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THE CITY OF FOND DU LAC REGIONAL WASTEWATER TREATMENT & RESOURCE
RECOVERY FACILITY (WTRRF) FOND DU LAC, WISCONSIN

The Clarifier

VOL. 264 FEBRUARY 2026

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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.

2025- 2026 W.W.O.A. OFFICIAL DIRECTORY

Ben Brooks
President
Superintendent
City of Wausau Waterworks
430 Adrian Street
Wausau WI 54403
Work: 715-261-6941
Cell: 715-965-2206
ben.brooks@wausauwi.gov

Marc Stephanie
Past President
Utilities General Manager
City of New Holstein
2110 Washington St
New Holstein WI 53061
Cell: 920-251-8100
marcstephanie@outlook.com

Jenny Pagel
President Elect
Wastewater Foreman
City of Clintonville
350 E 15th Street
Clintonville WI 54929
Cell: 715-250-0623
jpagel@clintonvillewi.org

Nate Tillis
Vice President
Wastewater Utility Director
Racine Wastewater Utility
800 Center St. Rm. 227
Racine WI 53403
Work: 262-636-9434
Cell: 262-822-8475
nate.tillis@cityofracine.org

Aaron Eichhorst
(2025-2027)
Director
Wastewater Treatment Leader
NEW Water
2231 N Quincy Street
Green Bay WI 54302
Work: 920-438-1007
Cell: 920-461-2424
aeichhorst@newwater.us

Brooke Klingbeil
(2025-2027)
Director
Wastewater Compliance
Specialist
WDNR
Work: 715-905-1006
bnklingbeil@gmail.com

Cody Schoepke
(2025-2027)
Director
Superintendent
Fond du Lac WTRRF
700 Doty Street
Fond du Lac WI 54936
Cell: 920-251-9859
cschoepke@fdl.wi.gov

McKala Kiessling
(2025-2027)
Director
Laboratory Manager
City of Oconomowoc WW
900 S Worthington Street
Oconomowoc WI 53066
Cell: 920-648-5960
mkiessling@oconomowoc-wi.gov

Kevin Berg
(2025-2027)
Director
Engineering Services Dir.
Walworth County Metro.
Sewerage Dist
975 W Walworth Ave
Delavan WI 53115
Cell: 262-755-9229
kberg@walcomet.com

Courtney Harris
Executive Secretary
262 W Main Street
Wales, WI 53183
Phone: 414-908-4950
customer-care@wwoa.org

Clarifier Staff
Jon Butt 414-755-1149
jon.butt@meadhunt.com

Jeremy Cramer
Direct: 608-235-9280
jcramer@cityofsunprairie.com

Doralee Piering
262-377-6360
doralee@energenecs.com

Presidents Message: Cold weather/warm dedication

Happy New Year! I hope everyone had a safe and joyous holiday season and is settling into 2026 feeling refreshed and ready for the year ahead.

As we kick off the new year, many of us are also enjoying the fabulous winter weather we've been experiencing here in Wisconsin. You know the kind — snow/rain/snow again/freezing rain/a random 50-degree day, followed by more snow and a deep freeze just to keep us on our toes. Gotta love Wisconsin weather! If nothing else, it reminds us all to be adaptable, prepared, and maybe keep both snow boots, boot cleats, and rain gear in the vehicle at all times.

Winter is always a busy and challenging season for wastewater professionals. Cold temperatures, unpredictable conditions, and aging infrastructure can test even the most experienced operators. I want to sincerely thank each of you for the dedication and professionalism you show every day. Your commitment ensures our communities continue to have safe, reliable wastewater treatment, no matter what the forecast throws our way.

As we move into the new year, WWOA remains focused on supporting you through offering quality training opportunities, scholarships, networking, advocacy for our profession and look for the new youth apprentice program grant. Visit the WWOA website for details on all.

Winter also gives us a chance to have a little fun together. I encourage all ice fishing enthusiasts to participate in the upcoming Ice Fisheree Contests hosted by WRWA. This is a great opportunity to get out on the ice and do some fishing. Remember, it's all about the camaraderie and friendly competition. I would also like you as a member to please consider getting more involved with WWOA by attending upcoming WWOA training sessions and events. Perhaps you want to get involved with your WWOA Regional Committee, perhaps you want to become a WWOA Board of Director and become President someday, or perhaps you would like to present at the 2026 WWOA conference. Now's the time to get involved, stop procrastinating. I promise you, you won't regret it. These connections strengthen not only the WWOA Association but the wastewater community as a whole. For upcoming WWOA training sessions and events please visit the WWOA website and preview the calendar for scheduled upcoming events. To get involved on your Regional Committee reach out to your regional chairs also listed on

the WWOA website. To submit your technical abstract for a chance to present at the 2026 WWOA conference, visit the WWOA website and select the 2026 Call for Presentations. I encourage all members interested to get involved in some way or fashion.

On behalf of the WWOA Board of Directors, thank you for everything you do. I look forward to another year of learning, collaboration, and continued success together. Stay safe, stay warm, and here's to a great 2026.



Respectfully,

Ben Brooks

President, Wisconsin Wastewater Operators Association 

Clarifier deadlines 2026

Issue	Deadline
April	March 13
June	May 15
September	August 14
December	November 13

Fond du Lac Regional Wastewater Treatment & Resource Recovery Facility (WTRRF)

Facility Mission

The City of Fond du Lac WTRRF has a mission to operate and maintain the regional facility in a cost-effective manner, producing effluent water that achieves and exceeds permit requirements and recovering valuable resources such as energy, biosolids, and nutrients to be used in an environmentally beneficial manner. Commitment to the implementation of projects, programs, and processes that promote sustainability and meet the needs and challenges of wastewater treatment and resource recovery is key. The facility looks forward to continuous growth and meeting the needs of all municipal customers.

History/Background

Located in central Wisconsin and originating in 1913, the City of Fond du Lac WTRRF began to treat wastewater by simply screening and settling solids before pumping effluent into the Fond du Lac River. While the location remains the same, every aspect of this facility has been improved with major facility upgrades occurring in 1928, 1949,



Fond du Lac Regional WTRRF overview

1964, 1975, and 2008. The facility now receives domestic flow from approximately 65,000 residents, including 13 communities surrounding the city, otherwise known as Outside Sewer Groups. Design annual average flows are 9.84 MGD, although flows can range as low as 4 MGD in

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winter months and upwards of 60 MGD in wet weather events. Along with residential and clear water flows, Fond du Lac has several industries. Approved in 1984, an industrial pretreatment program was implemented to keep toxic and non-compatible pollutants out of the sewer system. As of today, there are ten industries in the program, including manufacturing, dairy, metal finishing and chroming, and cardboard manufacturing.

Collection System

The City of Fond du Lac owns, maintains, and operates 17 sanitary stations and 19 storm stations. Due to an aging collection system, a high groundwater table, and predominantly clay soils, inflow and infiltration (I/I) have been an issue for the facility and community. To address these concerns, the city has spent a significant amount of time identifying and repairing I/I contributions, including sanitary main and lateral replacements, wet weather

televising, dye testing, smoke testing, bagging and flooding, manhole repairs, modelling, public education, and private side inspections/enforcement of existing codes. In recent years, it has moved towards working to address issues on private property.

Treatment Facility

Preliminary treatment consists of influent pumping, pH monitoring, mechanical fine screens, grit removal, and grit washing. Following preliminary treatment, there are two co-thickening primary clarifiers where primary solids and waste-activated sludge (WAS) join before anaerobic digestion. Secondary treatment consists of conventional activated sludge with three, three-pass aeration basins originally designed with two zones for nitrification and denitrification to meet a lower (6mg/l) variable ammonia limit and chemical phosphorus removal with an effluent limit of 1mg/l. Initially equipped to operate via DO

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control in the second pass to remove ammonia and BOD, since the 2008 upgrade, Fond du Lac has faced changing phosphorus limits, creating a push towards enhanced biological phosphorus removal (EBPR). Process changes



Aeration basins

include extension of anoxic zones, strategic diffuser grids, supplemental carbon addition, utilizing machine learning with historical data, and implementing ammonia-based aeration controls. Extending the anoxic zones and blocking

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off the mixed liquor recycle entry point to make a true anaerobic zone, which cascades down into the aerobic zone, has greatly benefited performance. By adding MOV and cascade logics to the control, this now low DO system can fine-tune air supply based on ORP, ammonia, and DO instrumentation to provide the aeration required at the lowest pressure loss and energy consumption. Currently, over 90% of influent phosphorus is removed biologically. Ortho phosphorus is continuously monitored in the MLSS and effluent. This controls chemical dosing on an as-needed basis. The remaining stages of treatment post aeration include secondary or final clarification and UV disinfection prior to the effluent discharging into Lake Winnebago. Around 2.5 billion gallons of water are treated and discharged annually.

Fond du Lac has four anaerobic digesters running at mesophilic temperatures. Around 50 million gallons of co-thickened primary sludge and high-strength waste are treated annually to a Class B biosolid before centrifuge dewatering. Fond du Lac produces roughly 11,000 wet tons of biosolids per year to be land applied following the standards put in place by the EPA and WI DNR. In 2018, Sidestream Deammonification was constructed to reduce

ammonia in the centrate, which accounted for roughly 40% of total plant loadings to the facility. This granular biomass provides simultaneous anaerobic ammonium oxidation and denitrification, allowing for 90% removal in a relatively small footprint. These efforts were implemented to reduce competition of denitrifying bacteria over phosphorus-accumulating organisms (PAOs) to improve biological phosphorus removal. In 2025, WTRRF staff harvested over 20,000 gallons of granular biomass to be a seed source for a start-up in Brazil.

Fond du Lac produces roughly 85 million cubic feet of biogas annually through anaerobic digestion. Methane gas is treated for H₂S, siloxane, and moisture removal before fueling a boiler and a 450-kW combined heat and power generator. Energy savings from this generator contribute to over 3 million kW of renewable energy produced, or around 40% of total annual power, lessening the need for utility power.



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Future of FDL WTRRF

Fond du Lac WTRRF has been participating in the MDV since its inception. This has enabled them to optimize biological and chemical treatment and decide how they will achieve their future phosphorus 6-month mass limit of 17.4 lb/day based on an effluent concentration of 0.19 mg/l. To ensure phosphorus compliance in the next permit renewal, Fond du Lac is participating in Water Quality Trading (WQT). The WQT Plan identifies and quantifies phosphorus and TSS water quality trades on agricultural property owned by the Fond du Lac County Airport. Through modeling and implementation of best management practices (BMPs), the city will acquire the necessary credits needed during times when I/I contributions create situations where compliance could be challenging with

2025 Annual Average Data

Mass (lbs)	BOD	TSS	NH3	TP
Influent	21,144	15,203	1,569	357
Effluent	473	462	34	17
% Removal	98%	97%	98%	95%

treatment alone. Field conversions to native grasses and the installation of grass and rock-lined waterways to address significant in-field gullyng have taken place, and vegetation

is established. Beginning in 2025, the Fond du Lac WTRRF began construction to produce renewable natural gas



Fond du Lac WTRRF employees

(RNG) and, through the installation of a biosolids dryer, produce Class A Exceptional Quality biosolids. Substantial completion won't occur until later this year.

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Biogas purification will occur via a media-based system removing H₂S, moisture, siloxane/VOC, and utilizing a series of membranes to remove CO₂. The gas will then be pressurized, monitored for quality, and injected into the local pipeline. Doing so allows the WTRRF to capture and utilize virtually 100% of the methane gas produced while also bringing in revenue.

The WTRRF will also begin construction of a thermal sludge dryer, increasing the percent solids of biosolids from around 23% to over 90%. In this process, Fond du Lac will achieve Class A Exceptional Quality biosolids, creating more options for disposal. The main drivers are volume reduction and eliminating disposal costs.

The Next Generation of Wastewater Personnel

The City of Fond du Lac has recently emphasized getting involved in local high schools. The WTRRF has been doing just that for many years. Staff give back through plant tours and classroom presentations to educate and promote wastewater treatment and the many career opportunities available. Another means to give back is through

involvement in a youth apprenticeship (YA) program. Many high schools around the state have an affiliation with a youth apprenticeship program. They likely already have a career pathway in water resources. The Fond du Lac WTRRF has been involved in youth apprenticeships for 4 years now.

The YA is a part-time position that provides them with on-the-job training. It begins in the summer and continues on a limited basis throughout the school year based on their school/work availability. It starts as a job shadow and can easily turn into taking on more responsibility once trained. The goal is to make these high school students aware of this amazing field before they latch onto something else because they weren't aware of it, didn't understand it, or didn't realize how many skill sets are involved in the work we do. These apprentices could further their education or get hired directly following the youth apprenticeship program.

We need applicants, preferably those with experience and a passion for clean water and environmental stewardship. That's a lot to ask of applicants who don't have a clue about what we do and how we do it. 🌍

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Beloit's Water Pollution Control Facility completed facility-wide upgrades, including the conversion from chlorine to UV disinfection and biosolids drying to improve efficiency, safety, regulatory compliance, and reduce hauling needs.

DONOHUE

How can the Green Tier Program help me?

Adebowale Adesanwo, wastewater compliance engineer

Have you been running your wastewater treatment plant smoothly, only to return the next day and find that your clarifier is green? On another day, as a Packers fan, seeing green may bring joy and the hope that this is the year!!! This green, however, leads to the thought of *“Am I going to have to deal with the DNR again, and explain for the nth time this year why I exceeded my permit limits?”*

Or you are eager to enter your sample results. So far this year, results have been below permit limits, and it's just going to be another day of plug-and-play into the switchboard to ensure I get my report in on time. Only to find out *“what?! I exceeded my limits; it must be the lab's fault”*. Well, it turns out that it is not the lab's fault, and once again, you have to deal with the DNR.

This article is here to help you see how the Green Tier Program “may” help you out with a little something called: The Green Tier Legacy Communities (GTLC). But first, a little bit about the Green Tier Program.

As listed on the Green Tier DNR website,

The Green Tier program empowers organizations to align their business objectives with environmental performance by providing a voluntary platform for collaboration with the Wisconsin Department of Natural Resources (DNR).

The keyword here is collaboration. Participating in the Green Tier Program gives you access to a wealth of resources (including other organizations and volunteers) whose goals are to help participants improve and continue caring for the state's environment and waters.

Well, that is all fine and dandy, but how does that help me with the green goo that is going over my clarifier weir?

This is where the Green Tier Legacy Communities (GTLC) come in.

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The GTLC is a coalition of local governments and municipalities like yours, focused on leading environmental initiatives that can be shared with other communities. Becoming a participant can deepen your knowledge by providing a group to turn to for support. They understand how to operate a wastewater treatment plant, may have experienced similar issues,

and may have solutions to share with you. They can also offer insights into specific aspects of the business, share engineering resources that worked for them to address their issues, and provide recommendations on sewer use ordinances and related matters.

For real-life examples, consider Eau Claire, a member of the GTLC, where Augusta needed to dispose of its sludge

and land spreading was unavailable. Eau Claire accepted Augusta's sludge for a fee, of course, for further treatment ... case closed.

Or La Crosse, which provided seed sludge to an activated sludge process in need. Running low on spare parts? Consider Wausau, which has a large inventory and has in the past been willing to lend them out, provided replacements are ordered promptly. These are just a few examples of the many opportunities that you can gain from becoming a member.

If you would like to participate, become a member, or get more information, please visit www.dnr.wi.gov, click on the search icon, and enter either "Legacy communities" or "Green Tier".

Ask the DNR!
Have a question you'd like to ask the DNR?
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Northwest Region WWOA Ops-to-Ops recap – Rice Lake, Chetek, and Bloomer

The Northwest Region of WWOA held its fall Ops-to-Ops meeting on September 25th, with a full day of plant tours and peer-to-peer learning across three outstanding facilities in northwest Wisconsin.

City of Rice Lake Wastewater Treatment Plant

The day began in Rice Lake, where attendees were welcomed by Superintendent Corey Margetta and plant staff Andrew Zabel, Jeff Hudson, Kolter Krovosa, and Luke Fleming.

The Rice Lake Wastewater Treatment Plant is designed for 2.2 million gallons per day (MGD) with an average actual flow of 1.5 MGD. In addition to municipal wastewater, the plant receives about 400,000 gallons of hauled-in waste daily, highlighting its role as a regional treatment hub.

The facility has a long history of innovation. Its first major upgrade in 1982 converted the original trickling filter plant to a conventional activated sludge system. In 1997, the city upgraded to a biological nutrient removal (BNR) process and improved solids handling and storage. The 2012



Rice Lake crew

upgrade brought further improvements including primary clarification, enhanced septage receiving, and biological phosphorus optimization.

Looking ahead, Rice Lake plans to convert from chlorine disinfection to UV, further modernizing operations and improving safety.

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APPLICATIONS ARE OPEN!

WWOA Youth Apprenticeship Involvement Grant

Help Build the Next Generation of Wisconsin's Water & Wastewater Professionals

WWOA is offering a Youth Apprenticeship Involvement Grant to provide funding to one WWOA member municipality to support participation in the Wisconsin Youth Apprenticeship Program during the 2026–2027 school year.

WWOA doesn't want cost to be the reason not to participate. This grant helps offset a portion of youth apprentice wage costs while providing students with hands-on experience exploring careers in water and wastewater operations.

Selected facilities must demonstrate the capacity to provide meaningful, supervised, hands-on experience aligned with water and wastewater operations and the core competencies outlined in the Water Resources Career Pathway.

Grant Participation Requirements

- Commitment to 450 paid Youth Apprenticeship hours
- Program term: May 2026 – August 2027
- Employer participation required
- Payroll documentation required for reimbursement
- Up to two disbursements, maximum reimbursement capped at \$3,000

Grant Timeline

- **APPLY NOW!** Visit the [WWOA website for more information > YA Grant Webpage](#)
- **Application Closes:** March 20th, 2026
- **Grant Awarded:** April 6th, 2026
- **Use of Funds:** Beginning Summer of 2026–2027 school year (two budget cycles)

Join Us in Shaping the Next Generation

Every operator once had someone who took the time to teach them the ropes. Now it's your turn to pay it forward.

Interested in hosting a Youth Apprentice or learning more? Contact:

Cody Schoepke – cschoepke@fdl.wi.gov

Brooke Klingbeil – bnklingbeil@gmail.com

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City of Chetek Wastewater Treatment Plant

The next stop took the group south to Chetek, where Dan Knapp, Rod Rhodes, and Dustin Davis welcomed attendees to their brand-new \$26 million sequencing batch reactor (SBR) facility.

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Chetek tour



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The new plant replaces the community's aging rotating biological contactors (RBCs) and was constructed to meet new, more stringent phosphorus limits. Chetek's WWTP treats an average of 175,000 gallons per day. Treatment begins with fine screening, followed by SBRs, with solids conveyed to reed beds planted with native phragmites for natural dewatering. Effluent is disinfected by UV, polished through sand filters, and discharged to the Chetek River.

City of Bloomer Wastewater Treatment Plant

The final stop on the Ops-to-Ops road tour led participants to the City of Bloomer, where they were greeted by Bill Miller and Justin Kettner.

The Bloomer WWTP treats an average daily flow of 300,000 gallons per day. Originally built as a trickling filter plant in 1938, Bloomer's facility has evolved through multiple upgrades between 1970 and 1998, ultimately converting to an oxidation ditch system. More recent improvements include biosolids handling upgrades in 2017 and the addition of tertiary filtration in 2021.



Bill Miller and Justin Kettner Bloomer WWTF

The dedicated staff of six not only manage wastewater treatment but also oversee 11 lift stations and four municipal drinking water wells, reflecting the community's integrated approach to water and wastewater management.

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If it involves water, MSA has the expertise to address it.

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Throughout the day, operators exchanged ideas, shared challenges, and learned from each facility's unique treatment processes and operational strategies. The Northwest Region demonstrated how collaboration, innovation, and professional pride define Wisconsin's wastewater community.

A special thank you to the cities of Rice Lake, Chetek, and Bloomer for opening their doors and sharing their time, experience, and expertise to make this Ops-to-Ops event a success. 🌟

Sportsman's Board



Ben Propson
2025 Muzzleloader, 12 pt buck.
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Register now for Spring Sporting Clays. Deadline April 17, 2026

Thursday, April 30th, 2026
Wild Wings Sportsman's Club
N865 County Rd W
Campbellsport, WI 5310

Check in @ 11 Lunch at Noon
Shooting to immediately follow

Cost \$70

50 target shoot

Bring your own shells or purchase at Wild Wings

Cash bar and door prizes after shoot!

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Please list if you have a group you plan to shoot with.

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No refunds unless course is closed by decision of the club

Online Registration Deadline is April 11th

Questions contact: bpropson@village.kewaskum.wi.us



Back for 2026!

WWOA SPORTING CLAY TRIATHLON

There are three WWOA shoots throughout the year. Participation in all 3 events qualifies each shooter for awards to be presented at our Annual Conference with one person named:

WWOA Sporting Clay Triathlon CHAMPION

Champion to be based on greatest total birds broke between all three events. There will also be a random drawing of all shooters who competed in all three events for a prize.

EVENTS:

Spring Sporting Clays Wild Wings April 30th
Ryan Geifer Memorial Location and time TBD
Annual Conference Location TBD October 13th

*2025 Sporting Clay Triathlon Champion
Ben Propson*

If paying online please email a copy of your registration to bpropson@kewaskumwi.gov. Credit Card Payment and registration online through WWOA website available, however mailed registration with check can be sent to address below:

Check Payable to WWOA

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Village of Kewaskum attn. Ben Propson

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Kewaskum, WI 53040

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Email _____
Names of Shooters _____

Total Paid @ \$70 each _____



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Let's Solve Water

Northwest region hosts hands-on training in Owen

On July 31, 2025, Northwest Region organized a hands-on training session held in Owen, WI, focused on practical maintenance skills for water and wastewater operators.

The morning session featured hands-on lift station pump preventative maintenance training led by Paul Ludwig



and Steve Meyers of William Reid. Participants received practical instruction on inspection, routine maintenance, and preventative practices aimed at improving pump reliability and extending equipment life.

The afternoon session shifted to hydrant maintenance, beginning with a presentation by Bud Keyes, followed by

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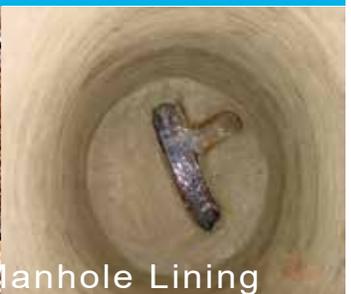
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a hands-on hydrant rebuild demonstration led by Terril Tolzien of American Flow Control. Attendees had the opportunity to observe and participate in proper hydrant maintenance and rebuilding techniques.

A total of 16 operators attended the training, gaining valuable, field-applicable knowledge they can take back to their systems. 🌐



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Share your ideas with others!

How do you replace a valve on a biogas line that has failed? Thanks to an operator, we know you could inject shaving cream upstream from the valve to hold back the biogas until the valve can be replaced. This innovative idea came from Beloit.

I bet every operator has that one innovative idea that he or she uses almost everyday. Operators are some of the smartest and most innovative people I know. Maybe it is something you do to help with the treatment process. Maybe it is something you do to make maintenance easier. No matter what it is, your fellow operators want to hear your ideas. Maybe something you do might help someone else.

Here's what I want you to do – email me your idea. Or you can call. I'll draft a short article on your behalf about your idea. You approve the article, and we'll include it in an issue of the Clarifier. What could be easier?

Jon Butt, Clarifier Editor c/o Mead & Hunt
6737 W. Washington St., Suite 3500
Milwaukee, WI 53214 414-755-1149
Jon.butt@meadhunt.com



about the Sportsman's board

Have a picture for the Sportman's board?

Send the picture and a description of where you were hunting or fishing to doralee.piering@energenecs.com.

We will do our best to put it in the next available issue of the Clarifier.

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March 17

**Holiday Inn Hotel & Convention Center
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The Symposium has a tradition of providing a forum for discussion and information exchange by assembling speakers who are recognized experts in their respective fields.

Registration fees:

On/Before March 11th: \$90 - After March 11th: \$100

To register:

<https://www.wwoa.org/events-awards/events-training-calendar/2026-spring-biosolids-symposium>

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