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OPERATORS ASSOCIATION

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W.W.O.A.
CONFERENCE**

October 13-16, 2026
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Green Bay



AERIAL VIEW OF
JUNEAU WASTEWATER TREATMENT PLANT, JUNEAU WISCONSIN

The Clarifier

VOL. 265 APRIL 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.

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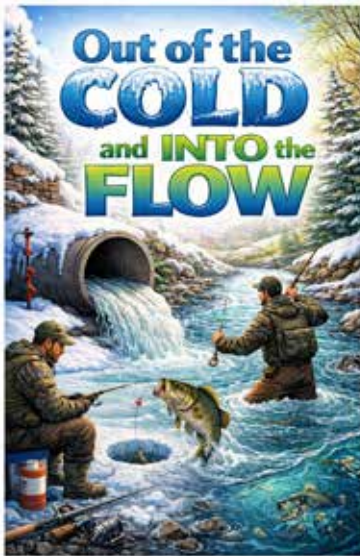
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Presidents message: OUT of the COLD & INTO the FLOW



As we begin to thaw out from another classic Wisconsin winter, it's safe to say we've officially entered that time of year where anything goes—snow one day, sunshine the next, maybe a little rain or all three before lunch break. If nothing else, Wisconsin weather keeps us on our toes.

With the transition into spring, many of us are shifting gears from winter operations

into the busy season ahead. Snowmelt, rain events, and fluctuating groundwater levels bring increased flows and the ever-present challenges of inflow and infiltration. Now is the time to get ahead of it by checking pumps, inspecting lift stations, and making sure equipment is ready to handle what spring throws our way. A little preparation now can go a long way in preventing bigger issues down the road.

Spring also serves as a reminder of just how critical the work we do is, often without much recognition. As communities come back to life after winter, people are out enjoying warmer weather, never giving a second thought to what happens after they turn on a tap or flush a toilet. And that is exactly the point! The dedication and professionalism of wastewater operators across Wisconsin ensure that everything works as it should—protecting public health and our state's natural resources every single day.

Behind the scenes, there is also a great deal of work happening within our own Association. The WWOA Board of Directors (BOD) has been busy planning for the **60th Annual WWOA Conference**, which will be held in Green Bay, Wisconsin, October 13–16. The Technical Committee met on March 13, 2026, to develop what promises to be an excellent lineup of technical presentations that you will truly enjoy.

Hotel accommodations have been selected, and I encourage you to make your reservations early. You can view the list of available hotels on the WWOA website. Booking your hotel room reservation in advance will help ensure you can stay at your preferred hotel.

The Board of Directors works tirelessly behind the scenes to organize these outstanding events for both members and non-members alike. In addition, each Region and its committees dedicate significant time and effort to planning their respective regional meetings. It's not an easy task, but strong leadership and collaboration across the organization make it possible.




Both the BOD and Regional leadership are also responsible for managing their respective budgets, ensuring that finances are accurate and accounted for down to the penny. There is truly a tremendous amount of work that happens behind the scenes.

The next time you see a member of the Board or a Regional Committee, please take a moment to thank them for their dedication and hard work. Their efforts are what make the WWOA's high-quality events and programming possible year after year.

As we head into the months ahead, I encourage everyone to stay proactive, look out for one another, and take pride in the essential role you play in your community.

Thank you for everything you do, day in and day out. Here's to a safe, productive, and hopefully slightly more predictable spring season.

Respectfully,
Ben Brooks, President,
Wisconsin Wastewater Operators Association 

Juneau Wastewater Treatment Plant

Alex Smudde, Water/Wastewater Superintendent, Juneau Utilities

Juneau is a city of 2658 people located in southeast Wisconsin. Centrally located about an hour from Milwaukee, Madison, and Appleton gives us easy access to big city services while maintaining a rural atmosphere. Sanitary sewer installations in Juneau date back to 1921, and the original wastewater treatment plant blueprints are dated from 1945. Serving as the Dodge County seat, Juneau has always had a strong institutional presence to include the county jail, courthouse, and long-term care and rehabilitation center. We also have a disproportionately large industrial presence contributing to our sanitary sewer system. In 1982, Juneau decided to build a new WWTP one mile south of the city limits. This was needed due to changes in effluent limits and additional flow causing us to outgrow the original facility. This new Donohue designed plant cost \$4.3 million at the time which was majority funded through Clean Water Act grants. This facility included two circular package plants, sludge drying beds, and effluent sand filters. Upgrades in 1998 added chemical phosphorus removal equipment, and in 2008 converted sludge drying beds into excess flow equalization basins. As years went by, all of this new equipment had begun to age.

In 2021 it was finally determined that most equipment had reached the end of its practical service life. It took many meetings, plant tours, and engineering reports to convince the Utility Commission that a major upgrade needed to take place. Their biggest concern to moving forward being how are we going to fund it?

Getting Started

Juneau has one major industrial wastewater customer that we have worked with for decades. This customer focuses on processing brewery waste products into dry seasonings. In 2025 they discharged 0.32 MGD, compared to our overall total influent flow of 0.54 MGD. Operating their own pretreatment facility helps keep their discharge at a BOD of 12 mg/L, TSS of 14 mg/L and total phosphorus of 1.8 mg/L on average in 2025. On occasion, accidents can happen on their production floor that overwhelm their pretreatment plant. We have seen BOD's of over 400 mg/L last for days. When this happens, we need to be ready to take up the slack and maintain effluent quality.

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continued from page 4

Maintaining the ability to make up for these hiccups requires us to reserve a considerable amount of treatment capacity 'just in case'. After countless meetings between engineers, accountants, lawyers, and corporate representatives, we were able to come to an agreement with defined flow and nutrient limits to be reserved and kept available for their discharge. This reservation came with a financial obligation to fund a portion of our upgrades. Once this contract negotiation was complete, we were able to start deciding what this upgrade was going to all entail.

Key Considerations

Lack of flexibility in treatment. The existing package plant configuration could only turn one whole plant on or off at a time. Operators wanted the ability to utilize sludge storage, clarifiers, and aeration basins independent of one another.

Lack of control. Oversized blowers ran constantly at 100% speed. Everything within the package plants was driven by air. This included non-adjustable airlift RAS and WAS pumps. Influent was the only metered flow, making many

continued on page 8

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continued from page 6

operational calculations impossible to determine. Aeration basin DO was not continuously monitored and grabs were typically in the 6-8 mg/L range.

Failing aeration piping. Operators were able to observe air bubbles seeping through the lawn and parking lot whenever it would rain. This was a talking point at Commission meetings for years, but the cost of its replacement was always too high.

Aging equipment. Breakers failing. Leaky Roof. Broken underground conduits. Bubble tubes and mercury switch sensing equipment. Relay and timer controls. Minimal SCADA control. These all presented challenges to keeping things running smoothly.

Design

We worked with Matt Castillo of MSA Professional Services as the lead process engineer. This design was particularly challenging due to Juneau Utilities losing two wastewater superintendents during the heart of the design process. Matt and MSA worked through each transition and helped keep everyone up to speed, while being attentive to natural

changes in vision with each new leader. Ultimately, two different options were developed and presented to the Utility Commission to address our concerns.

Option 1: Add a splitter box to allow us to mix and match which clarifiers and aeration basins were online. This option would also include replacing the leaking airline, variable speed blowers, and building additional sludge storage. This was presented with an estimated cost of \$10.0 million dollars.

Option 2: Build a new oxidation ditch with an anaerobic selector to try and utilize biological phosphorus removal. Existing aeration basins would be retrofitted into aerobic digestors and sludge storage. This was presented with an estimated cost of \$11.7 million dollars.

Both options would include a new chemical building, upgraded RAS/WAS pumping, and many equipment replacements and building repairs.

Ultimately, the Utility Commission felt that the oxidation ditch would offer a better long-term solution, being

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purpose built for exactly what we needed. The potential for biological phosphorus removal along with expected sludge reductions in moving to an extended aeration process were beneficial factors as well.

Construction

The project was bid in January of 2023 and Staab Construction was awarded the contract. They broke ground in April and continued through July of 2025. Over the course of 2 years and 51 change order items, the project was completed within 1% of the original bid amount.

This was the first time any of our operators were a part of a project this size and we all learned a ton along the way. Primarily, we learned how to be flexible and to think outside of the box when faced with unique challenges. Having experienced operators with a thorough knowledge of how the plant works, and wastewater in general, helped us



Oxidation ditch construction

navigate through these day-to-day challenges. Some of these challenges included: building a temporary airline

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after complete failure three months prior to oxidation ditch startup, 5" flooding rains when we only had one compact



Temporary air piping



Vulcan step screen

plant available for treatment, and manually automating a step screen after PLC failure a year prior to its replacement.

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Working through these issues taught us what we were capable of ourselves, what we could make work in a pinch,



Digester sludge storage

and how to effectively collaborate amongst our whole team to come up with creative solutions. I am thankful for such an excellent team of operators, construction foremen and crew, project managers, and supporting engineering staff that helped us to get through this project smoothly.



Chemical room

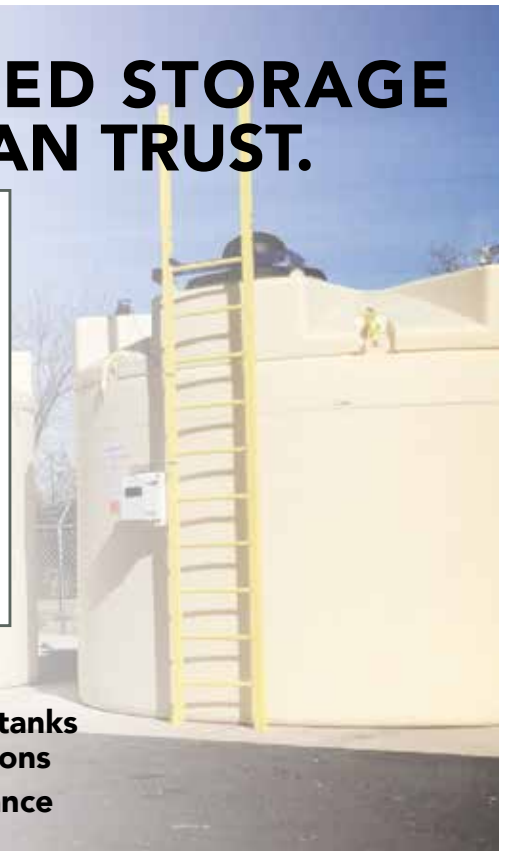
Result

Now that the project is complete, we are able to enjoy a plant that has all the bells and whistles we could have asked for.

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continued from page 13



New building heat boilers

We are finally able to monitor and control all the parameters that you read about in the wastewater textbooks. With this new control, we continue to learn how the new plant likes to run through the changing seasons. We have had some struggles along the way, including nitrification issues during cold weather, and then filament issues as the weather warms. However, when everything is running well, we have produced the cleanest final effluent that I have ever seen. I am confident that once we find the exact roadmap for what works best with this new plant throughout the seasons, we will enjoy many years of high-quality wastewater treatment.

Future Considerations

Our WPDES permit renewed in 2024, during the heart of construction. In this new permit, we were given a schedule of compliance for effluent E. Coli limits. This schedule requires disinfection to be operational by April



Group photo

of 2029. Juneau did initially disinfect from 1982 to 1988 with chlorine gas when the plant was new. It was then discontinued because the receiving water was classified as a limited aquatic life stream, not requiring disinfection. The DNR has since changed their interpretation of NR210 to state that disinfection requirements may no longer be based off of water quality classifications. They suggest that hydrologic classifications are more important in determining the risk to the public. Given that we discharge to an effluent ditch, overall flow in this receiving water is dominated by our discharge. This, in turn, leads to an increased risk of the public coming in contact with water having potentially elevated E. Coli levels. To comply with these new limits, we will be starting the upgrade process all over again with UV disinfection to be installed in 2027-2028. With everything we learned from the last upgrade, we expect the next project to go smoothly! 🌱

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. 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
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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.

WWOA upcoming events

April 29

Operator Competition Field Experience Day

April 30

Spring Sporting Clays

May 5

Southern Regional Meeting

June 4

Classic Collection System Seminar

June 11

Wastewater Microscopy Training

June 29

Operator's Golf Outing

July 2

Operator's Fish Off

July 30

Northwoods Collection System Seminar

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Scholarships available through WWOA

Several scholarships are awarded each year to assist full-time students enrolled in degree programs relating to the field of wastewater treatment and water resource management. Click the links below to view the information sheet for each available scholarship. Each sheet will contain information on the application process, eligibility guidelines, selection process, and award timeline for that scholarship. A college or university student can submit one application packet to be considered for all the available scholarships. If the student is selected for more than one opportunity, the scholarship committee will recommend the student receive the scholarship of greatest dollar value.

Annual application deadline for all scholarships is July 1.

The scholarship program has grown over the years due to the increasing demand for professionals in the wastewater treatment field and the dedication of those sponsoring scholarships.

Member partner Crane Engineering generously sponsors a \$2000 scholarship each year.

WWOA North Central Region is sponsoring the \$2000 Ryan Giefer Memorial Scholarship.

Member partner North Central Laboratories generously sponsors one \$5000 scholarship annually. The NCL scholarship is paid out over two academic years. (\$2500 the first year, and \$2500 the second year)



WWOA sponsors three \$2000 scholarships annually.

The WWOA is now offering a scholarship for students enrolled in a degree or certificate program in the field of wastewater treatment or water resource management. This is a \$1000 scholarship and is available to full and part-time students.

New this year, member partner Donohue & Associates is sponsoring a \$2000 scholarship to students in a 4-year degree program directly related to engineering or a wastewater related track.

Please direct any questions to: scholarships@wwoa.org

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Operator's Fish Off

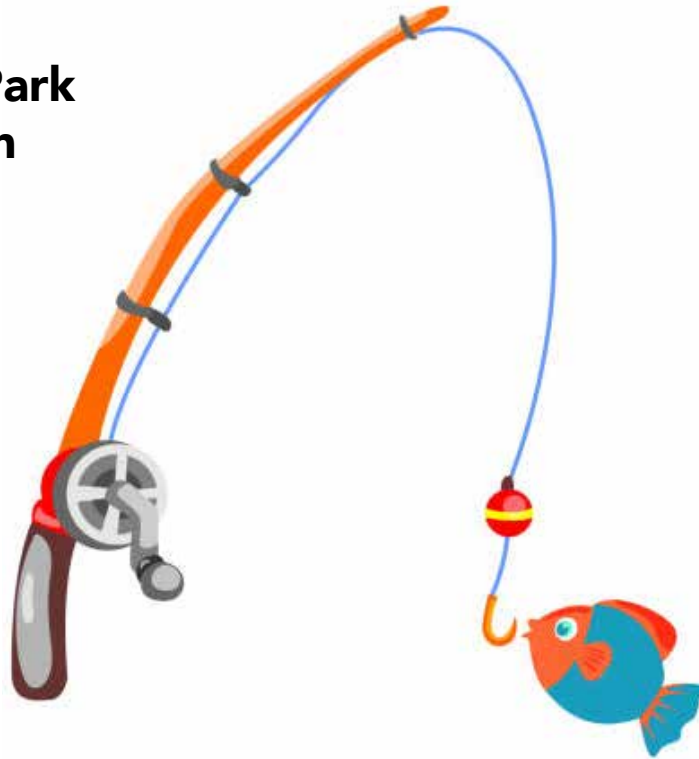
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WWOA helps fund your goals for technical school or college

The purpose of tuition aid is to encourage the continued education of members of WWOA through attendance at advanced seminars related to wastewater treatment or for credit courses taken at a technical school or college while working towards a degree related to the wastewater/water industry.

One type of tuition aid offered is a \$1000 reimbursement for courses taken related to a member’s career in wastewater. Applications are due in July 1 and the award checks are sent out in September. A member may apply for this reimbursement one time per year.

The second type of tuition aid is a \$250 payment available at the beginning of each year. This type of aid is meant to provide funds to a member whose employer may not cover certain training costs. This aid will be awarded as needed any time after the 1st of the year. Additionally, the Southern Region offers two \$250 tuition reimbursements to its members, and Southeast Region offers one \$500 tuition aid to its members.



The application for both types of WWOA tuition aid and both regional tuition reimbursements are available on the WWOA website. Questions can be e-mailed to scholarships@wwoa.org



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Ask the DNR: You have questions, we have answers.....

By Matt Claucherty

A question from municipal public works official:

My facility is undergoing a major upgrade next year. The biggest component of the upgrade is installation of a disc filtration system at a 4.2 million dollar price tag. Sewer rates are being raised accordingly. We are doing this to meet WDNR's phosphorus standards for our stream, which require us to reduce our annual phosphorus load by 240 pounds. After reading more details in the TMDL document, we were concerned to learn that our stream has an annual in-stream phosphorus load of about 12,845 lbs/year, most of which originates as agricultural nonpoint source runoff. This major undertaking for our city appears to be a drop in the bucket. Are farms going to be held to similar standards?

Answer from DNR:

Phosphorus and other forms of nutrient pollution have risen to the top of the list as one of the most pressing water quality problems in all midwestern states. Excess phosphorus in waterways is recognized as the main driver behind algae blooms, anoxia-related fish kills, nuisance aquatic plant growth, and other types of impairment. While



Overgrazing and unrestricted access of livestock to surface waters are two examples of agricultural practices that result in nutrient pollution. Photo: River Alliance of Wisconsin

legal authorities under the Clean Water Act have been effective at stemming the worst types of industrial pollution, progress has been slower on the nutrient pollution front. This is largely due to the fact that phosphorus pollution originates from both point sources and nonpoint sources. Wisconsin's 2013 Nutrient Reduction Strategy evaluates sources of phosphorus pollution citing a baseline of 77% nonpoint and 23% point source in origin statewide.

In 2010, WDNR adopted numeric nutrient criteria for total phosphorus, which is the driver behind the low-level phosphorus effluent limits for point sources mentioned above. During the same 2010 rulemaking process, WDNR also strengthened the agricultural performance standards and prohibitions in chapter NR 151 of the Wisconsin Administrative Code to better address agricultural nonpoint source runoff.

The NR 151 standards and prohibitions that apply to agricultural cropland and livestock operations are summarized within this DNR document: [Wisconsin runoff rules: What farmers need to know \[PDF\]](#). Agricultural cropland and livestock operations in Wisconsin are expected to comply with the NR 151 standards and prohibitions. Many counties have adopted the NR 151 agricultural standards and prohibitions via local ordinances to address livestock and some cropland operations. In addition, all livestock producers considered a concentrated animal feeding operation (CAFO) must operate under a DNR issued permit and are required to comply with NR 151. Any cropped fields receiving manure from permitted CAFOs are also required by the permit to comply with NR 151.

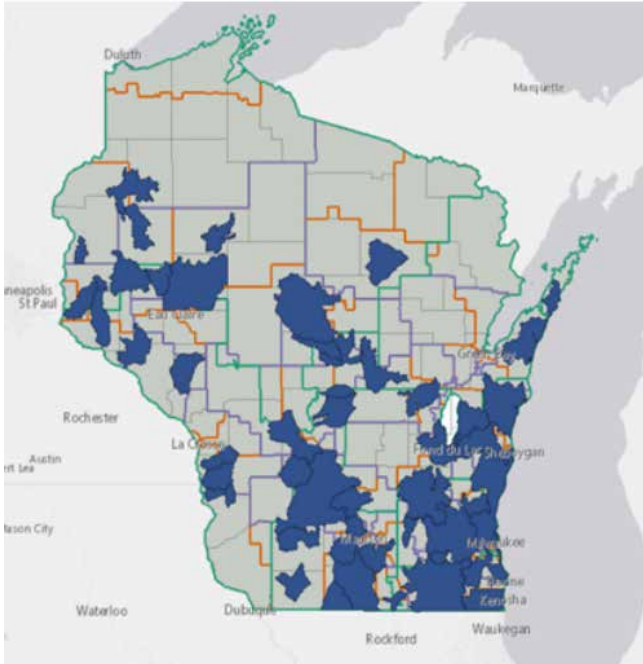
The NR 151 performance standards and prohibitions were established to set some baseline protections for reducing livestock and cropland runoff and protecting water quality. Under NR 151, offers of cost share are often required to compel an existing agricultural producer to comply with the standards. However, once a producer is in compliance, they must continue to comply with the performance standards, without further cost sharing. CAFO permit farms are not eligible for NR 151 cost sharing.

Some of the NR 151 performance standards and prohibitions may not be adequate to meet TMDL load allocations and associated reductions for nonpoint sources. If this is the case, NR 151.005 provides DNR the authority to promulgate more stringent and site-specific agricultural performance standards, but they must be adopted by the governor and state legislature before producers are required to meet them. In 2018, the DNR successfully adopted more stringent performance standards for agricultural livestock operations that apply manure on fields with shallow fractured bedrock located in counties along Lake Michigan. Both CAFO and non-CAFO size farms are subject to the NR 151.075 silurian bedrock standards.

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In addition to regulations that require water quality improvements occur, there are a myriad of voluntary or



Producer-led Watershed Groups are distributed across the state (watersheds highlighted in blue). Map created by: DATCP

incentive-based efforts underway that aim to improve agricultural practices. These range from federal payment programs administered by the USDA to local or state educational and grant related efforts undertaken by county land and water conservation offices. The Department of Agriculture, Trade, and Consumer Protection's Producer-led Watershed Grant Program is another Wisconsin initiative that has increased farmer participation and practice adoption to reduce agricultural nonpoint source runoff. Whether regulatory or voluntary, all tools in the toolbox will be needed to reduce agricultural nonpoint source runoff and promote lasting improvements to water quality.

Municipal wastewater treatment facilities have the option to incentivize agricultural producers to adopt water quality-friendly practices by engaging in the adaptive management or water quality trading compliance options. By successfully implementing adequate, quantifiable phosphorus offsets in the local watershed, low-level phosphorus standards can be achieved without costly treatment upgrades. Engaging with producers locally can help promote protection of water resources and even increase agricultural productivity through practices that improve soil health and reduce costly

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inputs. These win-win scenarios can proliferate a culture of stewardship amongst local producers.

Another success story involving municipal wastewater treatment is the phosphorus multi-discharger variance (MDV). Similar to the above-mentioned compliance options, this program focuses on nonpoint source offsets to compensate for excess point source discharges. DNR recently received approval from EPA to extend the program thru 2035. As part of the renewal, DNR was required to



A Grassed Waterway in La Crosse County, installed with MDV funding, prevents gully erosion from delivering sediment and nutrients to nearby surface waters.

Courtesy: La Crosse County Conservation Department

evaluate agricultural practices installed with MDV funding made available by WPDES permit holders. The results show that counties are effectively using MDV payments and in total preventing approximately 20,000 pounds per year of phosphorus from entering Wisconsin waterbodies. This value nearly offsets the excess phosphorus from municipal dischargers covered under the variance. WDNR makes each county's MDV annual reports available online at <https://dnr.wisconsin.gov/topic/nonpoint/mdvAnnualReports>.

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Attendees will receive 5.0 WDNR Wastewater Operator Certification Credits (CECs) if the attendee's Operator Certification Number is provided on forms or at the seminar, and all events attended. Partial credit for partial attendance is available. No WDNR General Septage credits are available from this seminar.

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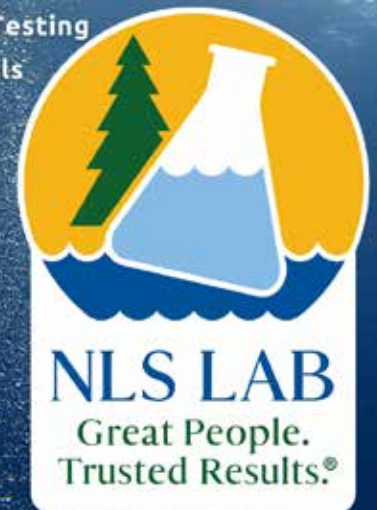
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Registration Contact: Sean Mayland
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Site Contact: Donna Christian
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dchristian@watertownwi.gov

*Organized by Collection System Committee of the Wisconsin Wastewater Operators Association
and Central States Water Environment Association - Wisconsin Section*

Collection System Committee

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Spring Biosolids wrap-up

The 43rd Annual Spring Biosolids Symposium (SBS) was held on March 17, 2026, at the Holiday Inn & Convention Center in Stevens Point, WI. The SBS event is a one-day educational event focused on current issues in biosolids and septage management. The symposium was organized by the Spring Biosolids Committee, comprised of representatives from WWOA, CSWEA, WDNR, and professional engineering consultants, working collaboratively to deliver a high-quality program.

The event featured a full day of expert-led presentations on topics such as land application practices, PFAS impacts, wastewater evaluations, septage management, biosolids drying, WDNR & legal updates, and regionalization, along with panel discussions and networking opportunities.

The event was well attended, and participants had the opportunity to gain valuable insights, share knowledge, and strengthen connections across the wastewater and biosolids industry. If you were unable to attend this year's SBS event be sure to attend next year's fabulous event.

Best Regards, The 2026 SBS Committee

WWOA Operator Competition Field Day – April 28, 2026

The Wisconsin Wastewater Operators Association (WWOA) is excited to announce the first-ever Operator Competition Field Day, taking place on April 28, 2026, at NEW Water, 2231 North Quincy Street, in Green Bay, WI, building 6.

This one-day, hands-on “show and tell” event is open to all WWOA members who are interested in learning more about participating in an Operator Competition team.

Throughout the day, attendees will:

- Experience a full walkthrough of every competition event from start to finish
- Learn detailed rules, scoring, and penalties
- Watch live demonstrations led by experienced participants and judges
- Participate in a real-time, hands-on competition run that will be timed, judged, and scored

This event is designed to be an engaging learning experience, helping remove the intimidation factor and encouraging more members to get involved.

Event Details:

- Date: April 28, 2026
- Location: NEW Water, Green Bay, WI
- Cost: Free
- Capacity: Limited to 24 attendees (excluding judges and past team members)
- Credits: Eligible for 6 WDNR credits
- Extras: Lunch will be provided, sponsored by Flygt

Judges will be present for all events, offering guidance and insight throughout the day.

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Issue	Deadline
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September	August 14
December	November 13

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We hope this event inspires greater participation and helps make the Operator Competition at the 60th Anniversary Conference the biggest one yet!

Register early—spaces are limited!

— The 2026 Operator Competition Committee

Why should you Attend?

This event is limited to the first 24 registrants and will be offered at NO COST to WWOA Members with lunch provided. 6 DNR credits are available for this event.

Event sponsored by



7:15 - 8:00 AM - Coffee and donuts

8:00 - 8:30 AM - Welcome and introduction to the Operator competition- Aaron Eichhorst & Joe Watson (New Water)

8:30 - 9:30 AM - Process Test, Wastewater Math, Wastewater scenarios, Process control- Troy Larson

(Strand& associates) & Marc Zimmerman (Janesville WWTP)

9:30 - 9:45 AM – Break - Attendees will split into groups and rotate through each event following the break

9:45 - 10:45 AM - Event Rotation #1 (Collections, Laboratory, Rotary lobe pump rebuild, Centrifugal pump rebuild)

10:45 - 11:45 AM - Event Rotation #2 (Collections, Laboratory, Rotary lobe pump rebuild, Centrifugal pump rebuild)

11:45 - 12:45 PM - Lunch Sponsored by Flygt a Xylem brand

12:45 - 1:45 PM - Event Rotation #3 (Collections, Laboratory, Rotary lobe pump rebuild, Centrifugal pump rebuild)

1:45 - 2:45 PM - Event Rotation #4 (Collections, Laboratory, Rotary lobe pump rebuild, Centrifugal pump rebuild)

2:45 - 3:00 PM - Break

3:00 - 4:00 PM - Event practice runs

Please contact Aaron Eichhorst aeichhorstwwoa@gmail.com or Joe Watson jwatson@newwater.us with any questions.

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