, phone your basin engineer/permit writer.

Dave Kliber, President and CEO of S-F Analytical was the second speaker. He addressed the items a facility should consider when they are required to purchase analytical services. Dave explained the different factors that go into the pricing of an analytical test. There are many direct and several indirect costs that affect price. Jim Thomas is the quality assurance (QA) manager for S-F Analytical and aided Dave in providing the details. Jim explained about the quality control and assurance process at S-F. These processes are key to providing quality and useful data to the treatment plant.

The vendor displays were well received during the scheduled morning break. Our thanks go to Schwind Trucking and Bruce Municipal Equipment for sponsoring the breakfast and morning break.

Following the break Kerry Gloss called the business meeting to order. The minutes from the August 12, 2004 were approved by vote. The treasurer’s report was also approved. The regional officers for 2005 were introduced. WWOA President Tim Nennig and directors Pete Conine and Jim Thalke attended the meeting. Kerry urged those present to check their personal information in the directory for accuracy and update it if necessary. The southeast region annual report was available for inspection. The officers of our region voted to donate $100 to the Shane O’Donnell fund. Shane died serving his country in Iraq and was the son of operator contact, Peggy O’Donnell of the
DNR. The region will need volunteers to fill the vice chair and secretary positions. They will be elected at the August meeting. Chairman Gloss thanked the vendors for supporting the meeting and providing useful information to the attendees. Our region anticipates entering two teams in the operator’s competition at the state meeting this fall. Jim Hron and his staff were recognized for hosting the meeting.

Rusty Schroedel of Earth Tech informed the attendees of wastewater vulnerability assessments using case histories and methods of achieving the goals of an assessment. Rusty showed the different ways a person could attack a facility and the small amount of time necessary to complete the entry. Most believe past or current employees are the most likely persons to cause a problem at a WWTP. Rusty listed numerous things a utility can do to help protect its assets.

The afternoon session concerned wastewater screening and grit removal. Rob Szekeress of Peterson and Matz and Wally Trnka of US Filter-Envirex made their presentations. West Bend installed some of their screens recently and are happy with the performance of them. Perforated screens are installed at the West Bend WWTP. Screens of all sizes are installed at many facilities across the nation. The Envirex screens were shown to be made of superior materials and should have a longer service life. The installation at the West Bend plant was impressive and very clean. After the presentation, West Bend provided a tour of their facility. Jim’s employees did an excellent job of answering questions and guiding guests through the treatment plant.
WASTEWATER SUPERINTENDENT

The Village of Belgium (population 1,887) has an opening for a Wastewater Superintendent for a Mechanical Activated Sludge Wastewater Treatment Plant. Qualifications: must possess a Class III Wisconsin Wastewater Certification with subclasses of Activated Sludge, Disinfection, Filtration (Tertiary), Phosphorus Removal, and On-site Laboratory Testing. A Wisconsin CDL is also required and may be obtained after hire.

Successful candidate will operate and maintain the wastewater treatment plant, area lift stations, report to the WI DNR and other agencies, sewer cleaning, sewer repair, and other DPW projects (including watermain repair and snowplowing), as directed by the DPW & Water Superintendent, throughout the Village. Rotating week-ends and some overtime hours for emergencies.

Must have good work ethics, self-starter capable of performing duties without close supervision, strong math, communication and computer skills. Wage dependant upon qualifications. Residency required within six months of hire. 90-day probationary period. Benefits - health insurance, dental insurance, vision insurance, Wisconsin Retirement Fund. Paid holidays, sick days, and vacation. Submit application (available at the Belgium Village Hall) with resume to the Village of Belgium, 195 Commerce Street, P. O. Box 224, Belgium, WI 53004-0224, (262) 285-7931. Deadline is May 16, 2005, and may be extended until position is filled if no qualified candidates apply by the deadline date. The object is to have this position filled by July 1, 2005. EOE

2005 Clarifier Deadlines

<table>
<thead>
<tr>
<th>Issue</th>
<th>Submittal Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2005</td>
<td>May 13</td>
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<td>December 2005</td>
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February LMD Meeting

The Village of Hortonville hosted a meeting of the LMD WWOA on February 17, 2005, at the Grandview Golf Course. A total of 109 operators and wastewater professionals attended.

Kevin Skogman, Chairman of the LMD group this year, called the business meeting to order at 9:00. He began by thanking his predecessor, Bruce Bartel, who is now on the Board of Directors for WWOA, and also thanking McMahon Associates for sponsoring the coffee, juice and delectables, Charter for providing the internet connection used later, and Ayres Associates for some of the door prizes. He then introduced Tom Kruzick, the current President-Elect of WWOA, who provided a brief update on the annual conference scheduled for October 4 - 7 in Green Bay, and the other regional officers, Ron Austreng and Dawn Jandrey.

The next order of business was review of the Secretary’s report and the Treasurer’s reports. There was no old business and no new business was proposed, so Kevin proceeded with the following announcements:

- Nominations are being sought for the Operator of the Year Award. Larry Lambries from Two Rivers, last year’s award recipient was introduced. Nomination forms were available at the meeting and they’re always available on the WWOA web site.

- Volunteers are being sought for the Operators Competition at the annual conference. Last year LMD fielded two teams and came up first and second. We’ll field two teams again if we have the people. Ron Austreng will be coordinating/coaching so contact him if interested.

- The regional officers are looking for meeting suggestions – locations, speakers and topics. Suggestion forms are available.

- Jeff Haack provided two announcements from DNR. First, Peg O’Donnell, the statewide coordinator for the Operator Certification program has retired. Her duties have been reassigned to Mary Wagner, at the same phone number as Peg’s. Best wishes, Peg! And second, the Northeast Regional DNR headquarters will be moving soon. The mailing address and e-mail addresses are not changing, but telephone numbers for all DNR staff in Green Bay will be changing. Bob Hannes also made an announcement on behalf of DNR concerning the recent mailing requesting information for the annual Needs Survey. It’s important for everyone to respond to assure that the State gets funding to meet anticipated infrastructure needs.

- And finally, upcoming LMD meetings are planned for May in Marion, August hosted by Egg Harbor and November in Manitowoc. Dates are tentative yet. Host communities have volunteered for meetings through 2006, but it’s good to plan ahead.
The business meeting concluded at 9:20. J. Everett (Mitch) Mitchell, Village Administrator, then welcomed the group to Hortonville. He talked briefly about the anticipated growth in the community and preparing for the changes expected to follow.

The first technical presentation was provided by Tom Vik of McMahon Associates, describing planned changes at the Heart of the Valley MSD’s wastewater treatment facility. Space at the existing WWTF site is limited forcing evaluation of innovative treatment technologies. Three processes in particular were described – Ballasted Sedimentation for primary clarification, Biological Aerated Filters for secondary treatment, and Auto Thermal Aerobic Digestion for solids stabilization. By utilizing these processes, use of existing tanks and structures will be maximized, and the needs of the district relative to growth in the metropolitan area and more stringent effluent ammonia limits will be met.

Next, Jack Saltes from the DNR provided an update and demonstration of the electronic Compliance Maintenance Annual Report, the e-CMAR. Utilizing the internet connection provided by Charter for this meeting, he was able to show people exactly what they will see on their computer screens when they work on their own e-CMAR’s. More training will follow, including hands-on demonstrations. Jack advised everybody that he will respond to telephone and e-mail inquiries, but he asked for patience as he rolls out the new process.

The final presentation of the day was provided by Bill Berry of Ayres Associates, entitled “Trash to Treasure – Convert Landfill Residential Waste into Electricity.” He began by describing typical landfill construction, comparing a landfill to a big bathtub-shaped anaerobic digester. Then he described in more detail a project at the Seven Mile Creek landfill near Eau Claire to capture the methane produced in the landfill and use it to generate electricity, utilizing what would otherwise be a wasted resource.

The meeting concluded with self-guided tours of the Hortonville WWTF.
WEST CENTRAL DISTRICT SPRING MEETING  
FEBRUARY 10, 2005

The West Central District held our spring meeting at Ruby’s Bar and Grill in Bloomer hosted by the Bloomer WWTP. Mayor Randy Sommerfield welcomed all to the meeting.

Sandy Begalke opened our meeting with a presentation on issues concerning septage and our WWTPs. Sandy is on the State Septage Legislative Committee. She mentioned that all WWTPs must look at taking in septage. Fees must be reasonable and we need to show justification on how rates are established. For further information on what the committee is doing go to www.legis.state.wi.us.lc.

Steve Ohm, Wisconsin DNR, talked about the eCMAR application process. He showed us what the eCMAR report will look like with data inserted and explained where to enter information onto the form. He mentioned that if we get a grade of a C-D-F we will need to respond as to why this happened. Collection system section deals with CMOM. Sewer maintenance must be documented as to what and when something was done.

Rod Szekerras of Peterson and Matz introduced John Olson. John talked about Orbal ditch design, loadings at the Bloomer WWTP. He went over different options with Aerated Anoxic vs. Conventional Ditches. John also talked about U.S.Filters new process to deal with biosolids, which is called Cannibal Process.

Rick Mealy and George Bowman, Wisconsin DNR, talked about Detection Limits and discussed the importance of doing MDLs & LODs.

DNR Updates: Camille Johnson announced that the Sparta WWTP Laboratory was awarded the DNR Lab of the year, the lab is run by Reta Seidel. Mark Flock is the 2004 West Central Operator of the Year, it was quite a year… Congratulations
Put The Control Back Into Your Control Panel

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Control your costs by controlling your energy usage with ESP, the new Energenecs Sensory Processor. Use ESP to:

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Steve Thon brought up that with spring around the corner keep in mind sewer overflows must be reported also mentioned sampling concerns.

Business Meeting: Dennis Holtz called the meeting to order and thanked Mike Meindel and his staff at the Bloomer WWTP. John Bond and Kay Marshall gave some information on the WWOA Annual Conference in Green Bay. John mentioned the Operators Competition and encouraged members to join our team. The next meetings will be held in Black River Falls in May and in Holman in August.

Did your wastewater treatment plant have a nice thick layer of surface “foam insulation” like that shown in the accompanying photo this past winter? What was its “R” value? Still have it? Well, you probably weren’t the only one.

Chances were that this foam was Microthrix parvicella. This filament along with Nocardia is one of the most common causes of activated sludge

**IN CONTROL**

Successful Operations through Process Control

**FOAM INSULATION**

By Jack Saltes, Wastewater Operations Engineer
Department of Natural Resources

MSA’s design called for a multi-faceted sanitary sewer rehabilitation program to reduce clear water flows. A new biotower was specified for secondary treatment and ammonia removal. Existing equipment was reused to hold down costs, and MSA obtained a $500,000 Community Development Block Grant to help pay for improvements. When you want an innovative solution, turn to MSA — your trusted partner!
foaming. Common to all foaming filaments, is the presence of excess greases, oils and fats. What gives Microthrix the advantage is colder temperatures and the ability to thrive on animal and vegetable greases, oils and fats. Hence, it is favored in areas where there are lots of high-density restaurant operations. It also thrives under low F/M conditions.

Microthrix parvicella is a very easy filament to identify. A simple smear of the foam, when Gram stained will reveal what looks like “purple spaghetti”. The attached photo shows what you might see. (Unfortunately, this newsletter is not printed in color, so this photo doesn’t quite do it justice.)

Knowing your filaments and the plant conditions conducive to filamentous foaming organisms that plague your plant from time to time (or for some of you, all too often) is a first critical step in then knowing what to do operationally to correct the problem. Creating the right environment in your plant for good floc forming microorganisms is an important key in making process control decisions for your plant. All too often operators forsake their microscope and shortchange their microbiological knowledge for the quick fix…chlorine. Don’t be so quick to grab the chlorine and instead create a happy home for your bugs. Be the accommodating bug hotel manager! For controlling unwanted guests such as Microthrix, control influent oils and grease and F/M values especially during cold weather.

So add to your process control knowledge by gaining a better understanding of the microbiology of your plant. Some excellent books are out there for you to do just that including Toni’s recent publication:


3. *Activated Sludge Microbiology* by Michael Richard from The Bench Sheet Series, Water Pollution Control Federation (1989)


So without “bugging” you further, dust off that microscope sitting in the corner or in the cabinet, and learn more about the living, bacterial hotel you manage. For them, it’s “home sweet home”, and it’s up to you to make it so.
ATTENTION ALL GOLFERS
THE ANNUAL GOLF OUTING IS NEAR!
REFRESHMENTS - LUNCH - DINNER AWARDS BANQUET - PRIZES

MONDAY, JUNE 20, 2005 (Third Monday in June)
TEE-OFF: 9:00 a.m. to 10:30 a.m. PRICE: $47 per person

RIVERDALE COUNTRY CLUB, SHEBOYGAN, WISCONSIN
Directions: Exit 123 off I-43 and go east to 12th Street; Turn right 1-1/2 miles to Riverdale

Golf Carts are extra; reserve one from the Pro Shop by June 13.
(Alternate rain date is Monday, June 27, 2005; call Pro Shop if weather is questionable)
Pro Shop Phone: 920-458-2561 Riverdale Country Club: 920-457-6444

Return information below by June 10 and enclose $47/person to: (check payable to Leo Templeton)
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Name __________________________ Address __________________________ Phone No. __________________________ Manufacturer or Operator __________________________

1. __________________________   2. __________________________   3. __________________________   4. __________________________

Foursome tee time preferred: ________ Please include at least one phone number per foursome to call for a rainout

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Rod Peterson - A Tough Act To Follow

Rod Peterson of the City of Barron, my good friend and a loyal traveling buddy passed away on March 16, 2005. Rod was only 57 and like many have said, he was way too young to leave this world. For many of you who did not know Rod or what he did in his short time on this earth, allow me some of your time. I have known Rod for over 20 years personally and professionally. We have all had someone close pass away that we wished everyone could have known. That’s why I felt the need to tell my story about Rod, which goes something like this;

Rod started out as a seasonal employee for the street department in the City of Barron in the summers of 1969 and 1970. He was then hired as a wastewater operator in November of 1970 until April of 1974. Rod ran for City clerk and was elected in 1974 and held that position until April of 1978. If that wasn’t enough politics for anyone, Rod decided to run for Mayor in 1980 and was elected. Rod held that position until 1985. Rod decided to go for the big money, so he was appointed wastewater supervisor in 1986 and held that position until September 2002. Rod was then appointed interim utility manager in September of 2002, and permanent Utility Manager January 2003 until March 16, 2005. This was Rod’s work history for the City of Barron.

As dedicated people will attest, your work goes home with you and you’re always on the job and Rod was a shining example of that dedication. Rod took his job serious and was a good steward of the finances he was responsible for. There was no contractor that was going to leave a job good enough while Rod was on watch. The new Barron County Justice Center lift station was a great example of his desire to not settle for good enough. Maybe I will tell you the story someday, but I will never be able to tell it like Rod did. Rod’s staff thought of him as fair and reasonable. He would always let you state your opinion and evaluate it before rendering his decision. Rod was a quick study on any topic and he retained what he needed to. According to his staff, you could not ask for a better supervisor.

It does not end here! I would venture to guess that every water and wastewater professional has heard of MEG, Municipal Environmental Group. With some foresight and a will to improve the situation for all municipalities, Rod got together with an environmental attorney and put together the charter and organized the group known as MEG in 1988 with the first meeting on June 22, 1988. Rod was elected President of the group and held that position until 1992 where he stepped down to give other members the opportunity to develop professionally. Rod remained on the steering committee to make sure the purpose of the group would remain true. By September of 1988 the MEG group grew to 34 members. MEG’s first order of business were issues on NR105, 106,107, 207 and the Clean Water Act, the radium rule, operator training, sludge disposal; the expansion of the WPDES permits to limit the presences of phosphorous, ammonia, chlorides and nitrogen in the effluent. Funny how these issues look awful familiar to today’s topics.
With all the issues confronting municipalities, Rod and the MEG group saw it necessary to separate the group into a water division and wastewater division in 1991. Both groups are thriving today and the municipalities of Wisconsin can be thankful that Rod Perterson had a vision such as this. Rod and I traveled together to the MEG meetings as well as many other business-related meetings out of town. Rod was a wealth of information, some useful, some not so useful, but always a pleasure to hear. We would always stop at Hawkeye Dairy in Abbotsford after the MEG meeting for an ice cream cone and the conversation would stop for a while so we could enjoy the treat. As tradition would have it, when we arrived at his house (oh by the way, I would always pick Rod up) we had to go into his workshop for a beer or two or _ _ _ _. Can you believe we still had stuff to talk about regardless of how many beers we had or how many miles of windshield time we logged?

Rod’s professionalism was recognized in 1995 when he received the State Operator of the Year award for the Northwest district. Rod’s creativity and vision was eminent at the wastewater plant as well with the invention of a mowing deck for the lagoons. He got together with a local manufacturer to build the deck. Rod also worked with the same manufacturer to develop a mixing system in a lift station to make cleaning less labor-some. Rod was well-respected by the DNR for his honesty and desires to make the environment a better place in which to work and play.

Speaking of environment, Rod loved to take his big boat out on Lake Superior for fishing adventures. Speaking of fishing, Mike Magee and I went to Lake Superior with Rod a few years back for a day of fishing. We got up early, had breakfast at a local café up North and launched the boat in the haze of the early morning. Talk about a trusting man, Rod decided to take a nap and left us to pilot the boat. Neither Mike nor I had much experience at this and all Rod said was to watch the depths so we would not snag any lines on the bottom. Rod said just head that way and swing wide of those islands. It seemed like we were without guidance for days, but it was probably only an hour. Thank God he took over.
shortly there after, but you have to love the guy for his guts and trust.

Rod loved bird hunting, deer hunting, trapping and fishing. A sportsmen of all sportsmen. Rod loaded all his own shells for shotgun and rifle. He made all his downriggers for the lake boat and he built a canopy for the lake boat as well. He made his own snow shoes, and most recently was working on an invention with a design engineer to be able to reuse spent 8 gauge shot gun shells. I was told that this project would continue to completion in his honor. Rod played hard, but always played by the rules.

One last bit of information and I will close. Rod was well known for his ability to sing. He was sought after in the Barron area to sing at weddings and funerals. He had a tremendous voice and every once in a while he would sing along to the oldies I would have tuned in on the radio as we were heading back from a meeting. I sing great as well, as long as no one is within earshot of me. He was a Christian man and was loved by many. Rod will be missed by many and I believe I can speak for all the wastewater operators in the state when I say our thoughts and prayers are with his family, Marilyn his wife, and his grown children Craig and Melissa.

There are no promises for tomorrow, so live the day to the fullest

Respectfully submitted,

Wally H. Thom
Rice Lake, Wisconsin
The NCD winter meeting was held at Molitor’s New Saloon in Abbotsford, Wisconsin on January 18. City of Abbotsford employees, Tom Buttke, Shawn Geiger, and Rachel Schriber, were the hosts of the meeting. Tom welcomed the crowd of around 70 operators and introduced Kay Marshall, the meeting moderator, and then introduced Abbotsford Mayor Dale Barton. Mayor Barton started the meeting by giving a short-and-sweet welcome speech.

Kay Marshall, WWOA Vice President, introduced the meeting’s first speaker, Alva Rankin of SEH. His presentation, “The Evolution of Inflow and Infiltration”, was very informative. Mr. Rankin talked about his experiences while working for the City of Duluth and about issues he has faced dealing with I and I. He pointed out the importance of needed funding and how it was imperative that our elected government officials understand the importance of a good collection system. He also talked about Capacity Assurances, Management, and Operation and Maintenance of the Collection System. Alva explained new requirements dealing with I and I in CMOM and about a new section in future CMAR’s which includes Collection Systems.

The next speaker was Camille Johnson, Wisconsin DNR Audit Chemist. Camille talked about issues related to wastewater labs. She gave audit tips and talked about good quality control practices. Camille listed the minimum quality control practices that must be done in the lab as well as the most common deficiencies she encounters while doing lab audits.

Camille’s talk was followed by a short break for coffee and donuts. NCD Steering Committee member, Rich Boden asked if any operator’s were interested in receiving notices about upcoming meetings via email. He sent around a list for interested operators to sign up.

Roger Byers, from the State of Wisconsin Department of Employer Trust Funds (ETF) spoke after the break. Mr. Byers gave a detailed and enjoyable talk on how the ETF works and what options we have when we retire. An interesting fact that he gave was that the Wisconsin Retirement ETF funds are one of the 10th largest in the US and one of the 15th largest in the world, money wise. The funds are worth approximately 60 to 65 billion dollars. The Wisconsin Retirement System is 509,484 members strong and includes State, County, Public School, City, and Township employees. He also explained how important it is to have an up-to-date Beneficiary Designation Form on file. He explained how the money purchase method and the formula method are used to determine the amount of benefits we will receive when we retire (we will receive the higher of the two). Mr. Byers also covered the options we can choose to be paid our retirement benefits. He basically let us all know what benefits we are entitled to, how to calculate the formulas, how we will be paid, and what options we have when we retire.

The North Central Business Meeting was held next. Ken Bloom, the Steering Committee Chairman, directed a short business meeting. He started off by thanking Tom, Shaun, and Rachel for hosting and
setting up the meeting. He also thanked Tom Zager, of Wisconsin Rapids for his service on the Steering Committee. A call for operators for the operator’s competition at the upcoming WWOA conference in Green Bay was made. Ken asked for new candidates for the Steering Committee. He explained how two new members are elected every year and serve for three years on the six member committee. Ken also talked about the benefits of being a WWOA member. Tim Nennig, WWOA President stood up and spoke for a few minutes. Tim commended the NCD for the newly formed Steering Committee and for the great participation of the members of the region. He briefly talked on the WWOA web site, WWOA membership benefits, and the up-coming Conference in Green Bay. Also present at the meeting was President Elect, Tom Kruzick and Vice President, Kay Marshall. After the Business Meeting, an excellent lunch was served.

The first speaker after lunch was Jack Saltes of the Wisconsin Department of Natural Resources. The ever-entertaining Jack talked on the newly created eCMAR. While explaining the new eCMAR, Jack declared, “It’s going to be sweet.” Jack explained how eCMAR will work and went through a few of the sections for practice. He explained the new grading system, how most of the information will be pre-populated, and that a few new sections were created. He also explained Web Access Management System (WAMS) registration and what we will all need to do when the time comes to register. Jack also informed the group on upcoming training session that will held at Spencer on February 18th dealing with the new eCMAR.

The last speaker of the day was Chris Groh, from Wisconsin Rural Water Association, who gave a talk on Pathogens in Wastewater. Chris gave a brief history on pathogens in wastewater, he showed charts on pathogens, and supplied us with some interesting facts. Chris gave a run down on all virus, bacteria, fungus, and parasitic pathogens in wastewater. He also presented related cases in Wisconsin in the past 10 years. Chris explained routes of entry and methods of prevention.
President Nennig called the meeting to order at 1:05 PM December 2, 2004. All Board members were present except Tom Kruzick who was excused absent. Also present were Dan Busch and Jean Van Sistine from Green Bay MSD.

The minutes of the October 25 and 26, 2004 were reviewed. President Nennig noted that Jim Schreiber should be listed as not present. Bruce Bartel should be added to the list of nominations for Directors. President Nennig also noted that District should be capitalized in the CLARIFIER report. Also, in the Operator Training report note that Jack Annis is from the UW Extension Stevens Point. Under the Website report instead of vendor database it should read website.

Herwig commented he would like to see instead of a discussion ensued, he prefers it be more specific about the discussion. Herwig feels the membership needs to know what the discussion is about. It was the consensus of the Board if any Board member in the future wants details of their comments or discussion to be in the minutes, they must state that they want the minutes to reflect these comments or discussion.

Marshall made a motion to approve the minutes with the corrections and additions. Conine seconded the motion. Motion carried.

McKee presented the Financial Statement for Board approval. McKee reported as of November 15, 2004 we have $106,519.81 in revenues and $36,820.37 in expenditures with excess revenues over expenditures totaling $69,699.44 McKee reminded the Board this does not include the conference expenses.

Herwig made a motion to approve the Financial Statement as presented. Carlson seconded the motion. Motion carried.

COMMITTEE REPORTS

NOMINATIONS - No report.

PROMOTIONS - Bond commented he felt that overall everything went well this year. Half of the sludge truck shirts sold. The new logo wear received good reviews.

Carlson informed the Board of some objectives he plans to meet throughout the year: he plans to attend
four Regional Meetings throughout the state to sell the promotional items. He plans to display items at the Spring Biosolids Symposium. Carlson will consider adding a few new items to our selection. He will work with Scott Thompson to update the promotional items on the WWOA Web Site.

President Nennig questioned the Operator Competition gift certificates. Bond commented the gift certificates were favorable, but only 15 were turned in.

Bond commented the location of the promotions stand is a concern. We need to be located near a main area of traffic. Carlson suggested maybe putting a catalog together of our promotional items.

**MEMBERSHIP** - McKee informed the Board we have 132 members in the arrears. McKee will send a list of the members in the arrears to all of the Regional Chairpersons.

**SCHOLARSHIP** - Conine commented he has received no applications. Conine stated we need suggestions on how to get more activity and interest in the scholarships. A discussion ensued. We need to consider opening the scholarship up to more people, but we should maintain the eligibility they should be still water and wastewater related.

The Board directed Conine to come back to the April Board meeting with some suggestions on how to open up the scholarships to the membership.

**EXECUTIVE COMMITTEE** - President Nennig explained the purpose of the Committee.

**CLARIFIER** - Busch provided the Board with a list of the CLARIFIER submittal deadlines for 2005. Busch asked the Board to think about upgrading to a glossier paper like The Wisillmnn and the option of colored advertising.

President Nennig commented the CLARIFIER is a top notch publication. It’s a great representation of the organization.

President Nennig asked for some perspective from the CLARIFIER committee regarding opening up archived CLARIFIER issues for public viewing on the website.
I want a laboratory that causes me no anxiety, saves me money, has superior client service and has a great reputation based on continuous performance. Don’t You?

You can save money, save time and lower your stress level, by using Northern Lake Service for the analysis of your wastewater, biosolids and drinking water. We’ve been providing reliable service to water and wastewater plants for over 30 years. You’ll be happy with our level of service.

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(800) 362-7266
Herwig commented that the regions need to contact the Website, the CLARIFIER and Peg O’Donnell with the DNR so they can post the meeting dates.

Herwig stated the WWOA Information Board needs to be updated. McKee will send Conine a current WWOA Board picture and some pictures from the Historical Display.

**GOVERNMENTAL AFFAIRS** - Thalke stated the Governmental Affairs Seminar is scheduled for March 3, 2005 at the Mariott West in Middleton. Herwig explained to the Board how the position of Chair for the Governmental Affairs works. WWOA will chair in 2006.

**LIAISON** - Thalke informed the Board that he and Tom Kruzick attended the CSWEA WI Section on November 17, 2004 at the Country Inn in Waukesha.

Herwig explained to the Board he redrafted the Letters of Understanding between Central States WI Section and WWOA regarding the Governmental Affairs Seminar and the Spring Biosolids Symposium.

**WEBSITE** - Bartel stated the Website Committee met on Thursday, October 28, 2004, at the Kalahari. The committee has come up with new ideas and thoughts for the website and would like some direction from the Board of Directors.

President Nennig explained Bob’s Bug Page, Plant Database, CLARIFIER and the Mail List are all behind a password protected scheme. The Committee would like to open up Bob’s bug Page for public viewing.

The Committee suggested for the Plant Database offering a simple restricted listing of all WWTP’s in Wisconsin for public viewing. All specific contact information would be withheld.

The Committee is still looking for ways to get the mail list subscriptions to take off again. Some thoughts are to abandon the electronic sign-up in favor of trying different methods to encourage signing up. Gather names of interested subscribers at the regional meetings or have interested mail list subscribers email Scott directly and Scott manually subscribe them.

McKee will send Bruce and Scott a current membership list. A discussion ensued. Herwig expressed some concerns regarding mass mailing if you open the Plant Database. Herwig questioned the benefit of an abbreviated listing of the Plant Database.

President Nennig would like to see some type of student password and give it to the schools so they can access it. There have been several requests for temporary student access. The Committee will contact Scott Thompson and see what can be done.

**TECHNICAL PROGRAM** - Marshall informed the Board the Call for Papers will be sent out in the next week. It has also been sent to the website and the CLARIFIER for the December edition.

The Technical Committee has been selected for the 2005 Annual Conference.

The Technical Committee Meeting is scheduled for February 3, 2005 from 9:00 AM until 3:00 PM. It will be held in the Administration Building Training Room.
at Green Bay MSD. Letters informing the participants of the details of the meeting have been sent.

**EXHIBIT COMMITTEE** - No report.

**OPERATORS COMPETITION** - Thalke reported six teams competed in this years Competition at the Kalahari Resort. The Committee will be looking for the WEF Operators Challenge hand book in March to review and possibly make changes for the WWOA Operators Competition.

**LOCAL ARRANGEMENTS** - Bruce Bartel will chair the Local Arrangements this year. We will probably be touring Green Bay MSD, De Pere and possibly the Energy Center this year.

**SPOUSE PROGRAM** - Jean Van Sistine commented it is very important to have a local host available for the Spouse/guest program. Van Sistine has some ideas for the program and will come back to the April Board meeting with some prices. (Note; the information will have to be available at the March meeting for budget purposes.)

**GOLF OUTING** - Jeff Czypinski will be chairing the golf outing this year.

**PERMANENT ARRANGEMENTS** - President Nennig reported for John Leonhard. Leonhard thanked the Board for allowing him to continue to serve the WWOA as chair of the Permanent Arrangements Committee and Resolutions & Bylaws Committee.

After the December Board Meeting the committee will be meeting with the Regency Suites and KI Center staffs in Green Bay to finalize prices and review the contract. During the rest of the year, we will meet with the Kalahari and the Radisson in La Crosse to review the 2006 and 2007 contracts with them.

**PERMANENT PROGRAM** - No report.

**RESOLUTION AND BYLAWS** - No report.

**HISTORICAL** - McKee reported the Committee will be meeting on Friday, December 3, after the Board of Directors meeting.
**MANUFACTURERS AND CONSULTANTS**

President Nennig reported for Jim Shaw. Overall the exhibitors were pleased with the exhibit hall and the layout. The center aisle made the hall very user friendly and gave a feeling of openness. The walking lunch, beer and soda were popular as usual.

Two complaints were received, which related to the Thursday morning tours. The exhibitors stated the tours took people out of the exhibit hall when the hall was open. They thought the tours should be in the afternoon after the exhibits closed.

Shaw thanked all the Board and Committee members for their time and involvement.

Herwig made a motion to approve the committee reports as presented. Bond seconded the motion. Motion carried.

**NEW BUSINESS**

President Nennig read a letter from Tom Steinbach regarding an idea for the 2005 Conference. He would like the Board to consider adding an event to the conference relating to health and fitness.

Steinbach suggested on Wednesday morning (or a morning the Board would prefer) we hold a stretch and walk session for those who want to participate. This could be held in the main registration area at 6 or 7 AM. The session would consist of a 10 minute warm-up/stretch period followed by a group walk. All in all the entire session would take up no more than 45 minutes. Steinbach is offering to organize and lead this event if the Board feels it would be something they want to add.

President Nennig feels it would not interfere with any of our other events and is Steinbach is willing to organize it. We could publish it on the registration card for the Conference.

President Nennig will contact Tom Steinbach and inform him it was the consensus of the Board to go ahead and organize it and will be published along with the rest of the events.

President Nennig discussed with the Board some questions that were mentioned regarding memorials. When is it appropriate and what is our involvement in the future. Do we need to have something in writing? It was the consensus of the Board to discuss this issue of how to handle memorials in the future at the April Board meeting.

President Nennig informed the Board he received a call from Rich Boden from Plover on behalf of the Spring Biosolids Symposium Planning Committee. The planning committee selected UW Extension to do the mailing again for the 2005 Symposium. The previous year McKee sent UW Extension pre-printed WWOA mailing labels. UW Extension affixed the labels to the registration forms. For 2005 UW Extension has went on record stating they will not work with WWOA printed labels any longer. Boden questioned why is UW Extension held to a higher standard then CALS currently when they are all part of the UW system? What assurances would it take by UW Extension to safeguard the WWOA electronic mailing list? What would it take for the WWOA to release the electronic mailing list to UW Extension? Does WWOA want to consider eliminating UW Extension involvement all together?
WWOA has two appointed members to represent the Biosolids Planning Committee that is in the Memo of Understanding. Boden feels one of those members must definitely be a current Board member. The Biosolids Planning Committee must receive a copy of these finalized and agreed upon understanding and responsibility memos.

Boden feels the Board must become actively involved with the Biosolids Planning Committee. Communications include regular reports to the Board. Boden feels the Board has detached themselves from the Biosolids Planning Committee. A discussion ensued. President Nennig wants to make sure these mailings get sent to our membership. President Nennig questioned why were all these decisions made without WWOA input? President Nennig will discuss this matter with Jay Kemp, who is chair of the Biosolids Planning Committee. The WWOA Board will communicate to Chairman Kemp the following: The Board instructed McKee to print out the membership labels and send to Biosolids Planning Chairman Kemp instructing him that since they selected the printer without WWOA input, it will be the committee’s responsibility to affix the labels. Secondly, all registration materials and fees will be returned to Executive Secretary McKee as per the Biosolids Memorandum of Understanding.

In addition, after the 2005 Biosolids Symposium the WWOA will appoint its two representatives to the Committee which will include at least one Board member as per the Biosolids Memorandum of Understanding. President Nennig will remind the Committee that a Board Member currently is on the Biosolids Committee.

To improve communications between the WWOA and the Biosolids Planning Committee, the WWOA Board of Directors will establish a new standing committee which will be called the Biosolids Committee. Herwig made a motion to establish the Biosolids Committee. Marshall seconded the motion. Motion carried.

President Nennig appointed Thalke as the WWOA representative and chair of the new Biosolids Committee.

In addition, President Nennig instructed Executive Secretary McKee to add the new standing Biosolids Committee to the agenda. (Note McKee will use the Governmental Affairs job description as a guideline for
creating a Biosolids Committee job description for the policy book and will bring it to the March Board meeting for Board Approval).

President Nennig will draft a letter informing the Biosolids Planning Committee Chairperson Jay Kemp of the Board’s decision.

After the meeting the Board met with the hotel for a tour of the facility and discussed space needs.

There being no further business, Herwig made a motion to adjourn. Carlson seconded the motion. Motion carried.

The meeting adjourned at 10:37 AM on December 3, 2004.

Respectfully submitted,

Richard D. McKee
Executive Secretary

Maximizing Secondary Treatment Wet Weather Capacity Part 2 (of 6):
Optimizing Mixed Liquor Settleability
Bill Marten, Wastewater Process/Operations Engineer, Triad Engineering Inc.

This is the second of a six-part series discussing strategies to maximize secondary treatment peak flow capacity. While the strategies are focused toward activated sludge treatment systems, many of the strategies are applicable to other systems as well. Future editions of The Clarifier will present additional parts of the series. For reference, the series will include:

Part 1: The Big Picture: Peak Wet Weather Capacity Considerations
Part 2: Optimizing Mixed Liquor Settleability – General and Operational Considerations
Part 3: Optimizing Mixed Liquor Settleability – Facility Configuration and Modifications
Part 4: Optimizing Secondary Clarifier Performance
Part 5: Minimizing Clarifier Loadings
Part 6: Putting It All Together: Integrated Strategies for Success
As noted in Part 1 of this series, many wastewater utilities are faced with the challenge of how best to handle peak flows that occur during wet weather conditions. Whether due to combined sewers, leaky sewer systems, illegal hookups or other causes, the end result of such weather conditions is often a dramatic increase in plant flows. Part 1 discussed overall considerations, and noted that for peak flow treatment, the solids separation performance of secondary clarifiers is usually the key. Part 1 then defined three key factors affecting solids separation performance as:

- Mixed liquor (ML) settleability
- Secondary clarifier performance efficiency
- Secondary clarifier loadings

This article (Part 2 of the series) focuses on the first of these factors, optimizing ML settleability through operational control. Part 3 will continue this topic, focusing on facility configurations and modifications that can help optimize ML settleability.

ML Settleability – What Are We Talking About Here?
When we’re talking about ML settleability, we’re talking about how quickly the bulk of the ML solids settle, whether in a beaker or in a clarifier. Obviously the faster the solids will settle, the more flow we can put through a clarifier. Think of it this way – the forward flow (not counting return sludge flow) put into a clarifier has to travel up and over the clarifier weirs, and this upward flow will tend to carry with it anything that settles at a slower rate than the upward flow. To prevent such carryover of solids, we want to produce ML solids that settle at a higher rate than the upflow rate (often termed the surface overflow rate, or SOR, which can be calculated by dividing the forward flow rate through the clarifier by the clarifier’s surface area) for any given flow condition. Looking at it a different way, if we don’t want our ML solids to flow up and over the clarifier weir, we have to limit the amount of forward flow put into the clarifier to keep the overflow rate lower than the settling rate. Hence, better settleability, which means higher settling rates, will allow for higher clarifier flow rates.

There are a number of tests to measure this settleability characteristic, including the 30 minute settling volume, initial settling velocity (ISV), the sludge volume index...
(SVI) and the stirred sludge volume index (SSVI). The most common measure of settleability is the SVI, which measures the volume that is taken up by one liter of mixed liquor solids after 30 minutes of quiescent (not stirred) settling time, divided by the ML suspended solids (MLSS) concentration as measured in units of grams (not milligrams) per liter (remember that 1,000 milligrams = 1 gram).

So, for example, let’s say we have a MLSS concentration of 3,500 mg/L (3.5 g/L). We pour one liter of the ML into a graduated cylinder, and after 30 minutes of settling time the solids have settled to a volume of 420 mL, with 580 mL clear liquid above the solids. The SVI can then be calculated as:

\[
SVI = \frac{30 \text{ minute settling volume (mL/L)}}{\text{MLSS concentration (g/L)}}
\]

\[
SVI = \frac{420 \text{ mL/L}}{3.5 \text{ g/L}} = 120 \text{ mL/g}
\]

(Note that in the above equation, the units of mL/L and g/L simplify to mL/g, as the 1/L in the numerator and denominator cancel each other out.)

The following table provides some relative guidance in terms of characterizing ML settleability in terms of SVI values:

<table>
<thead>
<tr>
<th>SVI Range (mL/g)</th>
<th>Settleability Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 150</td>
<td>Poor</td>
</tr>
<tr>
<td>125-150</td>
<td>Fair</td>
</tr>
<tr>
<td>100-125</td>
<td>Good</td>
</tr>
<tr>
<td>65-100</td>
<td>Very Good</td>
</tr>
<tr>
<td>&lt; 65</td>
<td>“Too Good”</td>
</tr>
</tbody>
</table>

Please note that these are approximate ranges and may vary by +/- 10 mL/g on the low end (better settleability range) to +/- 25 mL/g on the high end.

What Should Be Your Settleability Goal?
You might think that the lower the SVI, the better, as that would mean faster settling ML and higher clarifier flow rates. However, you can have too much of a good thing, as can be seen in the table. If your SVI gets too low, the bulk of the solids drop will “like a rock” (relatively speaking). Unfortunately, this won’t hold true for all of the solids, though. The result will often be a lot of fine, dispersed solids that don’t settle, but rather remain suspended in the clear liquid (supernatant) above the settled sludge layer (whether in the settleometer or in the clarifier). This is what is commonly referred to as “pin floc”, and is an undesirable condition because these dispersed solids are often carried over the clarifier weir, and can lead to high effluent TSS concentrations (and possibly permit violations).

So what should be your settleability goal? As the table suggests, achieving and maintaining your ML SVI in a range of about 65-125 mL/g will generally provide you with a good settling sludge as well as a high quality effluent, and should be a minimum goal. If you can stay within the range of 65-100 mL/g, so much the better – you’ll have truly optimized your ML settleability.

What Factors Affect Settleability?
There are a wide range of factors that affect ML settleability – in fact there are so many factors that they aren’t (and perhaps never will be) fully...
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understood (although universities and others continue to research and develop better understanding of them all the time). However, there are some factors that are commonly considered keys to understanding and controlling settleability.

*Filamentous Organisms.* Filaments are the most common factor associated with poor settling ML. If too many filaments are present (a condition often termed “bulking” or “filamentous bulking”), they bridge between floc particles. This can create two negative effects:

- The extension of the filaments in the clear liquid act as a “brake” on how quickly the flocs can settle through the clear liquid – more surface area means more friction and drag, resulting in slower settling.
- The extension of the filaments between floc particles act as a “bridge” between flocs, which prevents settled flocs from concentrating together and compacting. The result is a thinner settled sludge blanket, leading to less concentrated return sludge that will require higher pumping rates to remove from the clarifiers.

So, is your goal to get rid of all filaments? The answer is no – because filaments are important to good settling flocs as they provide structural strength to the flocs. Without such strength, the activated sludge flocs tend to be very weak and fragile, and are easily sheared into smaller particles. These smaller particles will have a lower settling rate than the larger flocs they were once part of, leading to lots of fine, dispersed solids in the supernatant and clarifier effluent – the pin floc phenomena noted above.

The figure below attempts to illustrate the “love-hate” relationship we have with filaments. As can be seen, there is a balance between having filaments, too many and settling deteriorates, too few and flocs deteriorate (leading to pin floc). The challenge is getting the right amount of filaments to provide good settling, strong flocs.

As with many things the old saying, “Filaments…can’t live with ‘em, can’t live without ‘em” applies in our goal of optimizing ML settleability.

*Slime Bulking.* Much less common than filaments, but still problematic at least occasionally at a number of facilities, is another “bulking” condition termed “slime bulking”. This is a condition that usually occurs when there is not enough of a needed nutrient (phosphorus is a common example) for the microorganisms to grow and reproduce as they break
down and feed on the organic matter present in the wastewater. This happens roughly as follows:

- Microorganism absorbs some organic matter with the goal to oxidize and metabolize it for energy and to grow more cells.
- As microorganism breaks down the organic matter, it absorbs other nutrients (dissolved oxygen, nitrogen, phosphorus, micro-nutrients) as needed from the mixed liquor environment for energy and to build new cell material (new cells are generally 12% nitrogen and about 1-2% phosphorus).
- As microorganism tries to build new cells, it runs out of a needed nutrient and its ability to grow new cell material shuts down. Now it has internally stored organic material that it can’t do anything with – so it excretes this matter as exocellular (i.e., outside cell wall) polymer, causing a slime layer on the cell wall.

When this occurs in bulk, the mixed liquor flocs end up with a slimy appearance and characteristic that causes a number of problems, including hindered settleability due to charge differences that prevent the flocs from compacting and settling together. This condition will continue until the nutrient limitation is corrected.

How Can We Optimize Settleability Through Operational Controls?
As with many aspects of wastewater treatment, there are both operational controls and facility modifications that can help us control and optimize settleability. The focus here will be on operational controls that can be used. The next article in this series will focus on facility configuration and tank modifications that can help as well.

The key to optimizing settleability through operational controls is practicing good and consistent process control. This is a complex and extensive topic, that is the subject of textbooks, reference book chapters, and multi-day seminars. All we can do here is suggest a few keys to keep in mind, based on proven experience at a number of facilities. These keys include:
Monitor your system. To effectively control your system, you need to understand it, and to do that, you need to monitor what’s coming into it, what’s going out of it, and how it’s performing. Such monitoring should include:

- Measuring system loadings (flow, BOD5, TSS, nitrogen, phosphorus).
- Measuring system performance (effluent quality, removal efficiencies).
- System operating conditions (MLSS and MLVSS concentrations, dissolved oxygen concentration in the aeration basins, clarifier blankets, RAS pumping rates, SVI, sludge age & sludge wasting rates, system loading in terms of F:M ratio).
- Periodic microscopic examination of the mixed liquor to determine the relative abundance of filaments and higher organisms (such as stalked ciliates, rotifers, free swimming ciliates, flagellates, amoeba) – note that changes in the relative abundance of these organisms usually indicates something is changing that you should be aware of.

This is just a brief listing of things to monitor. The key is to monitor your system consistently, and to think about what you’re seeing (in other words, don’t just collect the data, but look at it too!). Make historical notes on how the system is performing – such information can be invaluable when troubleshooting problems that may occur in the future, and as training or historical guidelines for new operators. And also, think about how the system is performing, and key in on the operational conditions it performs best at.

Control your system. Be proactive in controlling your system, particularly with regard to its population dynamics. The best way to do this is through controlling to achieve a target sludge age or solids retention time (SRT). SRT based control is performed by calculating the mass of ML in your system, and dividing it by your target SRT to determine the mass of solids to waste from your system each day. Then waste those solids each day, consistently. A couple key considerations with regard to sludge wasting:

- Regular wasting (every day) is preferable to occasional wasting (such as once per week). To achieve a stable system you need to treat it as
close to the same every day you can, and regular daily wasting helps to accomplish that.

- The target SRT depends on your permit limits and treatment goals, and usually changes with the seasons. For example, if you have effluent ammonia limits, and need to nitrify, your target SRT may be 6-8 days in the summer, but may have to be increased to 10-12 days (or higher) in the winter, depending on how cold your wastewater gets. A key thing to keep in mind here is that it’s important to make your seasonal change before the season actually kicks in.

- Higher SRTs often produce higher levels of treatment, less waste sludge, and more stable systems, but can sometimes have negative effects as well. If you go too high in SRT you may end up eliminating all filaments, resulting in very low SVIs but lots of pin floc. You might also end up with lots of filaments – there are high sludge age filaments that are resilient against selectors and other configurations. Once again – you can have too much of a good thing.

- Make gradual changes, rather than drastic changes, to your target SRT and the amount of solids you waste from the system. General rules of thumb commonly practiced are to change things no more than 10% per day and no more than 25% overall per week. If you change things drastically, your system risks becoming upset with a resulting deterioration in performance, and may take a long time to recover. (Related to this, consider that if you aren’t staffing the plant on weekends, then you should slightly adjust the mass to waste each day of the weekday to waste those weekend solids, rather than doing it all when you return on Monday – again – gradual change is better.)

Note that there are many plants that control their system based on maintaining a target MLSS concentration. That can work just as well as SRT control, providing loadings to the system are relatively constant. However, if loadings are changing, then you may have to make adjustments in the target MLSS concentration to account for such changes.

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When Problems Occur, Take Action. If you’re having problems with poor settleability, there are a number of actions you can take:

• First off, determine the extent of the problem by looking at the mixed liquor in the microscope. Determine whether it’s a problem due to filaments or slime bulking. If necessary, get an expert involved. There are a number of technical experts who you can send a ML sample to and who will identify the organisms causing the problem, and also give you some ideas as to why they are there and how to correct the problem.

• Secondly, look at your loading information and other operational monitoring information to determine if you have a nutrient deficiency, or whether something else has changed that may be causing the problem.

• Thirdly, particularly in the case of filamentous bulking, you can take action through “selective killing” of organisms. This is most commonly accomplished through careful addition of chlorine to the return sludge in dosages sufficient to affect filaments, but not high enough to affect most of the other organisms (chlorine will affect all organisms – this practice involves adding enough chlorine to contact it with the filaments and their higher surface area per organism, but at low enough doses to protect most of the other, smaller organisms). There are good references on this practice – you’ve got to be careful on dosage and chlorine addition point. See your consultant or WDNR Area Engineer for guidance if you feel the need to go this route.

• Polymer addition has also been suggested for some conditions. However, this practice is still developing and isn’t yet well understood, and should be implemented with caution.

This has just been a brief overview of key considerations with regard to ML settleability, and to operational practices to help control it. The next installment in this series will continue this discussion, focusing on facility modifications to help improve and optimize settleability. Please stay tuned.

We first met Rod Peterson when we began serving as co-counsel to MEG-Wastewater in 1998. Rod was immediately friendly and helpful. Early on, he invited us for a tour of the Barron facility. We were treated to a complete tour that ranged from the facility lagoon operations to the lab to a ride in his truck to see the spray irrigation fields. Rod’s pride in the resourcefulness of the Barron wastewater staff was very clear that day.

Since those first days, Rod remained an active MEG member. He attended all the Steering Committee meetings. MEG was fortunate to have Rod at the table because he often brought important insights and historical perspectives and seemed always to bring passion for the interests of those in municipal wastewater. We will miss those contributions and Rod’s friendly smile.

The following information was inadvertently omitted from the front cover story on the Red Cliff Wastewater Treatment Facility.

**Design Engineer**  
Short Elliott  
Hendrickson Inc.  
Chippewa Falls, WI

**General Contractor**  
KBK Services Inc.

**Funding Sources**  
USDA Rural Development  
US Economic Development Administration  
US Indian Health Services

**Tribal Council (Past & Present)**  
Tribal Chair – Raymond DePerry

**Tribal Council**  
William Basina  
Charles Bresette  
James Deragon  
Myrtle Gordon  
Carolyn Gouge  
Michael LaGrew  
Dennis Soulier

**Rod Peterson – MEG Memories**  
*By Paul Kent & Amy Tutwiler*

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Don’t be surprised if you see golfers that likely have been in the following situations.

A golfer set up his ball on the first tee, took a mighty swing and hit his ball into a clump of trees. He found his ball and saw an opening between two trees he thought he could hit through. Taking out his 3-wood, he took another mighty swing; the ball hit a tree, bounced back, hit him in the forehead and killed him. As he approached the gates of Heaven, St. Peter saw him coming and asked "Are you a good golfer, to which the man replied: "Got here in two, didn't I?"

The bride came down the aisle and when she reached the altar, the groom was standing there with his golf bag and clubs at his side. She said: "What are your golf clubs doing here?" He looked her right in the eye and said, "This isn't going to take all day, is it?"

An octogenarian, who was an avid golfer, moved to a new town and joined the local Country Club. He went to the Club for the first time to play, but was told that there wasn't anybody he could play with because they were already out on the course. He repeated several times that he really wanted to play today. Finally, the assistant Pro said he would play with him and asked him how many strokes he wanted for a bet. The 80-year-old said, "I really don't need any strokes as I have been playing quite well. The only real problem I have is getting out of sand traps." And he did play well. Coming to the par four 18th, they were all even. The Pro had a nice drive and was able to get on the green and two-putt for a par. The old man had a nice drive, but his approach shot landed in a sand trap next to the green. Playing from the bunker he hit a high ball, which landed on the green and rolled into the cup. Birdie, match and all the money! The Pro walked over to the sand trap where his opponent was still standing in the trap. He said: "Nice shot, but I thought you said you have a problem getting out of sand traps?" Replied the octogenarian, "I do, would you please give me a hand?"

A woman goes to the local newspaper office to see that the obituary for her recently deceased husband is published. The editor informs her that there is a charge of 50 cents per word. She pauses, reflects, and then she says, "Well then, let it read,

"Fred Brown died." Amused at the woman's thrift, the editor tells her that there is a seven-word minimum for all obituaries. She thinks it over and in a few seconds says, "In that case, let it read,

"Fred Brown died: golf clubs for sale."

A 75-year-old woman went to the doctor for a check up. The doctor told her she needed more cardiovascular activity and recommended that she engage in sexual activity three times a week. A bit embarrassed, she said to the doctor, "Please tell my husband." The doctor went out into the waiting room and told the husband that his wife needed sex three times a week. The 78-year-old husband replied, "Which days?" The doctor answered, "Monday, Tuesday, and Friday would be ideal." The husband said, "I can bring her on Monday, but on Tuesdays and Friday I golf, so she'll have to take the bus."
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Executive Secretary, Richard D. McKee (608) 753-9362 Email: rdmckee@charter.net
Clarifier Editor, Dan Busch (920) 438-1101 Email: dbusch@gbmsd.org

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<td>H - 4 3/4&quot;, W - 7 1/2&quot;</td>
<td>$145</td>
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<td>H - 4 3/4&quot;, W - 3 1/2&quot;</td>
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<td>H - 2 3/8&quot;, W - 3 1/2&quot;</td>
<td>$60</td>
<td>$55</td>
<td>$50</td>
<td>$45</td>
<td>$40</td>
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</table>

1. Prices in advertising rates are based on camera-ready copy or prepared layout with camera-ready logo and/or artwork reduced to size.
2. Layouts of copy should be in black and white only: no colored inks.
3. Reduced rate is based on the same copy being used for each consecutive issue. Each change of copy will result in higher charges, according to the number of issues in which change copy is used.
4. Agencies are entitled to one copy of an issue regardless of the number of advertisements placed by the agency in the publication.
5. Agency commissions are not deductible from advertising rates.
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2004 - 2005 OFFICIAL DIRECTORY

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