38th Annual W.W.O.A. Conference
October 26-29, 2004
Wisconsin Dells and Kalahari Resort Headquarters

HOST:
Reedsburg Wastewater Treatment Plant
President’s Message

Congratulations to Tim Nennig, Tom Kruzick, Pete Conine, Kay Marshall, and Jim Schreiber, our newly elected President Elect, Vice President, and Directors. I look forward to having their ideas and energy on the Board of Directors team! Additionally, congratulations to my friend and Past President Dale Neis, for a well run tenure as President. I continue to hold his ideas and opinions in high regard.

The 37th Annual Conference at the Kalahari in Wisconsin Dells turned out to be spectacular. A record setting 950 (+/-) attendees, a marvelous new conference venue, and an excellent technical program all contributed to making it a huge success. My sincere appreciation and gratitude to Tim Nennig for a wonderful technical program. Until you walk the walk, you will never know the time, energy, loss of sleep, and stress that goes into being in charge of the technical program. Tom Kruzick, I’m sure you will do a wonderful job also.

A little update for the WWOA members. After most of you had checked out of your hotel rooms, said good-bye to those you know, and started reminiscing about the 37th Annual Conference, the Board of Directors (BOD) was already looking into the 38th Annual Conference. Late Friday morning the BOD had a meeting to look at the activities and accommodations of the previous week with the Kalahari staff. I have been attending the Annual Conference for years, and have heard a multitude of complaints ranging from food service, to accommodations, to cost, to just about the whole spectrum of conference activities. The most common complaint this year… couldn't find all the hospitality suites! If I could guarantee the same complaint every year, life would be so simple!

The BOD considered what was offered at the 2004 venue; Holiday Inn, Stevens Point. With all due respect to the people of Stevens Point, and the people that operate the Holiday Inn itself, we where concerned about the ability of the Holiday Inn, Stevens Point to meet the needs of our membership.

Since the end of the conference in Wisconsin Dells, the BOD, Executive Committee of the BOD, and the Permanent Arrangements Committee have made an agreement with the Holiday Inn, Stevens Point to allow us to hold the 38th Conference elsewhere. As a result, the BOD has entered a contract with the Kalahari Resort, to be the venue for the 38th Annual WWOA Conference in 2004. The conference will undoubtedly be bigger and better than in 2003.

We plan to provide a mass mailing to the membership of housing forms for the 2004 conference. To date we have asked the Housing Authority in Stevens Point to hold all the inquiries for housing until we had this figured out. Not to worry, accommodations will be plentiful at the Kalahari! We will not run into the problem of not having room at the Kalahari in 2004. Please pay close attention to the housing form when you receive it.

I find it an unbelievable honor to be President of such a great organization. The people that make up this organization and profession are among the most humble that I know. We have the ability to get the job done with whatever meager resources we are given with little, if any recognition for what we do. We do not get the opportunity to stay home on snowy days, take the day off because business is slow, or just not meet our permit limits because we didn't feel like it. It is hard for us to look someone in the eye and say, "join our profession, become a licensed operator, the conditions, recognition, and pay scale are second to none." Yet, as you look at the median age of our profession, we are setting ourselves up for a huge shortage of operators in the not too distant future. I know first hand the availability of operators to fill vacancies. We are at a point now where most available licensed operators are just creating a void in another community.

So I challenge each and every one of you with this….promote this industry. We need to make our communities know the importance of clean water, and the people that provide that service to them. We need to generate a renewed interest in this profession to meet the current demand and future demand for licensed operators. Moreover, we need to stay informed, educated, and dedicated to providing clean water for the communities we live in.
As Wastewater professionals, we need to constantly remind each other and ourselves that we do matter. We do provide one of the greatest services to the citizens we serve. There is only a limited supply of fresh water on the surface of the earth. Without us, that supply will diminish.

Stay proud, keep your chin up, and enjoy the day!

President Randy Herwig

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2004 GOVERNMENT AFFAIRS SEMINAR
February 26, 2004
Madison, WI

The Government Affairs Seminar will be held on Thursday, February 26, 2004 at the Marriott Madison West. The proposed Government Affairs Seminar program includes topics addressing NR 149 - Lab Certification, chloride and mercury issues, biosolids, fecal coliform and beach closings, sanitary sewer overflows, water reuse, treatment plant security, ammonia issues, and the traditional DNR update. Seminar notices will be mailed early in January 2004.

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Persistence Pays

When the funding agencies told the Johnsburg Sanitary District they were ineligible for assistance, Foth & Van Dyke knew something was up. Real-life and the data were out of sync. With Foth & Van Dyke’s help and persistence, accurate financial data was developed and the District obtained funding assistance for a much-needed wastewater system. Call Foth & Van Dyke when you need a partner who knows that persistence pays.

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Johnsburg Sanitary District President Franz Schmitz (right) with Foth & Van Dyke Project Manager Steve Marman

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EPA O & M Award
Village of Almond WWTP

The Village of Almond wastewater treatment plant was recently recognized by the U.S. Environmental Protection Agency (EPA) as the best in the region in its category of small, nondischarging facilities. The plant was recognized "for its outstanding efforts in pollutant removal, lowering costs and reducing user fees and for its outstanding system maintenance program," an EPA announcement said. The award Almond won covers EPA Region 5, which includes six Great Lakes states: Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin.
David H. Stotenberg, environmental engineer for the EPA, presented the award to Village officials on Wednesday, Sept. 24, at the American Legion Hall in Almond. In a letter to Dan Folan, maintenance supervisor for Almond, Jo Lyn Traub, director of the EPA Water Division, and Thomas V. Skinner, EPA regional administrator, said "We appreciate the initiative you have taken to demonstrate environmental stewardship, while optimizing the efficiency of your plant operation and maintenance." Stoltenberg said the EPA has presented only 190 awards nationwide since 1979 to recognize professionals dedicated to clean water, so the award shows strong evidence of what the community does.

Almond's wastewater treatment plant is a nondischarging facility, which means the treated water isn't discharged into a creek or river because there isn't one near the village. The purification of the water is done naturally and then the water is discharged onto land, in Almond's case a wooded area. The plant operates a spray irrigation system on a seasonal basis during summer months. During the rest of the year, wastewater is stored in a series of three lagoons on the northwestern edge of the village to purify it. The lagoon system was originally constructed 1960-61, with the collection system rebuilt in the 1970s and then rebuilt again in 1995 by Gremmer and Ohm, a former Plover engineering firm.

Unlike almost all other municipalities, Village of Almond residents have seen their costs for wastewater treatment drop in succeeding years. Once the 1995 rebuild was completed, the cost was $61.43 per quarter, then it dropped to $55 and now it's down to $47. Each residence in the village has its own well so there are no water utility costs.

Joe Behlen, Wisconsin Rapids, Department of Natural Resources wastewater engineer who works with the facility, said much of the credit belongs to plant operator Folan who has, "learned to use the resources they have around them to the best of their ability. Dan is a very conscientious operator. He's very concerned about the village of Almond and trying to keep down costs. He's done a good job of maintaining the system and maintaining the different spray zones in the woods." Behlen explained the wastewater plant operates with a spray irrigation discharge in a forested area which, while unusual, is especially effective. Because of outstanding maintenance and careful operation, the facility is able to meet wastewater discharge limits while sufficiently reducing operating costs so prices for customers have either stayed the same or been reduced.

"He (Folan) has come up with creative ways to operate the spray irrigation system," Behlen said. The system has a simple design, but similar systems have trouble meeting ground water requirements. By spraying the water in the wooded area, the discharge isn't showing any impact on ground water. "If anything, it may be diluting or thinning out nitrates in the ground water," he said, adding that the water can't be pumped onto neighboring fields because they are used for crops such as corn, bean and potatoes. Behlen also complimented Folan and the Village as one of the few places where the costs for the treatment system have been holding their own or even going down for residents. "They have very civic-minded people there," he said. The system, which serves 460 people, collects wastewater through a pumping station on the southwest edge of the village and then pumps it to the lagoons for the treatment process. The system stabilizes wastes in the lagoons where natural microbes in the environment break down the waste along with the sunlight, as the waste is stored for up to 180 days.

The primary lagoon and the secondary lagoon hold 8 million gallons of liquid, while the holding pond holds 7,600,000 gallons. In the last year, the pump station pumped 9,585,750 gallons of liquid, with a total of 14,229,100 gallons pumped out of the pond. The additional liquid comes from rain and snow. Samples from the pond are taken to the College of Natural Resources at the University of Wisconsin-Stevens Point for testing.

(Editor' Note: The above feature story is largely derived from an article by Gene Kemmeter that appeared in The Portage County Gazette. Portions have been reprinted with permission.)
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ALMOND WWTP
EPA REGION V 2003 OPERATIONS and MAINTENANCE AWARD
SMALL, NONDISCHARGING FACILITIES CATEGORY

(L to R) Tom Jerow-DNR Basin Leader, Ken Trzebiatowski-Village President,
David H. Stoltenberg-USEPA, Dan Folan-Treatment Plant Operator, Joe Behlen-DNR Basin Engineer

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Wouldn't it be nice if a primary service electric bill was as simple as subtracting the beginning electric meter reading from the ending reading to obtain the electricity consumed during the billing period? An electric bill would be simply:

\[
\text{Total kilowatt-hours} \times \text{Cost per kilowatt-hour} = \text{Total electrical cost}
\]

Unfortunately, things are not that simple. As with other billing plans, there are additional charges for a facilities charge, non-taxable customer charge, fuel adjustment, and transmission surcharge. Also provided is information comparing the heating degree-days, average temperature, and electrical consumption in the last year-to-date billing period.

In a nutshell, what is primary rate electric service?...A primary service customer receives a better rate for electricity, but in exchange must accept responsibility for on-site equipment and meet a minimum demand of 300 kilowatts. This means if electrical demand falls below 300 kilowatts, they will still be charged at that minimum rate. They can receive a credit to lessen loads during periods of very high electrical demand by either completely disconnecting power (interruptible service), or shedding part of their load by shutting down equipment (curtailable service). Some interruptible and curtailable service customers run on-site generators to either take up part of the load, or the entire load. There are terms and conditions that must be met to receive this credit.

Metered electric usage for primary service is billed in two different ways-by consumption and by demand. Consumption is the volume or total amount of energy used and would be analogous to an automobile's odometer reading. To calculate the total mileage taken on a trip, simply subtract the beginning mileage from the ending mileage to get the total trip mileage. Just as a car's odometer provides the total mileage, a kilowatt meter totals the electrical consumption.

Primary service electric consumption is separated into on-peak and off-peak hours. Customers have an on-peak choice of either 8:00am to 8:00pm or 10:00am to 10:00pm, Monday through Friday, excluding weekends and holidays. The energy consumed during on-peak hours is charged at a higher rate to offset the extra costs associated with covering the demand and to encourage usage at off-peak hours.

Demand is the rate or speed of energy usage and would be analogous to an automobile's speedometer reading. If someone traveled at a rate of 100 miles per hour (mph) then after one hour they would have traveled 100 miles. They could also travel that same total distance by driving at a rate of 150 mph for 30 minutes and reducing their speed to 50 mph for another 30 minutes. Just as speed is the rate at which a car travels, demand is the rate at which electricity is consumed.

There are two types of demand charges. On-peak demand is the highest rate at which electricity is used during the on-peak period and within the billing month. Customer demand is the highest rate of electrical usage in the past 12 months, no matter if it was on-peak or off-peak hours. Charges for demand are not meant to be a penalty, but a deterrent to limit electrical demand during peak usage hours. This charge is justified because it takes extra generating capacity to meet this peak demand, which is only used for short periods.

To keep track of demand charges, a primary service electric meter not only records total electrical consumption, but also records the rate of electrical usage. It does this by averaging the electrical usage for each 15-minute period. This average rate is then recorded for billing purposes.

To sum up electric charges discussed thus far:

1. **Consumption - total electric usage in kilowatt-hours**
   - On-peak consumption - Total electricity used during on-peak hours. Billed at a higher rate.
   - Off-peak consumption - Total electricity used during off-peak hours. Billed at a lower rate.

2. **Demand - rate of electric usage in kilowatts**
   - On-peak demand - The billing months highest rate of electrical usage during on-peak hours.
   - Customer demand - The highest rate of electrical usage for the past 12 months, on or off-peak.

It would be nice if each of the metered components above could just be charged out and the bill totaled. Unfortunately, a primary service electric bill is not that simple. Each metered component has to be billed for energy usage, fuel adjustment, and transmission. But, before electrical charges are discussed, let's take a look at a simplified WeEnergies service statement to find all the components that make up the bill, and show with the aid of graphs when each occurred. (Primary service customers may have access to the data and graphs that will follow.)
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Total Consumption - On-Peak and Off-Peak

The graph below displays the rate of electrical usage for each day of the billing period, May 8 through June 7, 2003 (Graph 1). It can be seen how electrical usage changed during the day, mainly due to plant flows. To figure the total consumption in kilowatt-hours, first average the usage by eyeballing the amount on the graph—about 925kW. This average taken times 24 hours per day and times 30 days in the billing cycle equals 666,000 kWh. This is close to the total consumption of 652,800 kWh given on the bill above. From this total consumption, the on-peak and off-peak usage is billed separately (see billing statement above).

We Energies Billing Statement

Energy Efficiency WWTP
480 Electric Avenue
Cost-effectiveness, WI 24900

On Peak Period 8am to 8pm

Electric Service Detail for 05/08/03 to 06/07/03 (30 Days)

Electricity Used

<table>
<thead>
<tr>
<th>Meter Number</th>
<th>XXXXXXXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Reading on 06/07/03</td>
<td>12739</td>
</tr>
<tr>
<td>Actual Reading on 05/08/03</td>
<td>12467</td>
</tr>
<tr>
<td>Difference</td>
<td>272</td>
</tr>
<tr>
<td>Meter Multiplier</td>
<td>2400</td>
</tr>
<tr>
<td>Total Consumption</td>
<td>652,800 kWh</td>
</tr>
<tr>
<td>Total On-Peak Consumption</td>
<td>232,556 kWh</td>
</tr>
<tr>
<td>Total Off-Peak Consumption</td>
<td>420,244 kWh</td>
</tr>
<tr>
<td>Actual On-Peak Demand (05/19/03 @ 09:45)</td>
<td>1,017.500 kW</td>
</tr>
<tr>
<td>Actual Off-Peak Demand (05/21/03 @ 20:45)</td>
<td>1,046.300 kW</td>
</tr>
<tr>
<td>Actual Reactive Demand (05/19/03 @ 09:45)</td>
<td>307.100 kvar</td>
</tr>
<tr>
<td>Current Period Power Factor</td>
<td>0.957</td>
</tr>
<tr>
<td>Billed On-Peak Demand 1,017.500 (1 - .5 (0.957 - 0.85)) = 963.1kw</td>
<td></td>
</tr>
<tr>
<td>Customer Demand 08/08/02 - 09/10/02</td>
<td>1,450.000 kW</td>
</tr>
</tbody>
</table>

Total Consumption - On-Peak and Off-Peak

On-Peak Demand

On-peak demand charges are different in they represent the rate at which electricity is used during peak demand hours. From the bill, the actual on-peak demand was on May 19, 2003 @ 09:45 hours. A graph of electrical usage for the day shows this peak (Graph 2).
The lower line represents the rate in Kilowatts and the upper line is a graph of kilovolt-Amps Reactive (KVAR). KVARs is the metered value placed on the bill to calculate power factor.

Graph 2 - On-Peak Demand

As stated above, the reactive demand is the metered reading that is in turn used to calculate the power factor. The power factor is given on the line that states "Current Period Power Factor" on the electric bill (provided on the previous page). It is used along with the "Actual On-Peak Demand" value on May 19, 2003 @ 09:45 hours to calculate the "Billed On-Peak Demand." This calculation is shown on the bill (previous page) with the line stating "Billed On-Peak Demand." The formula that follows calculates a credit for a power factor greater than 0.85 or a charge if the power factor is less then 0.85. This calculated value is used for on-peak demand billing charges.

Customer Demand

The last line on the electric service detail is Customer Demand. This is the highest demand incurred in the previous 12 months no matter the hours it occurred, on-peak or off. The May bill provides only the billing cycle in which the value was metered. It was further researched and found that on August 12, 2002 was the day of the peak. This was the night of heavy rains and area flooding. The graph below clearly shows the peak demand @ 20:00 hours (Graph 3). Note the valleys on either side of this peak. These were due to two short intermediate power failures. The blowers at this facility (which consume approximately one-third of the electricity) have delays for start-up after power failures. The starting delays caused the valleys in the 15-minute average recorded rate.

Graph 3 - Customer Demand

Also on the bill is an "Actual Off-Peak Demand" which occurred on May 21, 2003 @ 20:45 hours. It is recorded for customer demand billing purposes. With Customer Demand being the highest of either the on-peak or off-peak demands for the last 12 months, it is possible that in a billing month the on-peak or off-peak demand could become the customer demand. And, if that demand level is not exceeded for 12 months, it will be charged at that demand for the next 12 months.
Computing Electrical Charges

The second part of a primary service electric statement is the billing charges. Below is a copy of this portion of a WeEnergies bill and shows how charges are calculated.

Note: For many charges there is a >12,479 and <138,000. This indicates the charges for the electric service are being provided at a level over 12,479 kilovolts and under 138,000 kilovolts. Different rates apply to service provided at other voltage levels.

### Current Electricity Charges

<table>
<thead>
<tr>
<th>Description</th>
<th>30 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Primary Service, CP1</td>
<td>$1,102.00</td>
</tr>
<tr>
<td>Customer Demand Charge, &gt; 12,479 and &lt; 138,000 (1,450.00 kW x $0.760000/kW)</td>
<td>$1,102.00</td>
</tr>
<tr>
<td>On-Peak Demand Charge, &gt; 12,479 and &lt; 138,000 (963.100 kW x $8.360000/kW)</td>
<td>$8,051.52</td>
</tr>
<tr>
<td>Facilities Charge</td>
<td>$525.00</td>
</tr>
<tr>
<td>Non-taxable Customer Charge</td>
<td>$110.00</td>
</tr>
<tr>
<td>On-Peak Energy Charge, &gt; 12,479 and &lt; 138,000 (232,556 kWh x $0.033100/kWh)</td>
<td>$7,697.60</td>
</tr>
<tr>
<td>Off-Peak Energy Charge, &gt; 12,479 and &lt; 138,000 (420,244 kWh x $0.020600/kWh)</td>
<td>$8,657.03</td>
</tr>
<tr>
<td>Fuel Cost Adjustment - On Peak (232,556 kWh x $0.008370/kWh)</td>
<td>$1,946.49</td>
</tr>
<tr>
<td>Fuel Cost Adjustment - Off Peak (420,244 kWh x $0.000440/kWh)</td>
<td>$184.91</td>
</tr>
<tr>
<td>Fuel Cost Adjustment - Demand (963.100 kW x $0.340000/kW)</td>
<td>$327.45</td>
</tr>
<tr>
<td>Transmission Surcharges - On Peak (232,556 kWh x $0.001700/kWh)</td>
<td>$395.34</td>
</tr>
<tr>
<td>Transmission Surcharges - Off Peak (420,244 kWh x $0.000270/kWh)</td>
<td>$113.47</td>
</tr>
<tr>
<td>Transmission Surcharges - Demand (963.100 kW x $0.440000/kWh)</td>
<td>$423.76</td>
</tr>
</tbody>
</table>

**Total electricity Charges** $29,534.57

**Contrary to popular belief, your constituents don’t always want to see their tax dollars at work.**

**Constituents are fickle.** They want the best public works as long as it doesn’t inconvenience them. Which is why the city of Elmhurst voted for Insituform’s 30 years of trenchless technology experience to repair its sewer lines. While digging and replacing sewer lines can take weeks, we had service back up and running before residents got home from work the same day. No disruptions. No property restoration. No angry phone calls. And best of all, our speed and experience meant that Elmhurst’s entire repair efforts were completed on schedule and within budget. To see how we can save tax dollars and headaches for your city, call us at 800-234-2992 or visit our website at www.insituform.com. Because only our experience shows™.
Re-Organizing A We Energies Billing Statement

Though the current electricity charge portion of a WeEnergie's billing statement may look confusing, it is rather simple (see "Current Electricity Charges" text box on the previous page). The charges can be divided into 3 main categories:

1. Consumption Charges  
2. Demand Charges  
3. Fixed Charges

These charge categories can be found on the table below.

The charges for each category can be organized into 3 subgroups:

1. Cost for consumption or demand,  
2. Fuel Adjustment,  
3. Transmission Surcharge

These are placed on the respective rows for consumption and demand.

### Primary Customer Billing

<table>
<thead>
<tr>
<th>Consumption Charges kWh</th>
<th>On-Peak Consumption 232,556 kWh</th>
<th>x (On-Peak Energy Charge + On-Peak Fuel Adjustment + On-Peak Transmission) = $10,039.44</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Off-Peak Consumption 422,244 kWh</td>
<td>x (Off-Peak Energy Charge + Off-Peak Fuel Adjustment + Off-Peak Transmission) = $8,955.40</td>
</tr>
<tr>
<td></td>
<td>Adjusted Billed On-Peak Demand 963.01 kW</td>
<td>x (Billed On-Peak Demand Charge + Billed On-Peak Fuel Adjustment + Billed On-Peak Transmission) = $8,802.73</td>
</tr>
<tr>
<td></td>
<td>Customer Demand Charges 1,450.00 kW</td>
<td>x (Demand Charge Rate) = $1,102.00</td>
</tr>
<tr>
<td></td>
<td>Facility Charge</td>
<td>$525.00</td>
</tr>
<tr>
<td></td>
<td>Non-Taxable Customer Charge</td>
<td>$110.00</td>
</tr>
<tr>
<td><strong>Total Charges</strong></td>
<td></td>
<td>$29,534.57</td>
</tr>
</tbody>
</table>

### Billed On-Peak Adjustment for Power Factor

Actual On-Peak Demand x Credit or charge for power factor

\[ 1,017.500 \text{ kW} \times \left[ 1 - 0.5 (0.957 - 0.85) \right] = 963.10 \text{ kW} \]

1. Rate based on the billing month’s highest on-peak rate and adjusted for power factor. See formula above.
2. Rate based on rolling 12-month highest rate, no matter if the hours are on-peak or off-peak.

The table below totals all charges for energy, fuel adjustments, and transmission surcharge into one total charge. This simplifies charges for the facility.

<table>
<thead>
<tr>
<th>Billed Amounts</th>
<th>Charge</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Peak Consumption 232,556 kWh</td>
<td>x $0.04317/kWh</td>
<td>= $10,039.44</td>
</tr>
<tr>
<td>Off-Peak Consumption 422,244 kWh</td>
<td>x $0.02131/kWh</td>
<td>= $8,955.40</td>
</tr>
<tr>
<td>Adj. On-Peak Demand 963.01 kW</td>
<td>x $9.14/kW</td>
<td>= $8,802.73</td>
</tr>
<tr>
<td>Customer Demand 1,450.00 kW</td>
<td>x $0.76/kW</td>
<td>= $1,102.00</td>
</tr>
<tr>
<td>Facility Charge</td>
<td>= $525.00</td>
<td></td>
</tr>
<tr>
<td>Non-Taxable Customer Charge</td>
<td>= $110.00</td>
<td></td>
</tr>
<tr>
<td><strong>Total Charge</strong></td>
<td>= $29,534.57</td>
<td></td>
</tr>
</tbody>
</table>
What does this information tell us?

It can be estimated how much the storm on August 12, 2002 cost in electrical energy. (See Graph 3 - Customer demand.)

If the storm had not occurred that month's bill would have been calculated using the next highest 15-minute peak value (or put another way, the next lower peak value). The additional demand charges incurred can be calculated using the difference between the actual demand peak and the next highest peak value. For ease in the calculations, an estimated peak value of 1,200 kW will be used, which is a close estimate of what the next highest peak might have been. The calculations will be on the difference between the actual value of 1,450 kW and the estimated next highest value of 1,200 kW. This will reflect the additional charges due to the storm.

Demand peak 1,450 kW
Next highest 15 min. peak 1,200 kW
Difference 250 kW - The additional demand due to the storm.

Additional charges due to the storm can be calculated as follows:
On-Peak Demand charges for the month would be:
250 kW x $9.14 = $2,285.00
Customer Demand charges for the year would be:
250 kW x $0.76/kWh x 12 months per year = $2,280.00
The total additional cost paid for this peak 15-minute demand $4,565.00

In comparison, the additional consumption charges for the rain event were much lower. By eyeball integrating the peak consumption from the peak consumption graph, it looks as if 300 extra kilowatts of electricity were used over an 8-hour period. Even though most of the electrical consumption occurred during off-peak hours, the on-peak consumption rates will be used to calculate the total extra consumption charges due to the rain event:

300 kW x 8 hours x $0.04317/kWh = $103.61

This is only 2.2% of the total additional electrical costs incurred due to the storm. Also note, that if the storm would have occurred during off-peak hours, there would not have been any additional On-Peak Demand charges, saving $2,285.00. Customer Demand charges still would have applied, but over a period of 12 months.

What is the price difference between running five, 20Hp sludge mixers during the 12 hours designated

On-Peak vs. 12 hours Off-Peak? (The calculations will assume the mixer motors are 100% efficient.)

First, convert the five, 20 Hp mixers into wattage. There are 746 Watts per Hp.

5 mixers x 20 Hp x 746 W/ Hp = 74.6 kW
This is the rate at which electricity is used by the mixers.
1,000 Watts/Kilowatt

For the 12 hours of On-peak usage, 4 charges contribute to the monthly cost. It is realistic to assume the mixers will contribute 74.6 kW to the total on-peak demand and 74.6 kW to the customer demand, because they will be part of the peak demands. It is also assumed that there are 4 weekends in the 30-day billing cycle. These are added to the total cost of running the mixers because they will be running during the on-peak 12 hours, though they are billed as off-peak on weekends.

On-Peak Demand 74.6 kW x $9.14/kW = $681.84
Customer Demand 74.6 kW x $0.76/kWh = $56.70
Off-peak Weekend Consumption 74.6 kW x 12 hrs x $0.02131/kWh x 8 days = $152.61
On-Peak Consumption 74.6 kW x 12 hrs x $0.04317/kWh x 22 days = $850.21
Total for On-Peak hours $1,741.36/month

In summary, the total cost for running the five mixers is $1,741.36. This is a large increase compared to the $103.61 for the rain event. Additionally, the additional cost of running the mixers during the on-peak hours is $1,588.75, which is more than the total cost of running the mixers during the off-peak hours.

What is the price difference between running five, 20Hp sludge mixers during the 12 hours designated
Off-Peak Consumption: 74.6 kW x 12 hrs x $0.02131/kWh x 30 days = $572.30/month

Summarizing the mixer scenario, it costs 3 times as much to run the mixers at peak hours vs. off-peak.

\[
\frac{1,741.36}{572.30} = 3.0
\]

This example is not intended to imply that mixers in aeration selector bays, digesters, or sludge storage tanks should be shut down during peak hours. If equipment is needed for plant operations, then an operator doesn’t have a choice. But, it may be possible to look into more efficient mixers, or more mixers that will do a better job and not have to run as often. The savings in electrical costs might pay for the upgraded equipment.

Though customer demand can occur during on-peak or off-peak hours, this example assumes the likely scenario that it will occur during on-peak hours.

**Summary**

This article examined how electrical charges are calculated. The examples given show that demand charges can be costly. However, saving on demand charges can be demanding in itself. During a heavy rainstorm, should operators focus their attention on saving electricity, or should they get lift stations back on-line before basements flood? If a peak demand has already occurred, shutting off equipment will only save on consumption charges—which will probably be minimal (unless yet another peak demand is set). Shuting off process equipment could also end up upsetting plant operations. Decisions to save on peak demand have to be made before they happen and many times this is simply impossible.

The purpose of this article is to gain awareness and to gain an advantage over electrical charges. If an operator knows that a demand will be brief, run a gas engine driven blower or electrical generator during those hours.

Think twice about when that second blower is put on-line for 30 minutes to blow out the aeration diffusers (a cleaning process known as bumping). If employees begin at 7:00am and on-peak billing hours start at 8:00am, bump the diffusers first thing in the morning. The mixer example on the previous page demonstrates why this is so important. If running an extra blower on a weekly or monthly schedule causes a peak demand, it’s best to cause a customer demand charge.
which is billed at 79 cents/kW rather than an on-peak demand which is billed at $9.14/kW (May, 2003 rates).

Backwashing filters at night not only saves on electrical consumption from the backwash equipment, but additional savings will be incurred as the backwash recycle flows are pumped through the plant during off-peak hours.

Below are a few additional electrical savings suggestions for wastewater facilities given at a We-Energies seminar:

- Thicken sludge to anaerobic digesters as much as possible to avoid heating water
- Use anaerobic digester gas for heat
- Exercise emergency generators at peak hours
- Turn off mixers in digesters at peak hours
- Bleed high strength waste during off-peak hours e.g., septage, plant recycle flows, filter backwash, decant from digesters, having industry bleed waste at night
- Keep aerobic digester head low
- Keep aerator diffusers clean for better oxygen transfer efficiency
- Keep aerobic digester aerators off as long as possible during peak times
- Use floating covers on anaerobic digesters to store gas for later use
- Hauled in high strength waste can be pumped directly to digesters
- Clean digesters and aeration basins for maximum treatment space
- Shut off blowers at peak flow during short term rain events. This can not only lower the peak demand, but conserve solids preventing solids washout
- Some facilities may see savings by adding power factor correction devices or upgrade pump variable frequency drives
- Use of mechanical seals vs. packing in pumps

As an operator of a wastewater facility, you must know when suggestions are practical for your application. For example, keeping aerobic digester head low will decrease the pressure on the air header causing the motor to draw fewer amps (less load) therefore, saving on electrical costs. Unfortunately, there are disadvantages to lowering the head. It will lower the oxygen transfer efficiency and cause less aeration time to breakdown the solids. With less digestion, there is more sludge to haul. In this example, energy savings could cause more over all operating costs. Yet, in some plants this may work for their particular operation.

Most of the practical electrical savings come from replacing equipment (especially poorly sized equipment), or switching to usage during off-peak hours. Additional savings on demand charges will follow. Operators have to control energy usage and not allow energy usage to control them.

Special thanks to We-Energies Customer Manager, Ron Pugh and We-Energies Service Manager for the western area; Patrick S. Kwiatkowski for their aid in putting this article together.

- For more information on primary service billing, or on how to acquire the usage information and the graphs provided in this article from the Internet, contact your We-Energies service manager.
- For more information on billing options or questions for Industrial-Commercial service call: 1-800-714-7777
- For more information on billing options or questions for residential service call: 1-800-242-9137
- For assistance in lowering your primary service energy bill, contact Focus on Energy at: 1-800-762-7077

Would you like to share an energy savings idea from your facility? Have questions on billing? Go to the WWOA web site (wwoa.org) and click on "Discussion Forum," then "Plant Process Related Discussions," next add your idea or question to the "Electrical Savings Tips" forum.

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In Your Corner ....

AMMONIA RULES ADOPTED IN OCTOBER

Background
At its meeting on October 22, 2003, the Natural Resources Board adopted the proposed ammonia water quality rules. The proposed rules have now been sent to the Legislature for consideration of final adoption. MEG was a member of the Advisory Committee that developed the approach generally reflected in the rules. The proposed rules are based on federal ammonia water quality criteria and customize the application of those criteria to Wisconsin. The criteria are based on classification of the receiving water and vary with stream temperature and pH conditions.

In July, MEG submitted written comments on the proposed rules. The highlights of those comments and the Department’s response to the comments are summarized below.

Financial Impacts
MEG expressed concern about the financial impacts the ammonia rules will have on some communities. In the Fiscal Estimate on these rules, the Department recognized there will be an impact to communities with lagoon and stabilization pond systems. That impact cannot be overstated, particularly because the rules disproportionately affect smaller communities. These smaller communities currently use lagoon systems as an affordable option for wastewater treatment. While operational changes and retrofits may work for some systems, there will still be municipalities faced with having to entirely replace their wastewater treatment system.

The fiscal impacts of this rule were a significant point of discussion at the Natural Resources Board Meeting in October. We reminded the Board of the fiscal impacts of the rules and the need for continued monitoring of the rules’ effects on lagoon system communities. Our timing on that issue was very good because one of the Board Members expressed strong concern about the impacts on smaller, particularly rural communities. Picking up on that concern, we outlined for Board Members the numerous regulatory requirements that are recent or on the horizon and the need for additional funding to support municipalities. Notably, there were quite a few nods of agreement the cumulative impacts of additional regulatory requirements. MEG has been discussing this issue with Department staff informally and will be looking for opportunities to address the issue in the near future.

Lagoon Variance
In response to concern about fiscal impacts, the Department agreed to development of an expedited variance process to be applied to lagoon systems for the community’s first permit term after the rule adoption. MEG worked with the Department to develop that process. The Department staff was very responsive to MEG’s concerns about the details of that

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process. For instance, at our request, they developed specific criteria that will be applied in evaluating whether to deny an initial or continuing variance request. Responding to another concern raised by MEG and others, the Department also developed criteria to be applied in evaluating future variance requests made on the grounds of social and economic hardship.

Schedule Constraints
MEG opposed the provisions in the proposed rule that limit the compliance schedule period to three years unless circumstances beyond the permittee's control require more time. Under current practice, compliance schedules are issued in the WPDES permit and are negotiated by DNR staff. Responding to MEG's concern, the Department eliminated the three-year deadline for compliance and replaced it with criteria to be used in setting a schedule.

Including Conditional Limits in Reissued Permits
We worked with DNR staff to address those dischargers whose limits were going to decrease under these rules but whose permits were to be reissued before the rules were adopted. In those cases, DNR agreed to include the anticipated limits in the new permit with a statement to the effect that the limits become effective when adopted. This approach saves the step of modifying the permit.

Nonpoint Integration
MEG had worked with DNR staff through the committee process to consider options for integrating nonpoint contributions into the limits imposed on point source discharges. Unfortunately, there were number of legal obstacles that undermined that effort. We made clear in MEG's comments and testimony at the Natural Resources Board that there continues to be a need to integrate nonpoint contributions into the regulation of point source discharges to give point source dischargers relief from costly standards that sometimes have no meaningful effect on improving water quality because of continuing nonpoint pollution. The legal limitations that prevented nonpoint integration need to be addressed so that point source discharges do not continue to face increasingly stringent and costly limits while nonpoint pollution continues to be inadequately regulated.

If you would like additional information on the proposed ammonia rules, please feel free to contact us. The rules and supporting documents are available on the DNR website at http://www.dnr.state.wi.us/org/water/wm/wqs/ammonia/index.html.

The Municipal Environmental Group is comprised of over 80 POTWs throughout the state that have banded together to advocate for POTW interests before the DNR and the Legislature. For more information about MEG membership or ammonia regulations, please contact MEG Wastewater legal counsel, Paul G. Kent or Amy Tutwiler at (608) 246-8500 or pkent@andersonkent.com or attutwiler@andersonkent.com.
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## MUNICIPAL ENVIRONMENTAL GROUP - WASTEWATER DIVISION
### LEGISLATION AND REGULATION TRACKING TABLE

### PENDING LEGISLATION

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>NUMBER</th>
<th>IMPACT ON IMPACT OF BILL ON WASTEWATER FACILITIES</th>
<th>STATUS</th>
<th>MEG POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charter Towns</td>
<td>AB 136</td>
<td>Gives &quot;urban towns&quot; greater powers. Prevents municipalities from acquiring land in towns without town approval. This could impact the ability to site utility facilities and place utility lines in towns.</td>
<td>No action pending</td>
<td>Oppose</td>
</tr>
<tr>
<td>Septage</td>
<td>AB 154</td>
<td>Prevents municipalities from refusing septage without prior DNR approval</td>
<td>Hearing on 10/2; no further activity scheduled</td>
<td>Oppose</td>
</tr>
<tr>
<td>Environmental Management Systems (EMS)</td>
<td>AB 228</td>
<td>Establishes &quot;environmental results program&quot; under two tiers, designed to provide incentive for improving environmental performance for public and private entities. Under either tier the DNR assigns a single contact person for all facility permits. To enroll an entity must submit an EMS and conduct an annual audit. If a violation is disclosed, the entity must submit a compliance schedule, and if completed it precludes state enforcement.</td>
<td>Passed Assembly and Senate Pending review by Governor</td>
<td>No position</td>
</tr>
<tr>
<td>Agency Decision Deadlines</td>
<td>AB 486</td>
<td>Establishes deadlines for certain agency permit and licensing decisions. Failure to act within specified period for wastewater permits would result in automatic approval. Failure to act within specified period for wastewater operator certifications would result in return of permit fee.</td>
<td>Passed Assembly Senate action pending</td>
<td>No position</td>
</tr>
<tr>
<td>Waterway Permit Reform</td>
<td>No number assigned</td>
<td>Reform of permit process for certain activities in and near navigable waters under Wis. Stat ch 30 such as placement of culverts, intake and outfall structures, grading and dredging. Activities subject to a wastewater facilities plan approval would be exempt from Chapter 30, other minor activities would be subject to general permits.</td>
<td>To be introduced into Senate</td>
<td>Support</td>
</tr>
<tr>
<td>Public Records</td>
<td>SB 8</td>
<td>Allows an exemption from public record review for WWTP security measures</td>
<td>Senate approved Assembly hearing held</td>
<td>No position</td>
</tr>
</tbody>
</table>

### PENDING REGULATIONS

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>NUMBER</th>
<th>IMPACT ON IMPACT OF BILL ON WASTEWATER FACILITIES</th>
<th>STATUS</th>
<th>MEG POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td>NR 104; NR 105; NR 106</td>
<td>For most communities, standards will be less stringent. Rule also has testing and variance options. Establishes new water quality standards for ammonia. Its primary adverse impact will be on lagoon systems.</td>
<td>NRB approved October; legislative review pending</td>
<td>Support subject concern over impact to lagoon system</td>
</tr>
<tr>
<td>Data Qualifiers</td>
<td>NR 148</td>
<td>New rules to standardize laboratory data reporting.</td>
<td>Advisory Committee in process</td>
<td>Support in part</td>
</tr>
<tr>
<td>Lab Certification</td>
<td>NR 149</td>
<td>New rules to add detail on lab procedures and reporting. Could create substantial additional burdens for small wastewater labs.</td>
<td>Advisory Committee in process</td>
<td>Oppose in part; support in part</td>
</tr>
<tr>
<td>PCBs in biosolids</td>
<td>NR 204; NR 214; NR 219; NR 518</td>
<td>Establishes interim rules for PCB levels in biosolids, testing requirements and pollution prevention measures. A guidance is currently in effect. EPA's decision not to regulate substances calls into question need for a rule.</td>
<td>Hearings completed NRB approval not yet scheduled</td>
<td>Oppose need for rule; support substance of rule if proposed</td>
</tr>
<tr>
<td>CMAR</td>
<td>NR 208</td>
<td>New and expanded format and web-based system for compliance monitoring and reporting requirements.</td>
<td>Undergoing internal DNR review</td>
<td>Support</td>
</tr>
<tr>
<td>SSO</td>
<td>NR 210</td>
<td>New rules governing sanitary sewer overflows from sewerage systems including collection systems, new definitions of bypass, new provisions for response to SSO events.</td>
<td>Advisory Committee in process</td>
<td>Support in part; Oppose in part</td>
</tr>
<tr>
<td>Stormwater</td>
<td>NR 216</td>
<td>Applies new federal Phase II rules to small municipal sewer systems; imposes fees and includes requirement for permits for land disturbing activities of 1 acre or more</td>
<td>Hearings completed; NRB action expected this fall</td>
<td>Support as amended</td>
</tr>
<tr>
<td>Landspreading</td>
<td>NR 243</td>
<td>Revised rules on wastewater from large scale animal feedlot operations. Will control nutrient runoff from agricultural facilities and indirectly benefit point source discharges to affected waterways.</td>
<td>Advisory Committee in process</td>
<td>Monitor</td>
</tr>
</tbody>
</table>

*For more information on any of these topics or information about the Municipal Environmental Group, please call Paul Kent and/or Amy Tutwiler at Anderson & Kent at (608) 246-8500 or e-mail Paul at pkent@andersonkent.com and Amy at tutwiler@andersonkent.com.*
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April 2004    -  March 12, 2004
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December 2004 -  November 12, 2004

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Presented by Pete Conine

2004 WWOA BOARD OF DIRECTORS

(L - R) Tim Nenning, Jim Schreiber, Jim Thalke, Kay Marshall, Randy Herwig, Dale Neis, Pete Conine, Tom Kruzick, John Bond
2003 REGIONAL OPERATOR AWARDS

Lake Michigan Region

Brian Helminger - Shawano
Presented By Bruce Bartel (R)

North Central Region

Eric Niffenegger - Stevens Point
Presented By Ken Bloom (R)

South East Region

John Wrzeszcz - Genoa City
Presented By Kerry Gloss (R)

Southern Region

Eugene Doro - Baraboo
Presented By Skip Poster (R)

West Central Region

Gary Sweeney - Durand
Presented By John Bond (L)
## 2003/2004 Committee Chairs

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As part of its Year of Clean Water celebration, EPA will highlight its drinking water security efforts in November and December. The agency has developed new materials on the topic for a range of different audiences.

"The security of our nation's more than 170,000 public water utilities and 16,000 wastewater treatment plants requires not only the involvement of government officials, but of all Americans," EPA noted in a statement. The new materials include:

"Water Watchers, We Are All in This Together": A brochure for residents that describes how they may help local authorities protect the water utilities in their communities.

"Water Security and You": A drop-in article for local news media that describes examples of suspicious activity around drinking water and wastewater structures and equipment or water resources.

"Drinking Water Security, Report Suspicious Activities": Four fliers for display in local municipal, recreational and commercial buildings to encourage citizens to watch out for and report suspicious activity around water resources, water structures and equipment.

"Healthcare Provider Preparedness for Acts of Water Terrorism": A flier describing a new Web site for resources to better recognize and diagnose waterborne illnesses related to water terrorism.

"Water Security Progress and Resources": Four-page flier highlighting the achievements and ongoing projects of the water security program and its partners.

"Top Ten List: Water Supply Emergency Preparedness and Security for Law Enforcement": Flier for display in local municipal facilities to help coordination between law enforcement, the water supply industry and public health officials.

"Top Ten List": Visor card version of the above flier available to EPA Regions.

"WaterISAC": Four-page flier for drinking water and wastewater utility managers that describes the Web-based Water Information Sharing and Analysis Center, a secure information system that shares up-to-date information between the intelligence community and the water sector.

Downloadable versions of these materials and links for ordering hard copies can be found at www.epa.gov/safewater/security/flyers.

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The City of Brookfield is seeking candidates for the position of Industrial Pretreatment/Process Supervisor. This position will be principally responsible for Brookfield's Industrial Pretreatment Program. Must have experience with permit writing, industrial inspections, sampling, laboratory analysis; and code enforcement and wastewater treatment plant operations. Successful applicants should possess a Bachelor's degree in chemistry, biology, environmental health and safety, or related field. Wisconsin wastewater operator advanced certification or ability to attain within 1 year of appointment required. Equivalent combinations of training and experience may also be considered. Salary range $48,073.84-$66,341.90 DOQ with excellent fringe benefits. Application materials may be obtained from the Human Resources Dept. and returned by December 31, 2003, this deadline may be extended to meet the needs of the City.

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Sham Anderson  
Municipal Sales  
Wisconsin  
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The planning committee has been diligently working on the 22nd Annual Spring Biosolids symposium, and has another informative day in store.

Al Rubin, US EPA returns to the podium to update participants on current and future regulatory issues on the national scene. Bill Toffey, Philadelphia Water Department, joins us to discuss the national perception to land application issues and concerns. The ever popular Greg Kester shares what's new at the DNR. The morning session is rounded out by a presentation on the status of several restrictive local ordinances around the country, and useful tools that communities adopting EMS's have identified.

After lunch Art Peterson returns to enliven the panel question and answer session. Other afternoon sessions include presentations on soils mapping and characteristics, loading rate calculations and recordkeeping and a case study presented by Sandy Begalke, of Ken's Septic, documenting their efforts to get a septage storage location approved. The day closes out with Dick Wolkowski updating participants on UW Extension resources available to them.

The symposium will again be held at the Stevens Point Holiday Inn. Mark the date on your calendars, Tuesday, March 16, 2004. Look for the final program and registration form in the mail in January.

**Agenda**

7:15  Registration Opens  
8:15  Welcome - Rich Boden  
8:25  EPA Update - Al Rubin, EPA  
9:15  Public Perception and Concerns-A National Perspective - Bill Toffey  
10:00  Break  

**Moderator: Jay Kemp**

10:15  DNR Update - Greg Kester, WDNR  
10:50  Local Ordinances and Issues around the Nation - Alvin Thomas, Synagro  
11:35  Environmental Management Systems (EMS) - Lessons Learned and Future Directions - Jessica Garrett, Appleton Wastewater Utility  
12:00  Lunch  

**Moderator: Art Peterson**

12:50  Morning Panel Question and Answer Session  

**Moderator: Greg Kester**

1:30  Soils Mapping - Dave Roberts  
2:00  Site Loading Management - Randy Goldman, Synagro  
2:15  Break  

**Moderator: Jim Thalke**

2:30  Septage Storage Site Approval, A Case Study -Sandy Begalke, Ken's Septic  
3:00  UW Extension Update - Dick Wolkowski, UWEX  
3:00  Closing Remarks - Rich Boden  
3:35  Adjourn
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President Neis called the meeting to order at 12:35 PM on October 23, 2003. All Officers and Directors were present. Approximately 250 attendees were present.

President Neis asked for a moment of silence for all the members who have passed away in the past year.

Pete Albers made a motion to dispense with the reading of the minutes from the October 10, 2002 Annual Business Meeting and to approve the minutes as written. John Fales seconded the motion. Motion carried.

Executive Secretary distributed copies of the Financial Report. McKee reported the revenue for this fiscal year ending August 31, 2003 is $139,042.82. Expenditures totaling $152,116.89, with excess expenditures over revenues of $14,074.07. A motion was made by John Leonhard to approve the Financial Report as presented. LaMont Albers seconded the motion. Motion carried.

NOMINATIONS - ELECTION OF OFFICERS

Nominations Chairperson, Judy Tholen, reviewed nominations and election procedures. President Neis appointed LaMont Albers, Pete Albers, Jim Krueger, Leo Templeton, Roger Sherman, Rich Boden, Wally Thom, Dean Falkner and Dan Busch as ballot clerks. Judy Tholen was appointed recorder.

The Nominations Chairperson, Judy Tholen, announced our new President for 2003-2004 is Randy Herwig. Judy Tholen placed into nomination the name of Tim Nennig for the office of President-Elect. President Neis called three times for nominations from the floor. There being none, John Leonhard made a motion the nominations be closed and a unanimous ballot be cast electing Tim Nennig to the office of President-Elect. Jim Krueger seconded the motion. Motion carried.

The Nominations Chairperson, Judy Tholen, placed into the nomination the name of Tom Kruzick for the office of Vice President. President Neis called three times for nominations from the floor. There being none, John Leonhard made a
motion the nominations be closed and a unanimous ballot be cast electing Tom Kruzick to the office of Vice President. Paul Lange seconded the motion. Motion carried.

**ELECTION BOARD OF DIRECTORS - 3**

Nominations Chairperson, Judy Tholen, informed the membership there are three, two-year Directorships to be filled. Judy Tholen stated she has two incumbents, Kay Marshall and Pete Conine. President Neis asked for nominations from the floor. Gary Hanson nominated Jim Schreiber for Director. President Neis asked for any more nominations from the floor three times. Dean Falkner made a motion to close the nominations for the three Directorships and a unanimous vote be cast electing Kay Marshall, Pete Conine and Jim Schreiber to the positions of Directors. LaMont Albers seconded the motion. Motion carried. President Neis congratulated Kay Marshall, Pete Conine and Jim Schreiber.

President informed the membership the Board of Directors is recommending to the membership, two Honorary Memberships be granted to Leo Templeton and Vern Handrick. Dean Falkner made a motion to grant an honorary membership to Leo Templeton. Lamont seconded the motion. Motion carried. A unanimous hand vote was taken to grant Leo Templeton an Honorary Membership.

John Leonhard made a motion to grant Vern Handrick an Honorary Membership. LaMont Albers seconded the motion. Motion carried. A unanimous hand vote was taken to grant Vern Handrick an Honorary Membership.

President Neis commented these would be the 3rd and 4th individuals to be awarded an Honorary Membership of WWOA.

**COMMITTEE REPORTS**

**PROMOTIONS** - John Bond encouraged everyone to stop at promotions and check out all the merchandise and to let him know if you have any new ideas for merchandise.

**MEMBERSHIP** - Pete Conine reported we have a total of 1962 members, which includes the lifetime members and retirees.

**TUITION AID** - Pete Conine explained to the membership the advantages of tuition aid program. There are six $150.00 packages available to the membership each year. This year Ron Altmann was awarded a tuition aid package.

**SCHOLARSHIP** - Pete Conine informed the membership each year the WWOA offers two scholarship awards, one is a 4-year $1000.00 scholarship and the second is a $500.00 scholarship. This year we are awarding one $1000.00 scholarship.
scholarship. Michael MacKinnon from Plymouth will receive the $1000.00 scholarship. Mr. MacKinnon is pursuing a degree in civil engineering at the University of Wisconsin Platteville.

CLARIFIER: Dan Busch introduced the CLARIFIER staff, Jeff Haack from the WDNR in Green Bay and Jean Van Sistine from Green Bay MSD. Dan Busch urged the regions to submit their meeting minutes and articles to be published in the CLARIFIER.

President Neis thanked the CLARIFIER staff and Green Bay MSD for all the work they do with the CLARIFIER.

OPERATOR TRAINING: Tom Kruzick informed the membership the Committee provided two different courses in 3 different areas. On June 12 Sussex hosted the Troubleshooting Motors and Controls Seminar. In conjunction with UW-Madison Department of Soil Science offered a one-day entitled, Soil Management Considerations for Wastewater Treatment Plant Operators located in Oshkosh and Chippewa Falls.

Tom Kruzick urged the membership to fill out the evaluation sheets and let the committee know what kind of training seminars they want next year and locations.

GOVERNMENT AFFAIRS: Randy Herwig explained to the membership since January 2002 the NR 149 RAC has been working on re-writing the Lab Certification code, meeting every six weeks to accomplish this. The committee has one more scheduled meeting for November 20, 2003 to complete the RAC initial input to this effort. The code has been dissected and re-assembled to reflect a more enforceable code. The overall impact of the code will not be much different from the previous one, hopefully easier to understand. After the code has been sent to the DNR Board for review, there will be a public comment period before adoption.

Randy Herwig stated there are Lab Certification Staff available here at the Conference to answer any questions that they can.

TECHNICAL PROGRAM: Tim Nennig thanked the membership for making the Conference such a huge success. We have 929 attendees this year. Tim thanked the Technical Program Committee and the moderators and speakers for all their help. He also thanked Gil Hantzsch and staff from MSA Professional Services, Kim Wollner and staff from Christmas Mountain, Jerry Bizjak from Becher-Hoppe Associates, Troy Larson from Strand Associates, Amy Kistner and Gary Hanson from Earth Tech. He thanked John Leonhard for the WWOA banner, the Exhibit Committee, and the Manufacturers & Consultants Committee.

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Look us up at the KALAHARI in October at "The W.W.O.A. Annual Conference"
The guy who can answer those hard questions: The what, when, where, how & why to feed chemicals.
WEBSITE - Tim Nennig introduced the Website Committee to the membership, Dan Busch, Chris Helgestad, Rich Boden, Ron Altmann and our Web Master Scott Thompson. The committee has done an outstanding job this past year.

OPERATOR COMPETITION - Jim Thalke commented we had seven teams competing this year.

HISTORICAL COMMITTEE - Tom Asmus commented the Committee is in the process of trying to categorize all the old pictures and information of WWOA.

CAREER DEVELOPMENT COMMITTEE - Kay Marshall thanked the Committee for all the tremendous amount of work that has been done to promote our industry.

Jim Krueger made a motion to accept the Committee reports as presented. Joe Morrissey seconded the motion. Motion carried.

NEW BUSINESS

President Neis presented Steven Woodman from the City of Beloit and Jason Ellis from the City of Oshkosh with certificates of participation for the Tricks of the Trade.

There being no further business LaMont Albers made a motion to adjourn. Dean Falkner seconded the motion. Motion carried. The meeting adjourned at 1:10 PM on October 23, 2003.

Respectfully submitted,

Richard D. McKee
Executive Secretary

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<td>2006 Conference - October 3-6, Kalahari Resort, Wisconsin Dells, WI</td>
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<td>2007 Conference - October 22-25, La Crosse Civic Center &amp; Radisson Hotel, La Crosse, WI</td>
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Aeration & Mixing

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E-Mail: info@mulcallyshaw.com

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A meeting of the WWOA's Southeast Region was held on August 7, 2003 hosted by the Town Of Bristol Wastewater Treatment Plant. The meeting was held at the stylish and spacious Bristol Oaks Country Club with 100 individuals attending.

The Southeast Region extends appreciation to the Town Of Bristol Wastewater Treatment Plant; in particular Public Works Director Randy Kerkman and his staff. Randy's staff includes: Joe Panek, Mark Niederer, Steve Kempf, Mike Hole, Ron Fieberkorn, and Joe Kozak. Special notes of thanks to Clint Kerkman and Tyler Cronin for assistance with the corn roast and park preparation.

The picturesque morning began with roundtable discussions in four categories; Collection System, Safety, Activated Sludge and Laboratory. Special thanks to the moderators Kerry Gloss Hap Pigsley, Gary Hansen and John Condron! A delicious complete breakfast was served during these discussions.

Bristol Town Chairman Rich Gossling gave an enlightening opening welcome message that included how the first settlers formed Bristol and the scenic town's progression over the years.

PPG Industries started the first technical presentation. Greg Crowley assisted by Scott Betcher gave a very comprehensive presentation on "Introducing Tablet Chlorination". Town Of Bristol was included in the information presented. Jack Saltes DNR, assisted by Pat Sullivan DNR, were the next speakers on deck and gave a plethora of information concerning "webCMAR: Section Revisions & Timelines". They helped to inform the attendees on the upcoming changes to the Compliance Maintenance Annual Report.

Throughout the day a raffle was held on WWOA merchandise and various vendor items generously donated. Special thanks to vendors for their continued support of the organization!

Hap Pigsley from Platt Safety Service commanded the audience with his interactive discussion on "Confined Space Entry". He gave an eye opening presentation on the seriousness of safety issues in the wastewater industry. Peg O'Donnell DNR followed with a brief and informative presentation on the upcoming changes in the Operator Certification Program.
The SE Region held their traditional business meeting and elections. Kerry Gloss, Kenosha Water Utility was elected as Vice-Chairperson and Kathy Kamin, William/Reid Ltd. was re-elected as Secretary.

The final presenter was Strand's Randy Wirtz presenting a complete visual presentation on "Introduction To the Bristol Wastewater Treatment Plant". Followed by, meeting attendees touring the Town Of Bristol's WWTP and Well No. 1. It was apparent from the walk through that the staff at the Bristol WWTP has done an outstanding job maintaining and operating their 0.5 MGD facility and Well No. 1.

After the meeting ended, all departed to Hansen Park, with the sun shining warmly, for the delightful 4th Annual pig and corn roast in Bristol. The operators enjoyed a delicious meal as they conversed with each other.

The SE Region wishes to thank the following vendors for their generous donations to keep this meeting costs down; Adaptor Inc, Ruekert & Mielke, William/Reid LTD, LLC, Eaglebrook, Inc Strand Associates and Baxter - Woodman. With their continued involvement and support, the SE Region can continue to offer affordable regional meeting opportunities for all operators. On behalf of the SE Region - THANK YOU!

Future Regional Meetings

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<td>August</td>
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<td>2005</td>
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<td>August</td>
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<td>2006</td>
<td>Joint w/Lake Michigan, Saukville</td>
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<td>May</td>
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<td>Open</td>
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<tr>
<td>August</td>
<td>2007</td>
<td>8th Annual Corn &amp; Pig Roast, Germantown</td>
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With the holiday season upon us, it's a time of good food, good cheer and festive times. Many of us indulge a little more than we should and gain a few pounds only to regret the added waistline come January. So we place a more healthy, low-calorie, low-fat, lose-some-weight diet on our New Years resolutions list.

So what does all this talk of food have to do with your treatment plant, you ask? Well, you know that in order to have merry bugs in your plant they need to be fed, not too much...not too little....but just right. And that's where the Food to Microorganism ratio (F:M) comes in. The amount of available food (lb.) to the total microbial mass (lb.) in the aeration basins is known as F:M ratio. MOP-11 has this to say about the maintenance of proper food levels: "To have an activated sludge process operate effectively, a biological sludge of good physical quality must be maintained, that is it must flocculate and settle well. The microorganisms will perform best when they are fed the right amount of food. If they are overfed or underfed, they will not function properly, resulting in some condition that will make plant operation difficult". So let's not make activated sludge life difficult on our bug friends...on ourselves.

A regular daily, consistent diet of food applies to us too. Each of us, at a given weight and activity level, requires a certain caloric intake each day to maintain a healthy weight and life through a consistent nutritional and energy source....food! Imagine how we would feel if one day we get very little to eat (a few slices of cheese), the next day too much to eat (2 pizzas), the following day way too much to eat (a turkey, mashed potatoes and gravy) followed by very little to eat (a slice of toast, no butter of course!) You wouldn't be feeling very well, rest assured., by the end of the week. Well, it's the same way with your bugs....they like a steady and consistent diet to be healthy and merry.

Carrying too many solids (MLVSS) in your aeration basins for the amount of food coming into the basins will result in your bugs feeling starved (low F:M ratio) while too few solids for the amount of food entering the plant (lets say you have a higher strength influent) will result in your bugs...
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feeling bloated (high F:M ratio). Pass the Pepto-Bismol please! Intermittent slug loads of high strength BOD wastewater during the week isn't healthy living either. How would you like to have to eat 20 Big Macs at one sitting?

You get the idea. Maintaining an ideal F:M ratio in your plant is one of the key process control parameters for optimizing your activated sludge process. This method of process control is known as process control by maintenance of a constant F:M ratio. The formula used for calculating F:M ratio is simply \( F \div M \), where:

\[
F (\text{lb.}) = \frac{\text{(Influent BOD in mg/l) x (Influent flow in MGD) x 8.34}}{M (\text{lb.}) = \frac{\text{(MLVSS in mg/l) x (Aeration Basin Volume in MG) x 8.34}}}
\]

For conventional activated sludge plants, an F:M ratio of 0.2 - 0.5 is desirable while for extended aeration plants such as oxidation ditches, package plants, etc., F:M ratios should be maintained between 0.05 and 0.15 and no lower than 0.03. Lower than that and you risk filaments and settling problems.

So while you cannot strictly control the food (BOD) coming into your plant you can control the solids level (MLSS) through wasting. By wasting regularly and operating at the best MLSS and F:M ratio for your plant, you ensure a well-balanced daily diet for healthy and happy bugs. So eat, drink and be merry….your bugs too! Happy Holidays.

### 2003 Operators Competition

This year the Operators Competition became more popular with seven teams from five regions. Lake Michigan Region and Southeastern Region supported two teams. Success came to "The La Goon Squad" who took first place with team members Frank Bonney, Pete Dombrowski, Bill Ciske, and Kevin Skogman. The second place winners were "The Wizards of Wiz" with team members Dan Waala, Tom Tetzalaff, Kathy Lavbinger and Bruce Rabe.

You could tell that all teams knew their way around the operations of a Wastewater facility. The scoring was so close this year that only 33.81 points separated first place from seventh place (339.41 to 305.6). All seven teams can be very proud.

A special thank you to the following judges, suppliers and participants who made the 2003 Operators Competition, held at the Kalahari Resort, a big success with a record setting seven-team field.
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The meeting was called to order at 4:11 p.m. Regional Coordinator Kay Marshall welcomed those in attendance and introductions were made. The attendees were asked for their current e-mail addresses. In attendance were: Dale Neis, Jim Thalke, John Bond, Roy LaViolette, Bruce Bartel, Kathy Kamin, Kerry Gloss, Rich Boden, Ken Bloom, Randy Herwig, Skip Poster, Tom Kruzick, Greg Engeset, Deb Gamble, Timothy A. Nennig, Craig Walkey, and Dan Busch.

PRESENTATION OF REGIONAL REPORTS: The following people submitted regional reports that included highlights, financial statements, membership information, new officers, future meeting sites, and future goals:

A. Roy LaViolette - Lake Michigan District
B. Ken Bloom - North Central District
C. Craig Walkey - Northwest District
D. Kerry Gloss - Southeast District
E. Skip Poster - Southern District
F. Deb Gamble - West Central District

Highlights, news, and concerns of the regions included:

- Good attendance at the 2003 Regional meetings.
- North Central District explained their new Steering Committee.
- All districts discussed their member vs. non-member attendance numbers.
- The districts all discussed the difference in attendance fees for member vs. non-members, and it was encouraged to seek a greater difference between the two to encourage membership.

REGIONAL ISSUES: Marshall presented the following items for discussion to the Regional Officers:

- A copy of the Regional Officer's guidebook will be sent to each Region and a copy may be put on the WWOA Web Site.
- The Regions were encouraged to communicate by e-mail and web site about future meetings, etc.
- Regions are encouraged to use e-mail in lieu of sending the meeting notifications through the US Postal System to save money. Lake Michigan District is already doing this and has saved quite a bit in postage fees.

- The Historical Committee needs pictures from the Regions for their display board and for the Web Site.
- The individual Regions may make their own decisions as to any other awards, presentations, cash donations, or other Regional activity they may want to pursue. They need to be awarded at the Regional meetings, however, and not at the Annual Conference.
- The new Regional Officers may want to meet with the outgoing Regional Officers in order to gain information on their duties for the following year.

CLARIFIER: Dan Busch encouraged the use of pictures, meeting notes and any other articles to be submitted to the Clarifier by the Regions.

WEB SITE: Tim Nennig talked about the new sections of the WWOA Web Site, and encouraged the Regions to use this as a tool to announce meeting dates and locations. He also would like them to send photos, meeting minutes, award winner announcements, and any other information that they feel appropriate.

PROMOTIONS: John Bond said that they have a large selection of promotional items for sale this year and suggested that promotional items make great door prizes for Regional Meetings.

MEMBERSHIP: Pete Conine announced that WWOA has set a new record with 1,962 members.

OTHER BUSINESS: It was announced that there would be seven teams competing in the Operator's Competition, a new record.

There being no other business to discuss, Skip Poster made the motion to adjourn. Kathy Kamin seconded the motion. Motion carried. Marshall adjourned the meeting at 5:21 p.m.

Respectfully submitted,

Kay Marshall
Regional Coordinator
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Winter Storage of Gas Chlorinators and SO2 Feeders—at Wastewater Plants

When chemical feed equipment is stored for the winter, different brands require different procedures. The most important thing to remember when storing chemical feed equipment for the winter is to keep it located in a room where the temperature stays as constant as possible and to prevent moist air from entering the equipment through the fittings and vents. A dry room with an even temperature is the ideal storage condition. Before a unit is stored, check that all components are working properly. Make sure the rate ball and tube are clean and that the rate adjustment does not stick. Inspect all equipment for cracks or excess corrosion. If plastic is discolored, that is a sign of fatigue and the part is likely to develop a crack soon and should be replaced. Fall is also a good time to make sure the unit is thoroughly cleaned. Best cleaning agents for PVC parts is warm, soapy water followed by an alcohol rinse. Dry completely. Overhaul as necessary replacing sticky valves, o-rings, and gaskets etc., Refer to owner's manual for maintenance and repair instructions.

Vacuum regulators:
Seal all openings with a tubing loop connecting the two fittings (the vent and ejector supply). Another way to seal the openings is to use plugs. You can store a vacuum regulator on the cylinder or off. Regal ™ Model 210, Superior ™ Model CL1 Advance™ Model 200, 400, Ecometrics™ Model 2000, 4000, or W & T ™ Model 210 C or D can be winterized either way.

Option 1: On-cylinder storage:
Store the chemical feeder directly on the gas tank with the valve shut off.

Option 2: Off-Cylinder storage:
Remove the chemical feeder from the gas tank and seal the inlet valve with a block of wood and a piece of gasket material.

With wall vented chlorinators and SO2 feeder such as Superior's Model CL-16 and Regal's Model 216 you can use either option for the inlet valve and there is only one fitting that needs to be sealed. The Vent unit, located on the wall also needs to be sealed.

W&T's Model V-100 has a cylinder unit, you can use either options for the inlet valve and there is only one fitting that needs to be sealed. The W&T V-100 wall unit also has the rate meter and tube along with the vent. This wall unit normally has 3 fittings that need to be sealed.

Switchover Valves:
Switchover valves can be left in place mounted on the wall. The fittings must be sealed using plugs. You will need three plugs.

Remote Meter Panels:
Make sure the rate ball and tube are clean and that the rate adjustment does not stick.. Then, seal all openings with a tubing loop connecting the two fittings (the vent and ejector supply). Another way to seal the openings is to use plugs.

Automatic Rate or Vacuum Solenoid Valves:
Seal all openings with a tubing loop connecting the two fittings (from the vacuum regulator and ejector supply). Another way to seal the openings is to use plugs.

Ejectors:
Disassemble and inspect internal parts, cleaning and replacing as necessary. Nozzle assemblies should be cleaned and replaced as needed. Sealing of an ejector is not necessary. Make sure all water has been removed and equipment is dry. All transport tubing should be plugged.
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(a golf tee works well for this or you can wrap the ends
with electrical tape).

**Plugs:**
A plug can be made by using a 6" piece of the vacuum
tubing, heat in the center using a propane torch, when
nearing melting point twist and pull apart to give you two
sealed pieces of tubing to put over fitting ends.

If chemical feed equipment is not cleaned and operational
when stored, it probably won't work in the spring.

---

**Wastewater Utility Superintendent**

The City of Port Washington is accepting applications for the
position of Wastewater Utility Superintendent. The position is
open due to retirement of the existing superintendent in May,
2004. The position is responsible for the direct supervision of
a 3.1 MGD Wastewater Treatment Facility, 4 employees, 6 lift
stations and the sanitary sewer collection system. The
successful candidate must hold a Grade 4 DNR general
certification in wastewater operations along with Grade 4
certification in the following subclasses: activated sludge,
phosphorus removal, mechanical sludge handling, anaerobic
digestion, disinfections, and laboratory analysis. Knowledge
of the sludge management program is also required. A
Bachelor of Science Degree in one of the following is highly
recommended: civil or environmental engineering, biology,
chemistry or an Associate Degree in water/wastewater
technology or equivalent with at least 4 years experience.
Applications will be accepted through February 6, 2004 with
the successful candidate assuming responsibility by March 29,
2004. Position salary range is $47,491 - $60,095 with
excellent benefits. Applications may be picked up at City
Hall, 100 W. Grand Ave, lower level or you can e-mail
jklumb@ci.port-washington.wi.us to request an application.
If you have any question, please call 262-284-2600. The City
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Members:

The Kalahari Resort has been chosen as the location for the 38th Annual WWOA conference. All housing, and overflow housing will be directed through the Kalahari Resort. Ample rooms have been set aside for us. Reservation forms will be available through the mass mailing that is being prepared. Reservation forms and reservations will be handled by telephone or fax only. Mailed reservation forms will not be accepted. The Kalahari’s policy is to require one nights stay be guaranteed by credit card. Municipalities do have the option of using a purchase order instead of a credit card.

The call for papers is also being sent out with the reservation forms. Submittal forms may be retrieved from the WWOA web site. (www.wwoa.org) Deadline for the technical submittals is January 9, 2004. Completed submittal forms should be sent to the Technical Committee Chair:

Thomas E. Kruzick  
Oshkosh WWTP  
233 N. Campbell Road  
Oshkosh, WI 54901-3488  
Phone 920-232-5365  
Fax 920-232-5366  
Email tkruzick@ci.oshkosh.wi.us

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Dear Fellow WWOA Member:

The WWOA Technical Program Committee is in need of your help in developing the Technical Program for our 38th Annual Conference to be held October 26-29, 2004. The Kalahari Resort and Convention center in Wisconsin Dells, WI will again be our conference site.

The Committee is encouraging all our members actively involved in the day-to-day operations of a wastewater facility to prepare and present technical papers at the Conference. The following are major subject areas that presentations may cover. Papers dealing with other topics will also receive consideration by the Committee.


Submit your outline(s) on the 2004 Conference Submittal Form (via mail or fax) by **January 9, 2004** to:

Thomas E. Kruzick
Oshkosh WWTP
233 N. Campbell Road
Oshkosh, WI 54901-3488

Phone 920-232-5365
Fax 920-232-5366
Email tkruzick@ci.oshkosh.wi.us

Please consider responding to this request or forwarding it on to someone who may be interested in participating. The strength of the WWOA is in the sharing of ideas and information. The success of this organization is dependent upon you the individual member; please consider making a difference!

Sincerely,

**Thomas E. Kruzick**
2004 Technical Program Committee Chair
38th Annual WWOA Conference 2004 Conference Submittal Form
October 26-29, 2004

Technical Presentation Subject _______________________________________________________________

Author(s) / Presenter(s) ___________________________________________________________________

Employer / Affiliation _____________________________________________________________________

Address _________________________________________________________________________________

E-mail Address ___________________________ Phone # ______________________ Fax # _______________

Author is actively involved in the day-to-day operation of a WWTP? Yes _______ No _______

Author is an active member of WWOA? Yes _______ No _______

===============================================================================================

Brief Description of Presentation (Please type or print clearly; continue on back or attach additional pages
if necessary)

Submit your outline(s) on the 2004 Conference Submittal Form (via mail or fax) by January 9, 2004 to:

Thomas E. Kruzick  Phone  920-232-5365
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