



**Wisconsin Wastewater
Operators' Association**

The Clarifier

WISCONSIN WASTEWATER OPERATORS' ASSOCIATION, INC.



Aerial view of City of Edgerton Clean Water Facility

52nd Annual W.W.O.A. Conference

October 16-19

Grand Geneva Resort, Lake Geneva

Inside This Issue...

- Presidents message / Page 3
- Welcome new members / Page 3
- City of Edgerton / Page 4
- LMD at Silver Lake SD / Page 16
- 50th WWOA business meeting / Page 18
- Classic collection seminar / Page 20
- NC steering committee minutes / Page 20
- Bounds joins Baxter & Woodman / Page 22
- Gear boxes for sale / Page 22
- BOD minutes Oct. 2017 / Page 24
- Ghylin joins B&M Technical Sales / Page 27
- Sludge volume index / Page 28
- Can it really be 10 years? / Page 30
- Hindered settling / Page 32
- Spring biosolids / Page 34

The Clarifier is the publication of the Wisconsin Wastewater Operators' Association and is intended to inform and educate the membership on issues related to the treatment and control of wastewater. The Clarifier is produced five (5) times each year: February, April, June, September, and December. All members are encouraged to contribute to the mission of the Clarifier.

The Wisconsin Wastewater Operators' Association is a non-profit organization dedicated to educating, informing, and advancing the wastewater profession. WWOA has approximately 2,000 members divided throughout six regions: Southeast, Southern, Lake Michigan, North Central, Northwest, and West Central.

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Presidents message: Having a little fun while I work

Hello Everyone,

What a beautiful day for January 2018. About 56 degrees and the sun is shining. I was so happy to hear from many of you about my Clarifier article for December. Someone does read the President's messages! Thank you to all of you



that reminded me "ice" is not a four-letter word. It seemed to fit when I wrote it. I am sure all of you were fighting the elements including the "ICE" in early January. We hear about bursting water pipes all the time, but frozen clarifiers, digesters and the rest, are insane. Thank goodness for the early January thaw to give us a few days to right the ship before it hits us again.

The Midwest Water & Wastewater Operators Expo is being held at the Kalahari, February 6 & 7, 2018. Both days are full of short tech sessions and all of our favorite vendors will be there to help you as well.

The Technical Committee is meeting February 8, 2018 to put together another great program for the 52nd Annual WWOA Conference this fall at the Grand Geneva Resort in beautiful Lake Geneva. February 22, 2018 is the Government Affairs Seminar at the Marriott West in Middleton. This is another good program with many of your peers sharing information about what they are doing to tackle the challenges put before them. As always, the DNR will be there to tell us what is going on in their world and how it will affect us. They really want to help us all.

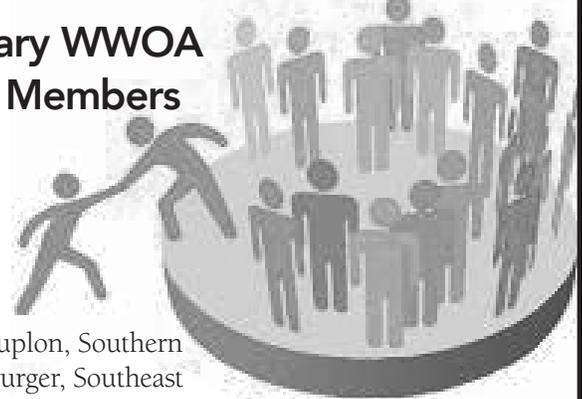
As you attend all of these educational sessions, don't forget to notice the list of committee members. There is a lot of work and hours put into developing these programs and getting it all to come together. When you see these people, give them a what's up and thank them for the work they do. Without them, the WWOA and the other organizations involved, there would be no seminars/symposiums providing you with the education and credits we all need.

I ask everyone to frequently check the WWOA website. There are many Regional Meetings on the calendar. The agendas look good and educational opportunities are plentiful. Support your local regions and wastewater treatment facilities that host the meetings. Don't be afraid to get your own feet wet. Host a meeting! It's not a lot of work, you get to show off all the special things you do everyday and you might get a plaque to proudly display on your office wall.

The WWOA is all about volunteers and having a little fun while we work. All of you have so much to offer to the rest of us. Raise your hand, take that one step forward to grow with us as Regional Officers or WWOA Board of Director. I can't begin to tell you how rewarding and fun it is! Give it a try, you won't regret it. 🌟

W E L C O M E

**January WWOA
New Members**



Seth Bouplon, Southern
Derek Furger, Southeast
Steven Jacobs, Lake Michigan
Phillip Jacoby, Southeast
Matthew Koehn, Southeast
Travis Klein, Southern
Kevin Lanser, Southeast
Peter McLiverty, Illinois
Amy Suha, Lake Michigan
Nicolette VanGelder – Southeast
Shawn Berg, Southeast

If we missed anyone,
please let
Karen Harter know:
secretary@wwoa.org

City of Edgerton clean water facility

By Dave Sauer, Cedar Corporation

Overview

The City of Edgerton is located 30 miles south of Madison and 20 miles north of Janesville just west of I-90. The City has a developing business park that can be seen from I-90 and accessed at USH 51. The City is the home for American author Sterling North and golfer Steve Stricker.



Final site

The Clean Water Facility collects and treats wastewater from a residential population of approximately 5,600 along with various commercial businesses, school properties, some industrial businesses and a new hospital complex. The Clean Water Facility discharges clean water to the Lower Rock River downstream from Lake Koshkonong.

Project History

The facility upgrade completed in the Fall of 2017 was the final phase of upgrades that began in 1999 when the influent wastewater screw pump system was replaced with a deeper submersible pump lift station structure that also eliminated a problematic siphon collection system. The new pump station included a mechanical bar screen, a chemical phosphorus removal system and a standby power generator. Facility planning for the 1999 upgrade recognized the immediate need for the pump station upgrade and identified a future replacement of the rotating biological contactors (RBC units) which were installed in 1982. The RBC units are known for shaft and media failures and provided only seasonal nitrification and little to no phosphorus removal.

Clean Water Facility Upgrade

In response to new phosphorus (P) and total suspended solids (TSS) limitations imposed by the Wisconsin Department of Natural Resources on the discharge to the Lower Rock River, the City evaluated various upgrade alternatives. The new limitations included a total mass

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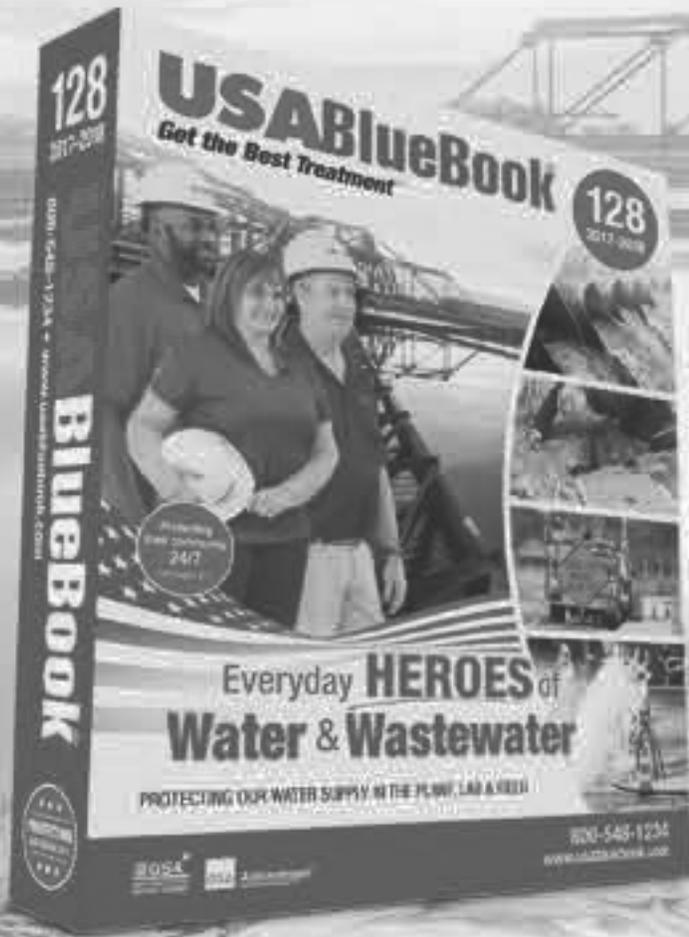
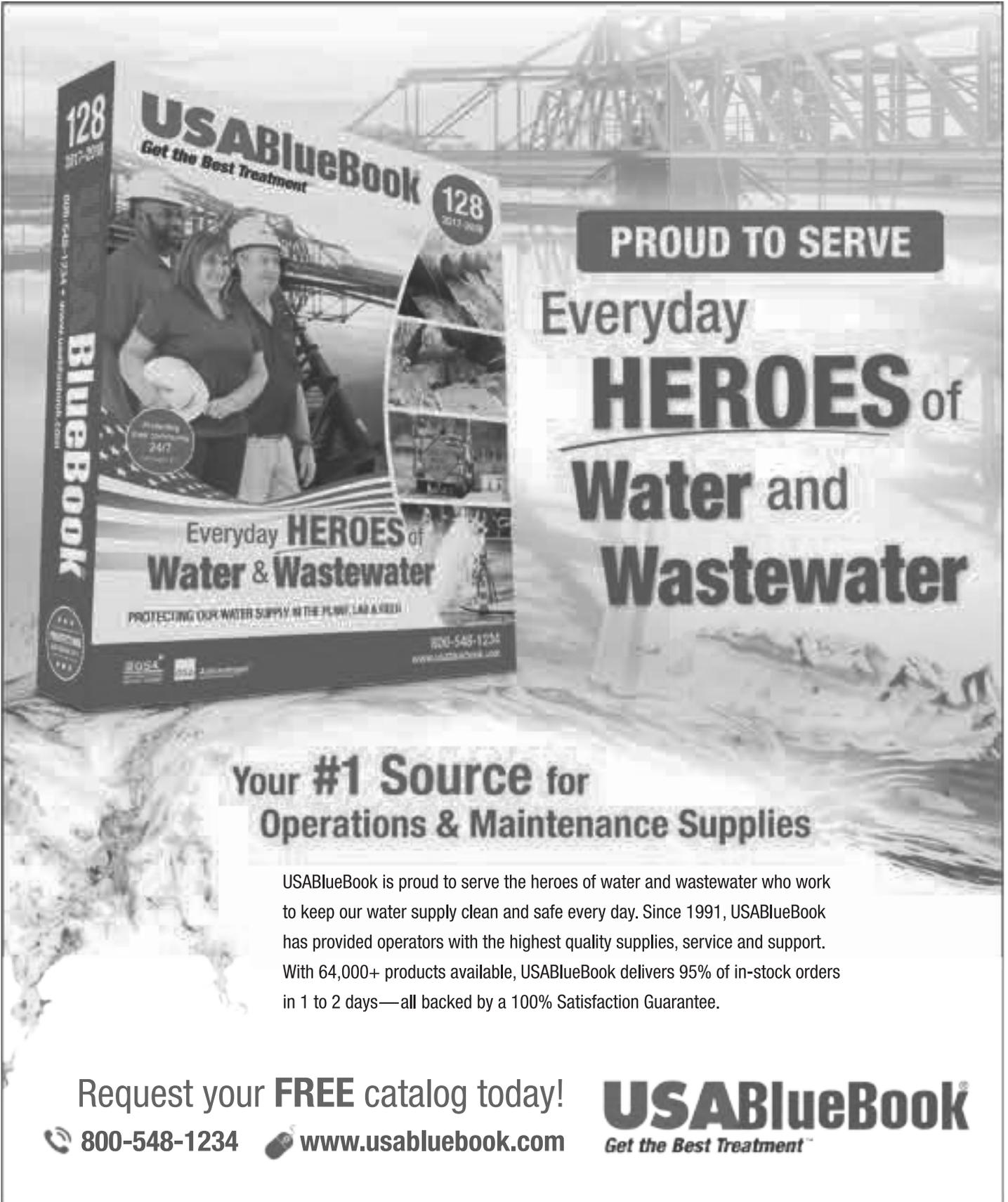
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continued from page 4

discharge limit (TMDL) for TSS and P and a water quality based effluent limitation (WQBEL) for P. The selected upgrade alternative included a biological phosphorus removal system using selector basins to provide anoxic



Operations control

and anaerobic conditions. Aeration basins having large depths receive flow from the selector basins to biologically remove BOD and P and convert ammonia nitrogen to nitrate nitrogen. The upgrade was also designed for year 2033 projected design flow of 0.96 MGD and related loads. Construction of this upgrade began in the Fall 2015



Grinder and screen

and was completed in the Fall 2017. The upgrade reused all of the existing buildings and added two additional buildings and several new process structures.

Preliminary Treatment

An influent solids grinder unit was installed upstream of the existing mechanical bar screen. The grinder unit has improved the inorganic solids removal process of the screen unit. This was important since there has been a steady increase in the

use of children and adult hygiene products and the disposal of these to the sanitary sewer. A vortex type grit removal system was installed after the influent pump station and prior to the selector basins. Removed grit material is cleaned using a grit washer and then collected in a dumpster which is taken to the local landfill for disposal. Organics from the

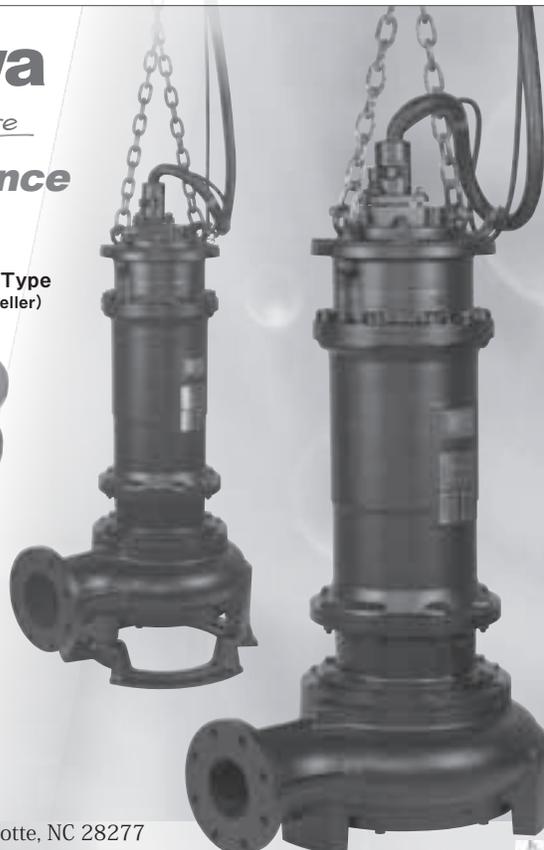
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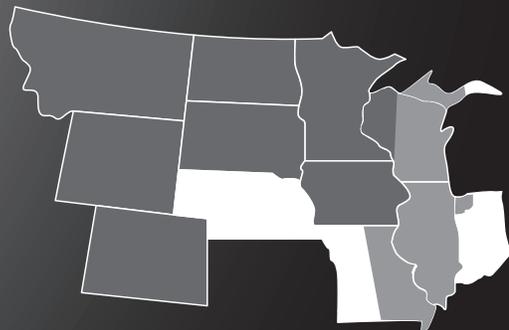
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Grit washer

continued from page 6

washed grit are returned to the influent pump station. The entire grit removal and grit wash system is fully automated and is easily adjustable by the operator.

Advanced Treatment

Selector basin #1 receives both untreated wastewater and return activated sludge (RAS) from the final clarifiers. This basin is completely mixed using a submersible mixer to promote anoxic conditions and is monitored for oxidation reduction potential (ORP). Flow from selector basin #1 flows into selector basin #2. This basin is also completely mixed using a submersible mixer to promote anaerobic conditions and is monitored for ORP. It is in these selector



Selector aeration basins

basins that the soluble phosphorus is converted to a form which is readily available for the biology in the aeration basins. Three selector basins are available for use. A chemical feed system for phosphorus removal was installed for use as well however its use will be limited. It is projected that the City will be well below permitted P limits which will allow the City to trade P credits to downstream users of the Rock River.

Flow from the selector basins is directed to the 25' deep aeration basins which promote high oxygen transfer efficiencies using a fine bubble diffused aeration system. At startup, two of the three aeration basins are being used. Dissolved oxygen (D.O.) monitors control the operations of high efficiency aeration blowers. Aeration basin #1 is operated at a low D.O. set point of 1.0 mg/l while aeration

continued on page 10



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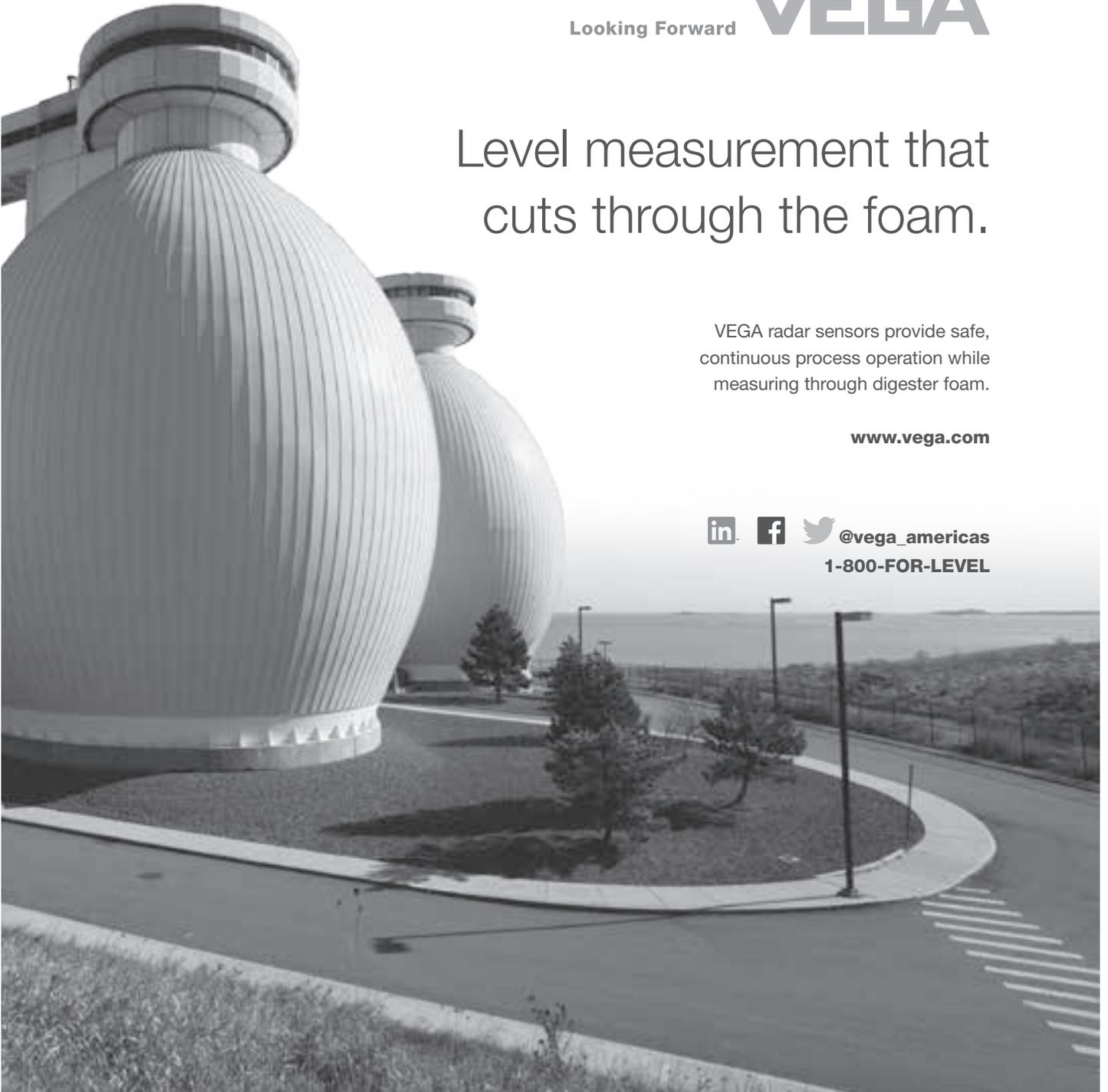
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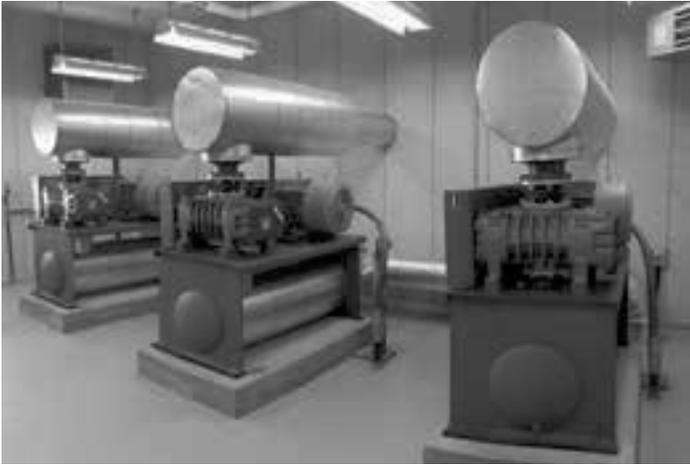
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Aeration blowers

continued from page 8

basin #2 is operated at a low D.O. set point of 2 to 4 mg/l. The aeration blowers are also controlled to maintain complete mix conditions. Blower control is automated and is operator adjustable depending upon flow and load conditions.

Flow from the aeration basins is directed to two 50' diameter final clarifiers where biological solids are settled to



Final clarifiers

the bottom of the clarifiers and clear water is directed to the final disinfection treatment process. The settled biological solids (return activated sludge or RAS) is pumped back to selector basin #1. A small portion of the settled biological solids is wasted from the system and is referred to as waste activated sludge (WAS). The WAS is wasted to the aerobic digesters. Pump control for both the RAS and the WAS is automated and easily adjustable by the operator.

Ultraviolet Light (UV) Disinfection

Clear water from the final clarifiers is disinfected on a seasonal basis using a UV disinfection process. This process kills bacteria and pathogens in the water to below limitations prior to discharge to the Lower Rock River. The design included the reuse of existing chlorine contact channels of the old treatment system. Control of the UV process is automated dependent upon the height of water in the channels. The City is required to disinfect the clear water from May 1 through September 30. When not required to disinfect the clear water, the UV lamps are removed from the channel and stored inside.

Biosolids Treatment, Thickening and Disposal

WAS is treated using three aerobic digesters. One additional aerobic digester was constructed in the 2017 upgrade. These digesters are supplied aeration using three high efficiency blowers and full floor coverage medium bubble diffusers. Control of the blowers is automated based on hours of operation and is easily adjustable by the operator. Routine decanting from the digesters for sludge thickening is provided using a series of decanting locations within the digester tanks. The digester decant flows back to the influent pump station.

Thickened digested sludge is pumped to the re-constructed sand drying basins. The new sand drying basins are lined with a membrane liner and include an underdrain system that collects liquid and drains it to the influent pump

continued on page 12

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Sand drying basin

continued from page 10

station. The sand drying basins are constructed with washed medium size sand material that promotes de-watering of the sludge.

Multiple sand drying basins are available for use to allow cake sludge to be generated and stored. Final disposal of the dried cake sludge is to various land application sites located close to the clean water facility. These sites are used for growing corn and soybeans and the biosolids provide nutrients for these crops.



Motor control center

Process Control

The entire clean water facility is monitored through a supervisory control and data acquisition (SCADA) system. This computer based system controls each process operation using pre-set controls, real time data and programmable logic controllers (PLC).

Data for each pump, motor drives, blower air flow rates, temperatures, water levels, D.O., ORP, chemical feed operation and building operating systems is taken and used by the system to assist in efficient operations. This information is available 24/7 to the operator in charge through a portable iPad tablet which helps allow the entire facility to be operated remotely and with two operators.

One of the operators also does all the required routine lab testing. The SCADA system also allows operators to review historical data, log equipment maintenance and create work orders for required future equipment maintenance.

Project Planning and Funding

The Facility Plan for the project was completed and submitted to WDNR for approval in July 2014 by Cedar Corporation. Discussions with various funding agencies started shortly thereafter. Project funding was provided by the City of Edgerton and USDA Rural Development along with some reimbursements from Focus on Energy for high efficiency motors. Final project cost was \$11.2 million which was the same as the projected project cost established in 2014.

City Staff

This project was successful thanks to the endless support from Jim Reilly, Operator in Charge, Randy Oren, Utility Director, and Zach Nelson, Operator. Jim's advice for other operators going through an upgrade is to have faith in the process and work with everyone as best as possible.

continued on page 14

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continued from page 12

Jokingly, Jim said, "if this doesn't work for you, then it may be better to leave and come back when everything is done."



Left to right: Zach Nelson, Randy Oren, Jim Reilly

Editor's comment:

The author of the article on the Edgerton WWTP provided the following information on the treatment plants performance:

The existing influent flow averages 0.5 MGD.

The collection system suffers from I&I problems

The peak design flow is 0.96 MGD

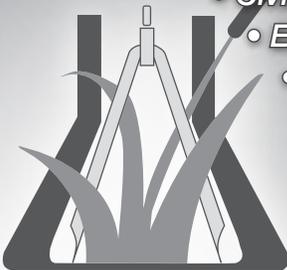
Current effluent BOD and TSS are less than 5 mg/l; Phosphorus is between 0.2 – 0.4 mg/L.

The future WQBEL for P are waste load allocation (WLA) based with the lowest month being 0.3 mg/L at the design flow rate.

Before the treatment plant improvements, the effluent BOD and TSS were 20 mg/l, Phosphorus was 0.7 mg/L using ferric chloride.

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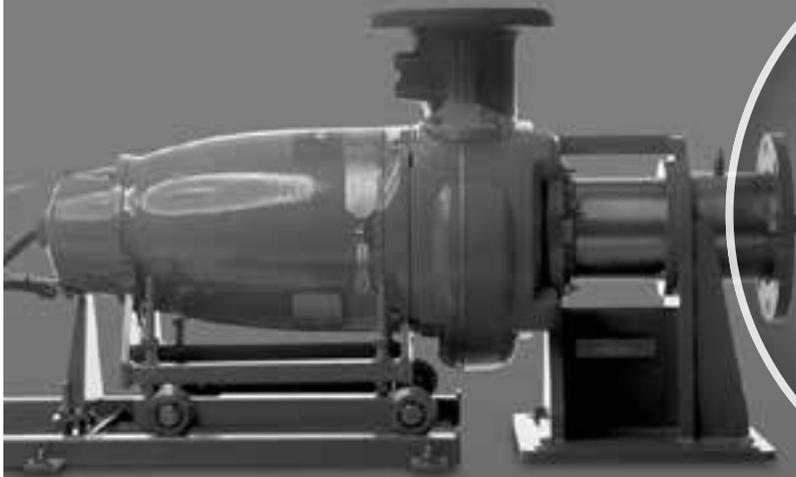


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LMD 4th quarter meeting – Silver Lake Sanitary District

The December 14th Lake Michigan District meeting at Silver Lake Sanitary District outside of Wautoma was another successful meeting with approximately 60 operators and septage haulers, along with 11 equipment and process vendors. A special thanks to Dorner Company for sponsoring the treats during the breaks.

The first presentation of the day was by Everett Russell of Dorner Company who spoke on Valve Identification and Maintenance. Everett explained the importance of periodically cycling valves to ensure normal operation. Everett next went into discussing the ins and outs of eccentric plug valves and how to properly install grease fittings. The second style of valve Everett talked about was butterfly valves with specific emphasis on AWWA and



Everett Russell

resilient seated. When Everett discussed check valves, he told stories of what could happen if maintenance isn't given to check valves. The last valve Everett discussed operation and maintenance for were gate valves. He also described the different types of gate valves and options available and how the maintenance differed. Everett ended the presentation by describing the types of valve actuators that can be found on valves.

Next on the agenda was Troy Larson of Strand Associates. Troy had a presentation titled Foaming in Activated Sludge. Troy began the presentation by describing typical problems that arise from activated sludge foaming. Then Troy went on to discuss different ways to identify the causes of the foaming. Troy ended the presentation by explaining multiple actions to correct or prevent the foaming.



Troy Larson

Jenny Pagel called the WWOA-LMD business meeting to order. Last quarter's minutes and treasurer's report were approved. Following the approval of the last meeting's minutes, Josh Steffek displayed and read the treasurer's report. Jenny's item of new business was that the Lake Michigan District fielded two operator competition teams at the 2017 conference.

Dick Sachs of the WDNR gave the DNR update. First off, for the DNR update, was that Operator Certification exams will now be offered quarterly. The next exam date will be February 7 in Plover and applications can be found on the DNR website. The second item was that there have been some recent DNR staffing changes. Sarah Donoughe recently started working as the regional Pretreatment Coordinator and Regional Industrial Permit Drafter, the job previously held by Nan Jameson. Sarah will be working out of the Green Bay office. Mallory Palmer is the new Statewide Operator Certification Coordinator, the job previously held by Lisa Bushby. Mallory will be working out of the Madison office.

Following the DNR update, Jeff Smudde gave the WWOA Board of Director's update. Jeff thanked the LMD for

continued on page 17

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continued from page 16

fielding the top two operator competition teams. Secondly, Jeff asked everyone to start thinking about 2018 award nominations and that the nominations can be turned in early.

The third presentation of the day was by Jacob Mandli of Aquarius Technologies. Jacob's presentation was titled Nebula MultiStage Biofilm System. Jacob described what is the Nebula System. Jacob provided advantages of using an attached growth treatment process.

Jacob went on to discuss how the biomass changes along the journey through the Nebula system. Jacob explained what is required with regard to the plant's headworks, aeration supply, and clarification in order to use the Nebula system. Jacob ended his presentation by exploring case studies from municipal and industrial users of the Nebula process.

The last presentation of the day was by Dennis Barnes of Xylem, Inc. Dennis's presentation was titled Optimizing Nutrient Removal with an Integrated Activated Sludge/ Aerobic Digestion Solution. Dennis started off by giving an activated sludge review. In particular, Dennis explained the different anaerobic, anoxic, and aerobic biological



Dennis Barnes

environments. Dennis then went on to discuss Bioloop oxidation ditches, pulsed aeration, SBR, and ICEAS treatment technologies. Lastly, Dennis presented case studies of the different treatment technologies.

Joel Jodarski, Silver Lake Sanitary District Head Operator, gave an introduction of the WWTP location and collection system, flows, loadings, and treatment processes. A plant tour followed the plant introduction.

The next meeting will be in Valders on February 15, 2018. Special thanks to the Silver Lake Sanitary District staff for hosting the meeting. 🍷

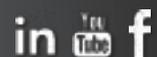
Minutes submitted by Josh Steffek, Lake Michigan District Secretary/Treasurer

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50th annual WWOA business meeting La Crosse, WI

President L. Lutz called the meeting to order at 12:34 p.m. on Thursday, October 13, 2016 at the La Crosse Center, La Crosse, WI. Roll call was taken, all Officers and Directors were present except for Kris August. Approximately 240 members were present for the meeting.

President Lutz asked if there were any changes and/or additions to the agenda. None given. Kevin Freber made a motion to approve the agenda put forth. Seconded by Wade Peterson, motion carried.

President L. Lutz asked for a moment of silence for all the members who had passed away in the past year.

President Lutz recognized the two officers from the Minnesota Wastewater Operator Association, Al Parrella, President and Jim Miller, Executive Secretary.

Minutes of October 8, 2015 meeting were presented for approval. Motion to dispense with the reading of the minutes and approve them was made by Kevin Freber and seconded by Wade Peterson, motioned carried.

Executive Secretary, K. Harter, distributed copies of the financial report. Ms. Harter reported the revenues for this fiscal year ending December 31, 2015 were \$197,250.48. Expenditures totaled \$169,438.14, with a net of \$27,812.34. Randy Herwig made a motion to approve the financial statement as presented, Dale Neis seconded. Motion carried.

NOMINATION-ELECTION OF VICE PRESIDENT AND DIRECTORS

Chairperson, Kelly Zimmer placed into nomination the name of Jeff Simpson for the office of Vice President. President Lutz called three times for nominations from the floor. There being none Randy Herwig made a motion that the nominations be closed and a unanimous ballot be cast electing Jeff Simpson to the Vice President position. Dave Wierzba seconded. Motion carried.

President Lutz informed the membership that there were two – two-year term directorships open along with 2 – one-year terms. Past President Kelly placed into nomination three names for the office of director. These were Don Lintner, Jim Johnson, Rick Mealy, and Jeremy Cramer. President called three times for nominations from the floor. There being none, motion to close the nominations was put forth by Randy Herwig. Seconded by Wade Peterson.

Motion carried. Each of the nominees spoke. President Lutz advised the membership to vote for two people. The two highest vote getters will fill the two-year terms, the other two will fill the one-year terms. Past President Kelly Zimmer will head the vote count.

While the vote counting committee were out of the room counting votes, President Lutz called for the committee reports.

COMMITTEE REPORTS

Operators Competition – Jeff Bratz thanked the John Bond for running this year's Operators' Competition. John Bond recognized all the suppliers and thanked them for their help and supplies. He also recognized all the judges and ask for a round of applause for their hard work and making it a great competition.

John Bond announced the teams and winner of the Operators Competition.

Teams were:

Team #1 NWTC – The Tardigrade Terrors
Justin, Meyer, Brandi Saylor, Mylan Gardner

Team #2 LMD – New Turds on the Pot
Bobby Zepnik, Jake Kehring, Corey Evers

Team #3 NCD – Grundfos
Alex Smudde, Derek Budsberg, Adam Clark

Team #4 SER – Dookie Butter Bros
Bob Biedrzycki, Jessie Medro, Nate Steffen

Team #5 UW – Stevens Point
Garrett Schaez, Jacob Tanner, Simon Stevenoski

Winners were: First Place – New Turds on the Pot (LMD)
Second Place – Grundfos (NCR)
Third Place – Dookie Butter Bros (SER)

Golf Outing – Randy Herwig thanked all the sponsors for this year's golf outing and said everyone had a great time. There were 88 golfers. He reported that all the golfers got a special 50th WWOA Anniversary towel and that there would be no towels next year. Everyone laughed.

Bike Ride – Tom Crouse advised that it was a beautiful day for a bike ride. They rode out to Trempealeau and back.

continued on page 19

continued from page 18

That was 20 miles out and 20 miles back for a 40-mile round trip. The riders received a goody bag for doing the ride. T. Crouse asked if anyone was willing to help with the 2017 bike ride to contact either himself or Karen Harter.

Sporting Clays – Jim Thalke reported thank the participants at Tuesday's Sporting Clays. J. Thalke thanked all the sponsors. They gave away three guns at this year's sporting clays. After the shoot, everyone enjoyed steaks for lunch. Thalke advised that all the winners would be announced in the next Clarifier magazine.

Promotions – Jim Johnson announced that there was a credit card left at the promotion table. If anyone is missing their credit card, please see Jim.

BALLOT RETURNS

Kelly Zimmer and ballot committee returned to the meeting with the results of the Board of Directors vote. The two two-year terms went to Don Lintner and Rick Mealy. The two one-year terms went to Jim Johnson & Jeremy Cramer.

Motion to destroy the ballots was made by Randy Herwig and second by Dale Neis. Motion carried.

President Lutz called for any old business to be discussed. As there was none, he called for any new business to be discussed. No new business was put forth.

Before closing the meeting, President Lutz advised there were 829 attendee registrations for the 2016 conference. He also called for the prize drawing of the Exhibitors TV. TV winner for 2016 was Bart Lehman from the Village of Edgar.

President Lutz thanked everyone for coming and invited everyone to next year's conference which would be held at the Madison Marriott West Hotel and Conference Center in Middleton, WI.

Before closing the business meeting, Pete Albers asked for all of us to sing Happy Birthday to Leo Templeton who was turning 95.

ADJOURNMENT

There being no further business Randy Herwig made a motion to adjourn. Second by Jeff Simpson. Motion carried. Meeting adjourned at 1:10p.m. on Oct 13, 2016.

Minutes submitted by Karen R. Harter, Executive Secretary. 

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- Diesel Engine Maintenance
- DNR –Update
- Gravity Lining vs. Force Main Lining
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Mark Your Calendar

North Central Steering Committee meeting Mosinee, WI Nov. 16, 2017

Andy Ott called the meeting to order at 11:07 AM. Steering Committee Members Ken Bloom, Eric Donaldson, Travis Dulek, Chris Helgestad, Andy Ott, and Diane Thoun were present. Outgoing Steering Committee Members Katie Gruber and Joe Gehin were also present.

Discussion occurred on the Officer's positions. Andy agreed to remain as Chairperson and Travis agreed to remain as Vice-Chairperson. Ken agreed to remain as Treasurer and Chris will remain as Secretary.

Ken Bloom presented the Treasurer's report. As of the date of the meeting, the Region had a checking account balance of \$4395.77 and an escrow account balance of \$679.01. There has been no new activity since the last report was given.

Discussion occurred about our 2018 meetings. The committee agreed that work needs to be done getting meetings scheduled in advance. The consensus was that meeting dates and venues should be picked earlier in the process, allowing more time to work on the details. Everyone felt it important to have meetings in the north, central and south part of the region each year if possible and that using the technical colleges as venues could make planning easier.

The first meeting will tentatively be scheduled for the beginning of March. Travis will make contact with Domtar in Rothschild about hosting this meeting at North Central Technical College in Wausau. The second meeting will tentatively be scheduled for the second week in June. Ken will contact NCL about hosting this meeting. The third meeting will tentatively be scheduled for the third week in September in Rhineland. Joe will contact Expera about hosting.

Discussion occurred on a list of potential presentation topics. A laboratory theme for the NCL meeting is a natural fit. Ken will ask Mike at NCL for ideas. Including the recent NR 149 revisions, with involvement by Rick Mealy and George Bowman, is also a possibility. Travis suggested inviting a DNR wastewater engineer to talk about compliance inspections. He also offered to talk with Domtar about topics that would interest industrial operators.

continued on page 21

continued from page 20

Discussion occurred about potential 2019 meeting sites. Potential sites included the Operating Engineers Training Center in Coloma, and the wastewater plants in Wisconsin Rapids and Spencer. Discussion occurred about the Operator's Competition at the annual conference. Everyone agreed the team needed more support, on the day of the competition and in practice before hand. Travis agreed to be team leader this year.

Discussion occurred about hosting a training session for new operators focusing on the basics, possibly associated with certification exam preparation. Andy will contact Greg Paul about us sponsoring a training session in the region.

Chris reported on the Regional Officer's meeting at the Annual Conference. There was nothing new presented by the State WWOA this year.

Discussion occurred about the potential for the organization to change its name from Wisconsin Wastewater Operators Association to Wisconsin Resource Recovery Specialists. A motion by Joe Gehin to create a committee to consider a name change at the business meeting at the Annual

Conference was rejected by the Board of Directors. It was the consensus of the Steering Committee that a name change be given further thought with inclusion of the membership in the decision process.

Discussion occurred about the 50th anniversary of the Playboy Bunny Club at the Grand Geneva Resort, the site of our 2018 Annual Conference, and the appropriateness of using the Playboy Bunny logo and/or theme in association with the Conference. It was the consensus of the Steering Committee that such use would be inappropriate for a professional and diverse organization such as ours.

The meeting was adjourned at 1:45 PM. 🗨️

Submitted by Chris Helgestad, NCR Secretary

Renew Your Membership

Please remember to renew your WWOA membership.

To do on-line, you will need your member number and password.

If you don't remember either, please contact Karen Harter, 608.355.3081 or email to secretary@wwoa.org.

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Mr. Bounds joined Baxter & Woodman Inc. in 2016 as a Senior Water Resources Engineer and Project Manager bringing over 23 years of engineering and regulatory experience gained through his tenure with the Illinois EPA and other companies. He is a recognized expert in municipal infrastructure management, planning, and regulatory compliance.



Dan Bounds, PE, MBA, D.WRE

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Mr. Bounds has a B.S. in Civil and Environmental Engineering from the University of Illinois and an MBA from Eastern Illinois University, and is a registered Professional Engineer in Illinois and California.

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Wisconsin Wastewater Operators' Association BOD meeting – Marriott Madison West, Middleton, WI October 16, 2017

1. CALL TO ORDER, ROLL CALL: President, S. Thieszen called the meeting to order at 10:02 am on Monday, October 16, 2017. Roll call was taken. All present.
2. AGENDA CHANGES AND ADDITIONS AND CORRESPONDENCE:
No changes were presented.
3. APPROVAL OF MINUTES: Motion to except minutes from the October 16, 2017 meeting with Sharon Thieszen's changes made by J. Bratz, Second by J. Simpson. Motion carried
4. FINANCIALS: Financials for August through September 2017 were reviewed. Also, review was the 2016 Financials. Motion to except financials as is made by J. Simpson, Second by D. Lintner. Motion passed.
5. Annual Conference:
 - a. Conference Duties – Setup & Needs During the Conference & Tear Down
 - Historical Display: L. Lutz advised that the step-up will remain mostly the same. Received very little information from the regions for posting even after email reminders had been sent out to them. Committee still needs to work on organizing and filing historical information into storage for future reference. Lutz is hoping to have the historical boards set-up after the BOD meeting on the 16th.
 - Review Contact Procedures for Conference Issues: J. Simpson advised that K. Harter was the contact person for all issues that needed resolving with the Marriott for the conference. Harter has access to the Marriott Red Coat software for alerts to issues that arise during the conference. Both J. Simpson and K. Harter have a master key to all the conference rooms and the expo hall.
 - Conference Set-Up – BOD following Board Meeting
 - Signage for Tuesday and Wednesday (as possible): T. Larson brought all the signage for the 2017 Conference. The BOD will put out all signage Monday after the BOD meeting.
 - Meet with Marriott Staff: The entire BOD met with the staff of the Marriott for introductions of staff and a review of everything that will be going on during the conference.
 - Other: No other issues to address
6. COMMITTEE REPORTS
 - a. Nominations: L. Lutz reported that that he received nomination paper from Jeff Smudde for the position of Vice President. There will be three, two-year Board of Directors terms open for 2018. All the positions will need to be filled at the Annual Business meeting on Thursday, October 19th. Current Board member, Jeremy Cramer, has submitted his nomination papers along with nomination papers from Sue Leith and Ryan Hennessey. All nomination papers will be posted to the Historical boards for everyone to review. Unless there are nominations from the floor, a unanimous vote can be called for and all three current nominees will receive a two-year BOD term. If there are nominations from the floor, ballots will be handed out and the three highest receiving votes will fill the vacancies. K. Harter will have the ballots ready to hand out if needed.
 - b. Promotional items: J. Johnson reported on the inventory he had on hand. Prices were set for the Anniversary Polo Shirts to get rid of them. Also available will be camo hats for \$8.00, t-shirts in Kelly green and blue for \$13.00 each and reflective T's at \$15.00 each. All other leftover stock will be priced to move accordingly.
 - c. Membership: K. Harter reported that membership renewals were coming in. She also placed an ad in the Clarifier and on the website to get everyone to update their information.
 - d. Scholarship: R. Mealy re-iterated the scholarship winners for the WWOA and Crane were Billie Komorowski, Margaret Johnson and Ryan Gardner.
 - e. Executive Meeting: S. Thieszen/No Report
 - f. Clarifier: No Report
 - g. Career Development: R. Mealy/No Report
 - h. Awards: J. Bratz advised that everything is set for the awards banquet on Thursday night. Randy Herwig will be dropping off all the awards Tuesday morning.
 - i. Operator Training: D. Linter/J. Smudde advised

continued from page 24

that Ken Bloom, NCR, along with J. Smudde and D. Lintner, worked with Toni Glymph to do a two- day Microbiological training in August. North Central Labs provided the facility at no cost and will split the cost of lunch between them and WWOA and North Central Region. K. Harter advised that she is still waiting for the final numbers from Ken Bloom. There were 26 attendees for the Basic Course and 20 attendees for the Advanced Course. Students that attended had many compliments on the venue, training and lunch.

j. Directory: K. Harter advised that the new 2017/2018 directory is complete. There are a limited number of printed copies available. USB copies are no problem. All the pre-paid directories will be given to the attendees with their registration packets. Cost for directories is \$10.00 each.

k. Publicity: J. Cramer advised that everything is ready to hand out during the photo taking after the Awards banquet. Cramer also advised that a press release announcing the actual conference has been sent out.

l. Regional Coordinator: J. Johnson/J. Simpson J. Simpson advised that he would be taking over from J. Johnson due to Jim's commitment to his new job position.

m. Government Affairs: J. Smudde/S. Thieszen reported that the Government Affairs Seminar will be held on Thursday, February 22, 2018 at the Madison Marriott West in Middleton, WI. The planning committee will be meeting on November 6th in Fond du Lac to plan the seminar for 2018. The committee will review the costs and registration fees to avoid a loss again in 2018.

n. Biosolids Symposium: L. Lutz/D. Lintner reported that the SBS committee met to plan the Spring Biosolids Symposium on August 25th at Madison's Nine Springs Treatment Plant. The 2018 Spring Biosolids Symposium will be held on Tuesday, March 20th at the Holiday Inn in Stevens Point, WI.

There are four new members on the committee this year. Kim Meyers from Madison MSD is replacing Mike Northouse (who retired) and Glenn Tranowski, Strand Associates, will replace Jay Kemp who is stepping away after becoming CSWEA Wisconsin section chair. Steve Byrne, Bytec, is replacing Mona Johnson. Also joining the committee is Steve Warrner from the WDNR. 2017 SBS had a good mix of sessions covering septage and municipal issues, after seeming a little short on septage last year. The decision was made to not do paper copies of the presentations due to costs.

continued on page 26

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continued from page 25

o. Central States Liaison: J. Cramer reported that the CSWEA, WI Section held their August Board meeting on August 10, 2017 at the Global Water Center in Milwaukee. Highlights from the meeting included the Treasurers report and their discussion on re-tooling the annual meeting. Young Professionals Committee had two events in 2017. On November 14th there will be a Stormwater and Watershed Webinar in the Global Water Center in Milwaukee. Cramer also advised that they discussed the Government Affairs Seminar and the 2018 Spring Biosolids Symposium.

p. Web-Site: J. Bratz reported the website was running smoothly and had very few issues with conference registrations this year.

q. Technical Program: J. Simpson reported that all details for the conference have been finalized. Simpson and K. Harter met several times to go over the Technical presentations and conference details. There was one Technical Paper cancelation regarding Phosphorus Compliance, Session E on Wednesday, October 18th. The presentation will now be "1ppm Phosphorus – A BNR with No Chemical Addition Case Study" presented by Arn Johnson of Walker Process Equipment. J. Simpson along with K. Harter met with keynote speaker, Leroy Butler a few weeks ago. Mr. Butler is all set for his talk. He will arrive around 8:00 am to set up his products for purchase after his talk. He will stay after his keynote address to sign autographs.

r. Exhibitor Committee and M&C: T. Mulcahy/C. Strackbein K. Harter advised that the Expo hall was at capacity with 159 booths. Exhibitors will start moving in Tuesday morning at 8:00 am and must be set-up by 9:00 am on Wednesday. She also advised that all the exhibitors have the 2018 Exhibitor Booth application in their booth.

s. Operators Competition: R. Mealy advised that we have six teams this year. Lake Michigan Region has two teams, North Central and Southeast have one team each and there are two student teams. NWTC and UWSP each have a team.

t. Local Arrangements: J. Johnson reported that this year's plant tour at the Cross Plains facility is a go. There will be a bus taking people to the tour. There is very limited parking at the Cross Plains facility so everyone wanting to tour the facility will have to sign up for the bus.

u. Golf Outing: R. Herwig/No report

v. Sporting Clays: J. Smudde/J. Thalke J. Smudde advised Bucky Walters and Jim Thalke visited the Waunakee Gun Club in early May and made all the arrangements for the WWOA 2017 Sporting Clays event at this location. The event will have the standard 50 bird event, a novelty shoot, and individual Lewis Class, and the cook your own steaks for lunch.

Through generous donations from six vendors, there will be six guns raffled off at the event with a total value of \$3,000. There are also several vendors that provided sponsorships for the event. New for 2017 is a WWOA Board of Directors team participating in the event. Weather forecast looks favorable for the event.

w. Bicycle Outing: T. Crouse did not have a report, K. Harter reported that there were four riders this year.

x. Permanent Arrangements: K. Freber/No Report

y. Resolutions and Bylaws: D. Falkner No Report

z. Historical: T. Crouse/L. Lutz See L. Lutz's report under #5. Annual Conference

aa. Others - No Report

A motion was made by J. Johnson and second by L. Lutz to accept the Committee Reports as presented. Motion Carried.

7. OLD BUSINESS:

a. WWOA Proposed Name Change Discussion

i. Membership Feedback

S. Thiesen advised that she received an email from Harlan Mueller regarding her proposed name change. Mr. Mueller was in support of a name change. Thiesen went onto read the email to the Board.

R. Mealy thought that this whole issue was putting the horse before the cart. Mealy felt that the issue of not understanding what it is we all do for a living, while true, wasn't going to be fixed with just a name change. He felt that more education of the public and the membership was more important now. Mealy brought up the need for Mission Statement that would clarify what the Association was about and what it was we did and all the different aspects of the membership. This was tabled for discussion under item 8: New Business.

continued on page 30

B&M Technical Services welcomes Trevor Ghylin, PE, PhD

B&M Technical Services is excited to welcome Trevor Ghylin to its sales team as a Sales Manager! Trevor brings a wealth of knowledge in the water and wastewater industry. He is a professional engineer as well as a licensed operator. He holds a doctorate in Environmental Engineering. Trevor has written many articles and has received awards at WEFTEC.

Trevor started his water/wastewater career with CH2M in 2006 as a process engineer. From CH2M, he went to Xylem and worked in R&D and technical sales. He is the founder of Microbe Detectives, a startup company focused on bringing DNA sequencing technology to the water and wastewater industries. Trevor now looks forward to the new challenges that lie ahead in his new position with B&M Technical Services.

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Trevor Ghylin, PE, PhD

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Troubleshooting corner volume 2

Sludge Volume Index: What is best to target for my plant?

By Ryan Hennessy Microbiology & Operations Specialist, Midwest Contract Operations/

WWOA board member rhennessy@mco-us.com 920-573-2820

SVI (sludge volume index) is a measurement that determines the settling characteristics of activated sludge expressed as mL/gram that the sludge settles into a container within 30 minutes. To determine the SVI value, the MLSS concentration must be known. Upon mixing and pouring 1000 mL of sample and allowing this to settle for a period of a half hour the volume in which the sludge settles to is then recorded. To determine what the SVI is the settled sludge volume is multiplied by 1,000 and divided by the MLSS concentration as such:

Settled Sludge Volume, mL/L X 1000/ MLSS, mg/L

As an example if the sludge settles to 200 mL after 30 minutes and the MLSS is 2,000 mg/L this is an SVI value of 100: $200 \text{ mL/L} \times 1000 / 2,000 \text{ mg/L} = 100$

In general terms, a value of 50-150 for SVI is considered

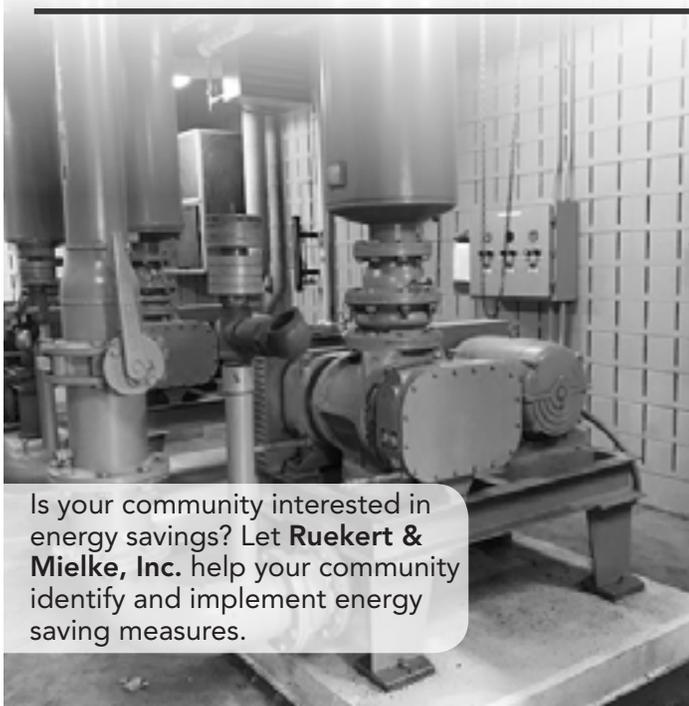
good operating ranges. The lower the SVI value, the quicker the sludge settles. If the sludge settles too quickly, fines, dispersed growth, and other materials often produce turbidity in the supernatant (level above the settled sludge) which have the potential to leave over the clarifier weirs as suspended solids in the effluent. As the SVI value increases, this means that the sludge begins to settle more slowly.

Each plant has a hydraulic limit of an SVI value and volume of sludge in which sludge begins to build up in the clarifier faster than it can be removed/ returned. For example, if a plant has the potential for a high amount of inflow and infiltration and increased flows during rain events and this has significant impact on the influent flow rate, this now allows less time for settling and a lower target SVI value may then be targeted. On the other hand, some plants have less hydraulic stress on the clarifier and this then becomes more “forgiving” for slower settling mixed liquor. The true definition of a bulking sludge is a sludge that does not settle quickly enough in the clarifier to the point in which this begins to pose a risk to effluent quality.

In practice, there are many plants that operate consistently with an SVI value above 150 (considered by textbook as a “bulking sludge”) that produce high quality effluent consistently as more filaments and slower settling do have the potential to allow more dispersed materials to be settled out and trapped by filaments etc. In some of these instances, the theory of “if it’s not broken, don’t fix it” may apply although knowing the causes of why the SVI value is elevated (through periodic microscopic evaluation) and having a plan in place should things begin to change to the point of increased risk to effluent quality is still needed. On the other end of the equation, there are sometimes instances in which a plant may have an SVI value that falls within textbook ranges, but still poses a risk to effluent quality due to hydraulic stresses and limitations on the clarifier (s) or other factors. In summary, each plant has different variables that need to be taken into consideration when considering a target SVI value. As wastewater operators our goals are to achieve permit requirements at the most efficient and practical ways possible.

Best wishes to everyone for a happy and prosperous new year! 🍀

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continued from page 26

J. Bratz stated that the Board needs to discuss this whole topic in greater detail before any discussion with the membership at the upcoming annual business meeting.

The BOD need to be all on the same page and have all their facts and figures themselves so when it is brought to the membership, everyone was on the same page and in agreement.

There was still too many questions and confusion on the subject.

Again, the Board also decided that no formal discussion on the name change should be brought up at the Annual Business Meeting on Thursday, October 19th.

NEW BUSINESS:

b. Mission Statement, Charter, Name Discussion
It was pointed out that we discussed the bulk of this during the Old Business.

R. Mealy did bring up that he thought a lot of the name change issues would be resolved with a WWOA Mission Statement. This is something that the WWOA Board of Directors will look at in the coming months and into 2018.

After discussion on the mission statement and the name change (under Old Business), S. Thieszen advised that she will make a statement at the beginning of the Annual Business Meeting on Thursday, October 19th, before calling the meeting to order that there will be no discussion on the proposed name change until the WWOA Board of Directors has a chance to look into this further.

Adjournment Motion to adjourn made by J. Bratz, second by J. Cramer. Meeting adjourned.

December Board of Directors Meeting will be held on, Thursday, December 7, 2017 and Friday, December 8, 2017 at the Grand Geneva Resort, Lake Geneva, WI. 📍

Can it really be 10 years?

By: Jon Butt, Clarifier Editor

The December 2007 Clarifier was my first as editor. I helped Dan and Jean on the 2 previous issues but the December issue was the first I was responsible for. I cannot believe it has been 10 years!

And while many things have changed, some have not. I scanned that December 2007 issue and realized that many advertisers remain committed to supporting the Clarifier. Below are the names of advertisers that appeared in the December 2007 and this issue:

Applied Technologies

Davy Labs

Donohue

Energenecs

Flygt

J.F. Ahern

L.W. Allen

MSA

Robert E. Lee

Ruekert Mielke

Strand

Symbiont

USA Bluebook

Visu-Sewer

Many, many thanks for your support.

Three of these advertisers were there in the beginning when ads were first placed in the Clarifier in 1984. L.W. Allen was one of two advertisers in the February 1984 issue, joined by Davy Labs and Donohue in the May issue. By and large all three have provided continuous support for the Clarifier for over 33 years! 📍

Keep your membership information up-to-date

If you have moved, changed jobs, new email address, whatever, don't forget to update your membership information.

Send an email to secretary@wwoa.org with your updated information.

Don't lose out on receiving all the WWOA news, meeting notices as well as the Clarifier magazine.

Update your information today!

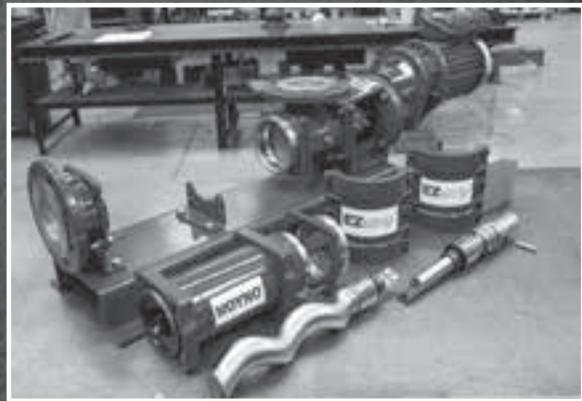
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Troubleshooting corner volume 3

Hindered settling due to denitrification

By Ryan Hennessy Microbiology & Operations Specialist, Midwest Contract Operations/
WWOA board member rhennessy@mco-us.com 920-573-2820

This month's topic is on a relatively common issue that we feel deserves more awareness. Denitrification is a microbially facilitated process where nitrate is reduced and ultimately produces molecular nitrogen (N₂).

The "Recipe" for Denitrification is:

- 1) No Free Dissolved Oxygen Present
- 2) Presence of Nitrate
- 3) Carbon Source (BOD)

Denitrification is typically recognized through floating sludge on the surface of the clarifier. (The nitrogen gas entraps the flocs and floats them). What if denitrification is occurring but the flocs are strong enough and have enough

gravitational force to overcome this upward pull (of wanting to float)? These two forces working against each other have the potential to hinder, or slow down the settling rate which can increase the SVI (sludge volume index).

In these instances the 30 minute settling volume can become elevated and this is not related to filamentous bacteria or overabundance of polysaccharide (slime).

The "Paddle Test"

If hindered settling due to denitrification is suspected, a quick and simple test can be performed to diagnose this:

- 1) Perform standard 30 minute settling test
 - a. Record settled sludge volume (SV30)
- 2) Mix vigorously and rapidly for at least 30 seconds
 - a. This allows nitrogen gas entrapped in the flocs to escape to the atmosphere
- 3) Repeat standard 30 minute settling test
 - a. Record settled sludge volume (SV30)

*If the 30 minute settled sludge volume is significantly lower after rapid mixing this indicates the settling has been hindered due to denitrification. Commonly, the onset of denitrification is caused by residual BOD increasing the oxygen uptake rate to the point in which anoxic conditions exist.

In other words, if there is "food left on the plate" this may act as the carbon source to trigger denitrification. Without proper diagnosis of this event actions such as chlorination of the RAS, or increased wasting of the MLSS have the potential to make things worse rather than help.

Best wishes to everyone for a successful month!

*Reference: Dr. Michael Richard (inventor of "paddle test") and co-author of the 3rd Edition Manual on the Causes and Control of Sludge Bulking, Foaming, and other Solids Separation Problems (2004) 

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Save this date: Tuesday, March 20, 2018

CSWEA-WI section, WWOA, and the WDNR, are busy planning the Spring Biosolids Symposium scheduled for Tuesday, March 20, 2018 at the Holiday Inn Hotel and Convention Center in Stevens Point, WI.

This symposium promises to be as good as ever covering topics such as:

Land Application Management Plans

Understanding Soil Tests

Nutrient Management Exemptions Presentation

Spill Response Plus

Onsite Systems (in two parts)

Wisconsin 2017 Household Septage Characterization

Compliance/Common Violations

Public Relations Panel Discussion

Certification Rules/Changes for WWTP Operators and Septic Haulers

Reactor Cleaning Panel Discussion

WDNR Updates

This year's symposium will have something for everyone, large or small. Experts will be available to field questions throughout the day.

Watch your mail and e-mail for registration information. 

How healthy is your wastewater?

Nutrient Facts

Serving Size: 5 mg
Servings Per Container: Varies

Amount Per Serving

BOD 250 mg/L

Avg Daily Value

Total Solids 700 mg/L

Dissolved 500 mg/L

Suspended 200 mg/L

Nutrients 50 mg/L

Nitrogen 40 mg/L

Phosphorus 10 mg/L

Chloride 50 mg/L

Ingredients: Wastewater (domestic, industrial, commercial, agricultural), runoff, stormwater, sewer 1/l.

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